



The role of ICT in learning – teaching process

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ABSTRACT

Evidence indicates today in most advanced countries, most investments are made in the area of information processing and ICT as a key instrument and within the area of education in the learning-teaching process. Accordingly, how this tool is learned should be at first considered and then to understand how to teach by means of this tool intelligently and this issue assumes a thematic importance, where in this paper it has been developed by way of library studies and using researches by way of traditional and digital methods. While defining concepts pertaining to the role of ICT in the learning-teaching process, we have sought to examine their nature, characteristics, benefits and obstacles in relation to ICT within the learning and teaching process. Finally, it will be concluded that while getting schools and teachers acquainted with ICT and instruct them how to use it and intelligent utilization of this modern tool, one can make the visage of interactive learning-teaching process in the process of teaching attractive quantitatively and qualitatively and thus make it indefinite. This means in the modern world, thanks to ICT, we are faced with a new civilization based on which we can integrate our learning and teaching procedures while respecting cultural issues and objectives as well as approaches and thus attain new forms acknowledge production in more innovative forms by placing learners and instructors in the face of a large part of empowerment, innovations and upgraded information along using limited classroom times optimally.

Keywords: ICT, process, learning and teaching, learner and teacher

1. INTRODUCTION

Among the 21st century features, one can refer to the impressive development of ICT and the global information network becoming pervasive due to increased speed and quality in provision of services. This technology has penetrated into all areas including higher education which is home to the gathering and analysis of the latest scientific information (Shariatmadari, 2012). Of modern global achievements which have rendered in immense development and dynamism in the area of global education is the expansion of ICT which accounts for all-out efforts by humans while optimally using of the elements of time, place and facilities within the learning and teaching process. Looking into instructional and educational processes, particularly learning-teaching process, there are gross differences as regards the quality of information transference in the light of modern technologies, which it is impossible to neglect it from the standing of teaching and learning, whether using ICT for an instructor from a complementary facet relating to teaching methods and easing the transference of concepts or for utilizing it for expanding and developing personal and professional skills.

Information Communication Technology (ICT) are enabling technologies which include both hardware and software's necessary for delivering of voice, audio, data (high speed and low speed) videos tax and internet service from one point and associated equipment's that are connected via internet proto cold (IP) and non IP network (Aluko, 2011) the world is text becoming a global village as a result of the development in information communication technology ICT (kolu and Ekwueme, 2003). According to them the key instrument to this globalization is the computer. Computer mediate communication is increasingly becoming the fact of everyday life particularly in the developed and some developing countries. In these countries information and communication technologies have changed low people live work and play. As it could be seen ICT is changing every aspect of human life trade, manufacturing communications service, culture, entertainment, education, research, defense and global security (Abdullahi, 2013).

Researches indicate that with the emergence and expansion of ICT in education, the most basic changes in terms of quality have been achieved with regards to teachers' performance and classroom interactions. ICT, as an industrial revolution, has brought about a new era of Information and Communications followed by information society, where ICT is among its main elements. Thus, training of ICT related skills and technologies and the way they are used are among the critical necessities in this area. The duty of the Eduactional system is to plan training of ICT while considering acquaintance with information skills and the necessity with which a framework is laid to deal with IT.

One of the most meritorious entries for establishments is information. A pair of valuable information cause to increase confidence and constancy of human sources, but less information makes a decreasing part of confidence factor and resoluteness. Today, the existing data in organizations are collected, processed and kept by "IT". Formerly, information was recorded on documents & master pieces, thus, it could be appeared in one location and was available for a particular person because in that time, data and assets were a kind of limitation, but nowadays, "IT" has removed this boundary and solved this problem (Khalili & Valijani Zadeh, 2016).

The idea of ICT

Technology refers to a set of methods, procedures, tools and equipment by which a product is made or serviced are offered. It is the knowledge of doing things and an ethical process in which sources and systems are applied for resolving problems so that human control over natural environment is expanded and life conditions are made better (International symposium on teaching technology in public training, UNESCO, 1985). Any plan, innovation, tool or means which focuses attention on the interaction between instructor and the trainee in the direction of merits is an example of Eduactional technology and the application of ICT, embodying the sole epitome of educational technology, includes online and offline material and media (Fundamental development document, 2011). ICT means technologies which help us record, store process, retrieve, transfer, and receive information.

