

Barriers to Change Education with the use of new technologies in schools

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Abstract

The speed of changing is so noticeable nowadays. Innovations and changing are new topics and education leaders as innovative try to improve the learning and teaching to acquire better educational results. ICT or information communication technology is one of the advanced instruments that help to these changes. All around the world, educational systems are under an increasing pressure to use new informational communicational technology to teach the students desired knowledge and skills effectively in schools' programs but actually many barriers remain yet. Continuity work of ICT in teaching and learning is a complicated procedure and a person may face with a lot of problems. To facilitate educational planning, barriers should be recognizing to overcome them. Despite of raising smart schools and even transformation of some schools to these ones, likewise we observe non proper use of ICT in most schools in our country. The purpose of this research is recognition of barriers of training changes by new technology in Mazandaran province schools. Research method is descriptive that for collecting data about investigating of barriers in use of ICT we use questionnaire. Collected data were examined by t-test and Friedman test. Results show that many factors are recognize as barriers of changing the education system by new technology that most important of them are lack of economic funding, lack of training period in ICT field, lack of hardware, lack of adequate administrative support, lack of training programs with proper components, lack of teachers' knowledge and skills in ICT and continuity of ICT and lack of educational materials and software.

Keywords: changing, information and communication technology, schools, teacher

Introduction

Nowadays, changing speed is more than any time in human life. Human organizations and societies should change according to world's change not only for being header but for survival. The organization and societies that couldn't change well in respect to their similar collocations will be weak or removed. Schools, governmental and non-governmental organizations faced with wonderful changes that

beneficiaries waited for it. But changes and transitions in human collections are complicated (Senge, 2010).

Proper change recognition and activity in this field is a great challenge that not acquire easily. Innovation and change are not new subjects and education leaders are also innovative so that they try to improve teaching and learning to acquire better educational results. An important perceived concept about changing is that it is a process and it's like circles that shape continually on water. Instrument that help to this change is ICT or Internet and developed Contact Technology. ICT began in before decades to change many life aspects in economic, social and cultural worlds, so these effects observed in many schools' activities (Patra, 2002). Computers inter to schools in 1980s and many researchers believe that ICT will be important part of education for further generations (Bransford et al, 2000). Today, importance of education that proper to person and society sensed more because the world that connected with information network need to work power that know how should use technology as an instrument to increase efficiency and creativity. Global progress in ICT spread chance of learning and access to education sources. So that typically, this access was unthinkable with instruments and traditional methods. Using of this technology not only causes expedite and facilitate education and promote effective management of educational systems, also is cause to change common concepts and principles of traditional education systems. So the degree of importance and reliance on preset books and syllabus for every class and even education period, teaching methods evaluation and also evaluation of effectiveness and degrees of education, the role and value of periodic exercise or exams, relationship between teacher and student are all cases that change by using ICT. Communication technology like learning process use in three shapes: one like a purpose, second like a medium and third like an instrument that use for management in schools. In second case ICT not make learning process but use of it in classroom will support learning. One of the ICT usage is related to organize and management in a regulatory system of student-centered.

Educational quality increasing is a subject that apparently becomes important for education. From beginning of this century, education faces with different social, cultural, economic and technical challenges (Januszewski & Molenda, 2008). As a study and practice for learning facilitate and performance improvement, technology tries overcoming on problems it's necessary to recognize the barriers. So In this paper barriers of using this technology will investigate and recognize to use those in direction of overcome the problems.

Theoretical basis of research:

Educational systems in all over the world are under pressure to use new ICT for teaching students the knowledge and skills that need in century 21 (Lever-Duffy et al, 2003). Education in confluence with fast and powerful educational transferring, technological and political forces, shape the educational system structure to stay in this century with globalization. Many countries try to impact the changes in education process and prepare the students for ICT according to society (Patra, 2002). Successful learning of ICT to make teacher capable in education programs is the main key that change wide educational range. ICT include use at least one computer and the Internet and also use of software. Hardware, networks and instruments that transform information to common shapes (text, pictures, sound and movement) (Lever-Duffy et al, 2003).

Use of ICT is sometimes difficult, because it is new and use of it is complicate. Since also it should use as alternative instruments instead of old ones and common problems, rather expected to be helpful in facing

with new challenge. Many practical plans extended to use ICT effectively in schools programs but many problems remain practically (Goktas et al, 2009). Continuity of operation of ICT in education and learning is a complicated process and individuals may face with some problems (Schopp, 2005).