Forms of ICT

ICT (Information and Communication Technology) is referred to as a part of learning – teaching process: one as a "tool" and the other as a "medium" and the third element as "goal". In the **first form**: it is often used for organizations, management and schools; **second form**: this form does not constitute ICT relating to learning process; however using it supports learning in the classroom. An example of the application of ICT is directed at the organization and management in a student oriented supervision system and in the **third form**: the application of IT appears as a goal in such special lessons including computer education along with informatics. In this part, students get acquainted with the most important information technological inputs and outputs which are a major phenomenon hidden in the community and the aim of education is to avoid illiteracy of computers (taken from Educational technology Development Monthly).

Who is information literate?

Information literate is the one who is able to produce, analyze and combine data and to send them as well. If a student reaches thus limit of literacy, i.e. if he arrives at a stage of information literacy, he/she will become his/her own learning manager rather than being a simple consumer of information. In other words, he/she is a learner who goes beyond the simple level of learning and knotting information in the path of knowledge production process, and in addition to being as a lifetime learner, he/she will become an active learner who will be highly different from other reactive learners from the standpoint of creativity and utility, because he/she will assume responsibility and thus take strides to resolve problems independently (International symposium on teaching technology in public training, UNESCO, 1985).

Statement of the problem

In the era of knowledge, emphasis on the strong presence of modern technologies in education not only does not mean ignoring teacher in educating knowledge to students, but also the very availability of this technology can be defined by the presence of teacher. It should be pointed out that understanding them as regards learning constitute helpful guidelines which help Eduactional experts, teachers and students choose to design and produce media and specific Eduactional strategies. Experts have divided the role of ICT as regards learning in four categories: **Educational functions (teaching)**: in applying

Educational technologies which include explanatory learning manners, ICT provides phenomena, education direction and the way education is executed so that students resolve a problem and respond to questions and convert manners into practice. **Discovery function:** this means educational technologies create facilities and conditions in order that students can delve into sciences through their own available information. **Instrumental function:** this group of technologies has not been designed for schools and they are practically instrumental; however they can be applied for attaining Educational ends, e.g. word processing software and PowerPoint.

Communication function

Technology is used for establishing communications, where in that case, it includes Educational programs and tools. In such technologies, students and teachers are allowed to use other networks and technologies for receiving and sending messages, raise question and respond to questions (Zoufan & Lotfi Pour, 2001). Generally, education has two major goals: 1. Preparing the young people to acquire more studies and knowledge, 2. Preparing the young for the world of work and life. The first goal pertains to educating sciences and the second goal relates to educating technology. These two goals are interchangeable and concomitant and separating of sciences from technologies will leave undesirable effects on the quality of education (taken from Educational technology monthly, issue, 17). Looking exactly into the very process of technology development , it will be determined that Educational technology has never been a main component in the cycle o education. In other words, audiovisual education by teachers and managers and staffs will be performed skeptically. Today, educational technology is one of the six main subjects in schools. Five other subjects are: reform and reconstruction, participation by the society, teaching profession, curriculum and learning, evaluating students. Educational technology is now becoming an acceptable word at higher levels of education pyramid. Thus, the role of ICT is undeniable in plans relating to reforms and Educational reconstruction.

The teacher is responsible for what is happening in the classroom, including not only the learning process taking place but also behavior. The teacher should control the students and the activities that are supposed to lead to the realization of the learning goals. Completely undisciplined and disrupted lesson is a waste of time. In disciplined lesson learners stand a good chance of learning and enjoying the process while in an undisciplined one they do not? That is why the smooth and disciplined process in the classroom is such a crucial issue (Marciniak, 2015).