To facilitate educational plans barriers should be recognize to overcome them. A barrier is defined as any situations that causes a problem in improvement process or acquire to purpose. Many researchers classified educational barriers. In his view external barriers include: lack of time, support, sources and education and internal barriers include: teachers' or trainers' beliefs, discontinuity of technology and viewpoints about education. Hendren (2000) also believes that external barriers as organization not individuals and internal barriers as teachers, managers and related people. Becta (2004) divided barriers as two category related to people (teacher's level) like absence of time, absence of reliability resistance to change, and barriers related to school(school level) like absence of effective teaching in solving technical problems and no availability to sources. Balanskate et al (2006) divided them as middle level include that relate to teachers' views and approach to ICT and macro level barriers include those that relate to educational fields. Bingimlas named macro level as system level include wider educational frameworks. Pelgram (2001) also represents another classification that related to two states: material educational state and immaterial educational state. Material states include lack of computers or software and immaterial barriers include lack of knowledge and skills of ICT in teachers, continuity problems of ICT in institution and lack of time. He also be research in 26 countries around the world stats ten serious barriers as effective factors on information technology research in education that most important of them include lack of computers, lack of skills and knowledge of teachers, difficulties in integrating technology with learning, lack of time for working with computer and absence of supervisory staff for performance of his plan. In his view, tomorrow schools would not be monopoly of ICT and this is wrong if we imagine that with hardware entrance we will access to software information (Pelgrum, 2009). Some studies pay attention to barriers relate to teacher, institution or system level (Bingimas, 2001). Atashak and Mahzadeh showed that important barriers on lack of ICT used by teachers are because of the infrastructure-technical, individuals, economic and cultural-educational factors. Salehi and Kashani (2007) proposed that infrastructure optimization and creating an environment proper to ICT and educational planning according to ICT in schools, education and training of skilled manpower in use of ICT. Arhami (2005) states that cultural matters are the main problematic factors in performance of electronic learning plan and matters like resistance of people in using new methods against to traditional methods in education, specific difficulties in electronic learning as communication platform in Iran, lack of proper educational software and un appropriate hardware costs can make difficult to change educational method. Studies show that in spite of ICT improvement teachers, still use traditional methods in their teaching and reason is discuss in frequent barriers. Recognition of those barriers in foreigners researches were various but insufficient research done in our century and despite being raised of smart schools and even changing some schools to this kind of schools in current years, yet we witness the non-proper use of ICT in most schools. So researcher decides to investigate the barriers of modern education by use of the Internet and ICT in three levels of barriers relate to schools and educational structure, barriers relate to teacher and barriers relate to students in Mazandaran schools.

Research methodology

Research method is description that performed to recognize the barriers of education changing with technology in high schools and guidance schools in Mazandaran during 2016-2017 academic years. Population include all of high school and guidance school teachers in urban areas of Mazandaran that about 16,320 persons that from this number, 382 person were chosen by multistep cluster sampling method and according to Morgan table. Instruments for collecting data is a questionnaire that prepare by researcher contain parts with personal information and special questions and another part contain 27 questions about recognition the barriers of changing that by using these informational previous researches and researcher's personal experience it is prepared as a Likert 5 degrees questionnaire.

To determine content validity on tool it was used from a professional group. For this purpose the questionnaire was investigated by two Ph.D. professors and four Ph.D. students and after review it was piloted by a group of 45 teachers for determine the validity. Internal consistency calculated by Cronbach's alpha coefficient. That 84% coefficient acquired.

Results

In this section, first, some personal features of sample under investigation are provided separately. As Results show, 54.97% of subjects in high school level and 45.03% in guidance school are during the education. 37.16% of subjects that work in high schools and 37.20% work in guidance schools, respectively, are women and also 62/84% and 63/80% of subjects in high schools and guidance schools, respectively, are men. Experience and age of subjects are shown that average of 12.67 and 32.45 years old, respectively.

Implies that frequent degree of subjects in bachelor (57%) and least degree in Ph.D. (less than 1%) and teachers with master degree and diploma degree 14% and 28%, respectively.

The participated teacher's acquaintance with ICT in research. 1% of teachers have perfect skills, 12% with ok skills, 145 with normal skills, 13% with few skills and 60% with very low skills. 65 of teachers learned necessary skills relate to ICT in their educational period in university. 26% of them learned out of university or after graduation, 32% of them at in-service classes and 36% of them learned by themselves or by their friends' helps. The positive or negative answer of teachers to exist of computer in schools and accessibility to it. 46.6% of teachers state that computers exist for staff use and 53.4% of them answer negative to this question. 3.15% of teachers state that computers exist in their classroom and 96.85% say there is no computer to use in their classes. 32.20% confirmed the existence of computer lab in school and 67.80% answer negative. Just 24.35% of teachers' state that computer access to them is at any time in school and 75.65% state there is no access to them in school.