At no times, technology develops apart from the society, rather it moves along with society's development, and unless necessary infrastructures are made available for expanding technology, one cannot expect it to grow. In all educational institutions, Educational staffs must have access to necessary technologies, Necessary motives, opportunities and sources must be available so that technologies are incorporated into curricula.

Research questions

1. What are the features of ICT in learning and teaching?
2. What is the nature of ICT in the learning and teaching process in the Iranian Educational system?
3. What are the benefits of ICT in learning and teaching?

4. What discretion should schools show in dealing with ICT as regards learning and teaching?
5. What are the obstacles of applying ICT in learning and teaching process?

Significance and necessity of research

It is indispensable to incorporate electronic technologies within the process of learning and teaching, because trainees need to learn how to live in a society in which electronic media are constantly integrating them with a facilities and cultures which are different from their own cultures. IN these days, the important issue is not why these facilities are used in learning and teaching, rather the issue point is the way these necessary facilities are attained and better use of them intelligently in a world which is moving towards new international communications horizons. The power of ICT in learning will once appear when we engage in activities with a specific impression of the classroom as a central core in the learning and teaching process-far from traditional effects along with experienced experts in the art of designing and using technologies effectively. It is believed that if ICT is incorporated into the learning experiences of trainees, they can be assisted with their choices and decision making processes and thus they will learn how to resolve true problems and how to mode in a human society and to provide scenarios for their own family lives (Zoufan & Lotfi Pur, 2001).

2. REASONS

Reason 1: in the current era of knowledge, the teachers' knowledge does not suffice or that the teacher lacks the power to convey or visualize some abstract concepts being highly complicated and time consuming (teaching the volumes, and complicated graphs containing herb's growth stages, etc...) in the learning and teaching process. Here, the role of ICT needs to be focused attention in fixing problems.

Reason 2: The entrance of learners and teachers to the doorway of media literacy and the way ICT is effectively used in the direction of reforming traditional and old ways of learning by heart processes and teacher centeredness and inconsistency with functionalism expectations in removing students' misunderstandings have all made using ICT in learning and teaching areas undeniable.

Reason 3: Using five sense capacities in learning and teaching at classrooms and exit from educational time breaks and optimal use of time as well as permanent learning in formal and informal settings embody the reasons for using and applying ICT

Reason 4: To be up-to-date, the country's large community of students on the one hand and increased size of human knowledge on the other hand, have made the role of ICT stronger than ever due to the fact there is little chance for formal instruction at schools, communication and ingraining of knowledge with the emergence of creatives and production of modern and innovative knowledge in learning and teaching process.

Reason 5: the attractiveness of modern technologies in offering and communicating information and interaction in ICT in learning and teaching settings along with the emergence of positive instructors' affection are proofs for arousing the instructors' higher feelings.

3. RESEARCH METHODOLOGY

The method used in this research is qualitative and has been carried out through library note taking. A qualitative research is the one which lays emphasis on qualitative and holistic inputs as well as using hermeneutic approaches. Its measurement methods lead to description and interpretation than statistical analysis. The goal of a qualitative research is to understand an individual or an event under its natural conditions given the relevant ground. This research is wholly about values (Sharepour, 2007). From among various qualitative research methods which are survey, experimental, historic, descriptive and comparative, we use library method for examining the role of ICT in learning-teachings process.

Research scope

While examining the role of ICT in learning-teaching process, we refer to various researches and existing sources as well as ideas of experts and also experiences and observations of authors and extraction of indices and criteria pertaining to the concept under discussion for examining the role of ICT in the learning and teaching process.

Statistical population

Due the fact that this research is not field based and makes no use of digits and numbers, we are not dealing with a statistical population; however, we have a textual population which includes existing books and also researches published around the role of ICT in the learning and teaching process.

Research tools

In qualitative and library based researches, due to the fact that questionnaires are not used, library note taking method, both traditionally and digitally, as well as experiences of authors are applied.

Research administration

The research administration is library survey based on which the concept of ICT is first addressed and later, via mentioning several reasons, the position and significance of ICT in the learning and teaching process will be discussed. Thereafter, according to the analysis made by experts and results of existing researches as well as experiences of authors and field observations, the benefits, features and reservation pertainign to ICT in the learning and teaching process will be analyzed

Data analysis method

Given the fact that data analysis is in two qualitative and quantitative forms, and the quantitative method is not applied for data analysis, then, qualitative method including interpretative analysis of upgraded sources and comparison with existing researches based on concepts available are used.

4. FINDINGS

1. What are the ICT's features in education and in learning-teaching process?

In the classroom, some ICT's facilities can be applied for discussing its role in the learning-teaching process as a static source of information for finding sources needed for teaching (e.g. an aerial photo or map), dynamic interactive application and discussions between people based on the theory of constructivism consciously, relationship between class with class for engaging students for co-op in plans, communication between person and person in electronic relations, communication between person (or class) with the world and problem resolution on the internet (Zoufan & Lotfi Pour, 2001). Of other features of ICT with regards to its role in the learning-teaching process, one can refer to the following cases:

A) Developing problem solution skills: during participation in curricular activities, learners arrive at this point that ICT could provide unique opportunities for the creation of problem solutions to instructors while preparing and outlining non-linear, interactive and information situations.

B) Developing the power to decide: The ICT environment provides the learner with suitable options from the perspective of audio and vision content as well as animation, color, time of learning, choosing complementary sources of learning and interaction with other classmates within the learning and teaching process. Thus, the learner will be able to develop sense of continuous decision making.

C) Developing sense of curiosity and creativity among instructors: In order to develop the sense of curiosity among students, they should be familiarized with new situations; hence ICT allows this and serves as a learning facilitator for the issue of education.

D) Using discussion and conversation method in the discussion conference and the simulation method and role play and designing some forms of oral and written evaluations within a virtual environment: Of ICT's features, we can refer to the fact that ICT helps learning and teaching (Azimi & Seraji, 2011).

2. How can the nature of ICT's approach in learning and teaching process within the Iranian education system be justified?

As Dr. Khosrow Bagheri stated, learning cannot overshadow teaching (Bagheri, 2013). The nature of ICT as an epitome of a new civilization in the Iranian Education System has been formed in the definition of the nature of developing peoples' subjective mindset and is emerging and can be defined in the learning and teaching process of a civilization look. A civilization looking creates an intelligent setting as regards Educational revolution where in the nature and goal of education is focused attention (Mehrmohamadi, 2007).

Thus, since the Education approach and inside of which the issue of learning and teaching has been defined in the basics of the Official an General Fundamental Development Document of Education in the 2025 Horizon along with summation of value issues and integrating traditions and beliefs with modern global techniques and with an interactive communication from the teacher to the learner in an effective and constructive not destructive form in a form appropriate with values and criteria of the Iranian Education System which is a civilizing approach, it appears that this issue is justifiable and rational. Needless to say,

undesirable effects of the media environment and ICT could bring about necessary capacities for a constructive communication among instructors given an immunization approach instead of limitations within the official and general education system (Fundamental development document, 2011).

3. What are the benefits of ICT in learning and teaching?

ICT is just a piece of a large puzzle under the heading of "ways of securing and facilitating high quality Educational life at school and home" for students (Talaea, 2011). ICT results in increasing self-confidence skill among students in teaching activities and group and participatory learning via providing opportunities in the teachers' teaching style and providing communication skills between instructor and the trainee while facing the student with the skill of problem solution and through re-teaching learning curricula in which students have problems (even in online forms) and also seeking issues and discovery of solutions and vague points as well as subjective questions by way of educations and information under web. ICT addresses problem solution through subjective thinking. In fact, ICT as an interactive tool makes learning and teaching process stronger. Of other benefits of ICT, one can refer to eliminating teachers' traditional authority as an absolute source of knowledge and information and via creating education opportunities and learning chances for all, it has led to increase and promotion of abilities and access, making learning and teaching issues be of quality and diversifying learning conditions in teaching and learning conditions.