Table1. Friedman test results on the obstacles associated with teacher

Statements	Mean	Friedman test	t-test	SD
Lack of knowledge and skills related to ICT teachers	4.38	9.94	30.34	0.58
Lack of knowledge and skills of teachers in ICT	4.35	9.92	22.36	0.76
The lack of good roles for teachers	4.24	9.82	20.01	0.73
Lack of motivation of teachers	4.20	8.73	13.72	1.01
Lack of proficiency in English	4.16	8.42	14.34	0.91
Unmotivated and impartiality of teachers in	3.87	7.87	6.60	1.10

using ICT				
According to the depreciation in the use of ICT	3.83	7.44	5.5	1.19
Not having enough time in the curriculum for the use of ICT	3.72	7.37	4.07	1.06
The high cost of training skills	3.64	7.14	2.5	1.10
The high cost of hardware and software	3.20	6.62	4.16	1.42
The negative attitude of teachers to use computer	2.62	5.37	18.78	1.30

In table 1, mean, Friedman test' values for classification, t-test for significant and standard deviation relate to each of barriers relate to teachers are shown. Table's values show that most mean relate to teachers respectively, are lack of knowledge on continuity, skills of ICT in teachers, lack of knowledge and skills of teachers in ICT field, proficiency on English language.

Table2. Friedman test results on barriers associated with the school and the educational structure

Statements	Mean	Friedman test	t-test	SD
Having high costs for families of students	3.85	6.74	7.29	0.95
lack Students skills	3.37	6.31	2.09	1.22
The negative attitude of students to use ICT	2.48	5.26	16.56	1.23

Table 2 shows Friedman test values, t-test values and standard deviation about barriers related to schools and educational structure. In this table most means relate to lack of dedicated funding, lack of hardware, lack of proper management support, lack of in-service training courses in ICT field and lack of training periods with proper components.

Table3. Friedman test results on obstacles related to students

Statements	Mean	Friedman test	t-test	SD
Having high costs for families of students	3.85	6.74	7.29	0.95
lack Students skills	3.37	6.31	2.09	1.22
The negative attitude of students to use ICT	2.48	5.26	16.56	1.23

Table 3 shows values about barriers relate to students. In this table noticeable mean about barriers relate to high costs for students' families and lack of students' skills.

Conclusion

In these research 27 effective barriers to modern training change by ICT divided to three categories: barriers to teachers, barriers to schools and educational structure, and barriers relate to students. All barriers evaluated by students t-test with 381 degrees of freedom and $p < 0/05$ that t related to all barriers were meaningful. These results show that all considered barriers in this research are effective barriers in changing traditional education to modern education by using ICT. So all these barriers classified in three specified sections by Friedman test to determine barriers that have most effects.

In teacher section mean (3.83) is higher than slightly mean (3.5), so all eleven barriers relate to teachers in training method changing by ICT are effective and most effective barriers are: teachers' lack of knowledge and continuity skills of ICT, lack of knowledge and skills in ICT field, lack of good role for

teachers and lack of motivation. These results are corresponded with Pelgram results on lack of computers or software, lack of knowledge and skills of ICT of teachers and continuity problems of ICT for teachers. Salehi and Kashani (2007) also mentioned education and training of skilled manpower in use of ICT that implies to teachers' skills in this field. In this section, teachers negative attitudes on using computer as an effective factor is in the last order.

In section of barriers on schools and educational system, mean is 4/20 that is higher than slightly mean (3/5) that show these barriers on using ICT in training changing is known as barriers and between them the most effects are lack of appropriate components, lack of efficient management support, lack of in service training period in ICT field, lack of training period with appropriate components, lack of accurate evaluation, lack of proper information on using ICT and lots of training in schools for teachers, large number of students in class, respectively. Also information show confirms this matter and show high percentage of teachers do not know ICT and not have skills to use it in other courses. In this part, Sadr Arhami (2004) pointed on his research results to lack of proper education software and proper hardware costs. Salehi and Kashani (2007) knew facilities and resources as main factor of ICT. In this respect Atashak and Mahzadeh pointed to infrastructural factors on technical, individual, economic that correspond to this research results. Also, Pelgram found lack of supervisory staff on do this plan, lack of proper information for ICT uses and lots of training in schools for teachers that correspond to this research.

In section for barriers relate to students, three barriers were investigated. Results show that mean of this section (3.23) is lower than slightly mean (3.5) that show this barriers meaningless at all. But students from each barrier is meaningful separately that show this barriers, each separately is effective on training method change, by new technology that should be considered but in before researches there are no results about this.

So, results show that for changing traditional training method and gain modern education by ICT should pay attention to both parts of barriers relate to teachers and relate to school and educational structure, that most important of them are lack of economic funding, lack of in service training period, lack of hardware, lack of proper management support, lack of training programs and training by proper component, lack of knowledge and skills of teachers on ICT field and continuity of ICT and lack of educational materials and software.

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