ICT plays an effective role via creating motives, deepening and expanding learning and sustaining learning as well as removing pervasive boredom and creating subjective skills for accounting (Shariatmadari, 2012). Through increasing critical thinking among learners and cooperation and participation in learning, ICT leads to an expansion of students and instructors' thinking skills; thus, ICT, via teaching social skills, brings about conditions wherein the instructor shares his/her own information with others through social communications e.g. emails, Bluetooth, Viber, What's App, SMSs and modern social networks and thus reinforces social communication anytime and anywhere based on the learner's responsibilities.

It appears the ICT provides the learner various options in terms of choosing content, time of study and learning, choosing complementary source and interaction with classmates. Hence, the learner needs to have the power to decide independently and to have continuous choices. In the ICT setting, students can strengthen their own aesthetics sense via participating in producing and representing multimedia, evaluating them and manipulating and simulation.

It looks what is formed and expansion in our country's schools is attention and appointment of technology deputies at schools and creation of a "consistent" network for schools staffs and students, which establishes suitable facilities in an interactive virtual world, ranging from awareness of school educations to questions and answers related to the learning and teaching process and complementary learning of official and unofficial lessons among the instructors and trainees. As well, lessons' electronic content as a subset of ICT can be utilized in this process. Today, in all subjects of basic and humanities sciences, one can fortunately make use of ICT's advanced tools in completing the ICT's nature in discussion of the quality and quantity of learning and teaching as well as learning professional and value based issues at schools and homes anytime anywhere via facilitating access for all to learning opportunities at the expense of eliminating limitations arising from gender, race, social and economic

success of learners within the learning process. ICT is able to develop and nurture human sources needed by the era of knowledge and information through rational thinking for applying their own special tools in the direction of problem solutions. Of other benefits of ICT, we can refer to higher effectiveness and [productivity in Education in form of reinforcing decentralizing and promoting participation of people, parents, students and teachers and employers in policy making, execution supervision and evaluating of Educational activities, strengthening decision making system and management based on information through centralized supervision and decentralized execution, Creating schools and other Educational and cultural entities, reducing costs incurred by access to rare information.

British Educational Communications and Technology Institute (2003) cites reasons for accounting to the question of why ICT is considered to be an impressive tool for learners and teachers: it enables learners to become active learners at the class rather than a reactive observant; offers opportunities for different learning styles; enables learners to concentrate over their on activities and overcome physical pressures; increases learners' independence; brings about a means and promotes the speed of learners' progress; facilitates social realitons and interactions and places learners in a wider field; provides teachers a tool for discerning and distinguishing learners' skills; provides mans for learners, so that they disseminate it for wider community; provides easy access to hardware and software for all learners; facilitates coherence and progress; provides different ways, such that learners are attracted, motivated and aroused; creates flexibility among teachers and also provides accessible content freely and electronically; facilitates participatory work, such that teachers can take part by means of world network and Emails; provides a means for maintaining peoples' progress registration; encourages all learners to work independently, and creates opportunities for making use of human resources best. Dome other benefits: increasing speed of conveying learning and teaching; increasing learning accuracy; reducing physical size of information domain; avoiding teachers' exercise of tastes; creating full time work; creating a condition for remote co-op for teachers and students; reducing Education incurred costs. Given mentioned issues, particularly, increasing speed which results in more work and conduct of full time work, system's efficacy will rise and as a result leads to a reduction of costs for the state and students (Fathi & Nasiri, 2010).

4. What are the requirements and reservations of schools in learning and teaching in the face of ICT?

One of the conditions for applying ICT at schools in the field of learning and teaching is that teachers should be practically acquainted with the digital world; of course, this issue is underway in the Iranian Educational system; but due to some reasons including lack of infrastructure and the mere reception of degrees from relevant companies and teachers and instructors who have not got familiar with the said virtual world, this issue might not be able to attain its own position at schools and at universities around the country. Thus, basic requirements in the Fundamental Development Document (on Macro Strategies), in the area of ICT contain intelligent utilization of modern technologies within the formal and general Educational system based on Islamic Criteria. Thus, costs need to match functions (Attaran, 2014). Another requirement in applying ICT is intelligent and up-to-date consistency of schools with ICT in order to avoid escape from school (as Ivan Ilic has put it)

(Mehrmoahamadi, 2007). Students learning via ICT, as well as teachers need to apply their own self-regulation skills, i.e. examining thoughts, senses and behaviors in order to reach their own goals through organizing data and writings and computers play a key role in here (Abbasi Avval, 2012).

Of reservations in dealing with ICT in the field of learning and teaching is one has to be aware of while using ICT; because the learner should not risk socially isolated and second, he/she should not be barred from thinking, i.e. ICT needs not be a final end (Mehrmoahamadi, 2007). This is the same advice included in the Fundamental Document in which emphasis has been laid at consciousness and reservations while refraining from the risk of Internet and ICT networks becoming authority.

5. What are the obstacles of applying ICT in learning and teaching process?

Fredrikson et al (2009) conclude in a research that using ICT in Educational innovations helps learning and teaching process and emphasizes that teachers need to utilize technology skills and learn relevant curricula for increasing IT at schools (Shariatmadari, 2012).

1. Teachers simply acquiescing to electronic content representations in rooms known as IT at some schools and in some hours for some special lessons cannot be a rational justification in using ICT within the field of learning and teaching. In this direction, for authors, lack of hardware infrastructure and expansion of networks and special software, either for schools or at schools or for students especially in deprived areas are among the obstacles of this issues;
2. Lack of awareness and familiarity and belief to facilitating and the instrumental use of ICT at schools and the way curricula are launched that end to be conducted at some special time will bring about difficulties for using ICT for learners and teachers;
3. Teachers and managers' lack of familiarity (especially elder people) with ICT and those who are not familiar with hardware and software tools needed for learners and instructors;
4. It is observed that learners' insufficient familiarity with languages and formal global writings have brought about problems for them to intelligently use the information;
5. It appears that learners, due to marginal issues including more attention to subsistence issues and, lack sufficient time for learning and spending time for learning information literacy and using curricular lessons appropriate with ICT as well as formulation of curricular sources with regards to learning and teaching issues. Thus, they get acquiesced to the same traditional methods in classrooms.;
6. Lack of an information literate instructor as regards ICT at schools paves the way for a periodical passage in using the available facilities and thus creates problems for the acculturation off thus issue in the area of learning and teaching at classrooms;
7. Non-standard classes in using and utilizing ICT as well as inability of teachers in preparing Educational content appropriate with ICT in fostering curricular concepts teaching.

5. CONCLUSIONS

Reactionary tendency denotes despite ascending growth of sciences, particularly in the area of ICT, one cannot embark on utilizing tools for access to the unknown and move in the ocean of the 21th century. That which is focused attention in this research was emphasis on the significance of applying benefits and form of using ICT as a resilient tool in fostering and facilitating learning and in fact emphasizing on learning the technique of swimming, offering a roadmap and a compass and then immersing the learners in the sea of acquiring knowledge and skills. That ICT can play roles in increasing learning among learners through interactive and flexible tools: color, pictures, forms, voice, quality, quantity of information, upgrading information, participatory learning and communication with the farthest points across the worlds is taken for granted. Thus, the precondition for this is to eliminate the instructors' theoretical and practical knowledge as regards applying classrooms, building culture of teaching and learning factors in the field of education for an intelligent facing of this phenomenon.

Recommendations

For the promotion of teachers: utilizing IT literacy in expanding theoretical and scientific knowledge as regards the application of ICT through holding high quality periods-expanding thinking activities and engaging of mind of the individual learners by using ICT in the classroom - **for the development of infrastructure:** eliminating centers and educational classes" needs from the view of equipment to hardware and software facilities related with ICT, Educational support in the process of incorporating daily lessons by using ICT facilities, developing strategies and guides for the expansion of ICT, expanding and developing advanced video conferences, E-learning, mobile learning - **culture building:** introducing ICT as an instrument and the school system as a secondary thing and both as the culture of school and class within the natural issue of learning and teaching.

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