

Artículo de investigación

The role of information and communication technology in the process of teaching- learning and analyzing its application in primary schools of Qavar

El papel de la tecnología de la información y la comunicación en el proceso de enseñanza-aprendizaje y análisis de su aplicación en las escuelas primarias de Qavar

O papel da tecnologia da informação e comunicação no processo de ensino-aprendizagem e análise de sua aplicação nas escolas primárias de Qavar

Recibido: 20 de abril de 2018. Aceptado: 10 de mayo de 2018

Escrito por:

Parvin Razmjooei^{1*}

* corresponding author: p.razmjooei571@gmail.com

Mohammad Reza Gharbi Jahromi²

Seyyed Ebrahim Managheb³

^{1, 2, 3} Ph.D. Student of Educational Administration, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran.

Marziyeh Hosseini

Social Determinants of Health Research Center, Department of Nursing Yasuj University of Medical Sciences, Yasuj, Iran

Nader Shahamat

Department of Educational Administration, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran.

E.mail: nader_shahamat@yahoo.com

Abstract

Any effective change and development in cultural, economic, political, social, etc. structure of society depends on change, transformation and development of the most fundamental institution of society such as the educational institution. Nowadays, we are witness of significant advances and developments of education in many developed or developing countries with the advent of new educational technologies in the teaching learning process. It is necessary to set up a system of education in accordance with the time and conditions by utilizing the most important tools of development and promotion namely new educational technologies, increasing awareness and improving the human capital capability and training of expert and committed staff and taking steps in the sustainable development, effective modernity and efficiency highway in order to overcome the traditional and old structures, enter the scientific competition field, overcoming the challenges and achieving the optimum ideals of the society but how much has the primary schools of Qavar city been able to play the role of modern technology in its educational system? At first, the research

Resumen

Cualquier cambio y desarrollo efectivo en la estructura cultural, económica, política, social, etc. de la sociedad depende del cambio, la transformación y el desarrollo de la institución más fundamental de la sociedad, como la institución educativa. Hoy en día, somos testigos de importantes avances y desarrollos de la educación en muchos países desarrollados o en desarrollo con el advenimiento de nuevas tecnologías educativas en el proceso de aprendizaje de la enseñanza. Es necesario establecer un sistema de educación de acuerdo con el tiempo y las condiciones utilizando las herramientas más importantes de desarrollo y promoción, a saber, nuevas tecnologías educativas, aumentar la conciencia y mejorar la capacidad del capital humano y la formación de personal experto y comprometido y tomar medidas en el desarrollo sostenible, la modernidad efectiva y la eficiencia vial para superar las estructuras tradicionales y viejas, ingrese al campo de la competencia científica, superando los desafíos y logrando los ideales óptimos de la sociedad, pero ¿cuánto han podido las escuelas primarias de la ciudad de Qavar desempeñar el papel de la tecnología

method was library method and then it was a qualitative method. Data were collected by a semi-structured interview and then they were analyzed by theme analysis method. Findings of the first part of this research suggest that use of technology has been effective in changing attitude, acquisition of skills and enhancement of teachers' empowerment and academic achievement, attractive learning and increasing creative thinking of learners. The findings of 9 interviews showed that the following three factors (in order of importance) have significantly reduced the rate of technology utilization in the primary schools of Qavar city. 1- Unfamiliarity or not having enough teachers' proficiency in technology and its usage in teaching 2- a large number of students and lack of facilities 3- bulky textbooks and not having sufficient time.

Keywords: technology, process of teaching learning, educational system

moderna en su sistema educativo? Al principio, el método de investigación era el método de la biblioteca y luego era un método cualitativo. Los datos se recolectaron mediante una entrevista semiestructurada y luego se analizaron mediante el método de análisis de temas. Los resultados de la primera parte de esta investigación sugieren que el uso de la tecnología ha sido eficaz para cambiar la actitud, la adquisición de habilidades y la mejora del empoderamiento y el rendimiento académico de los docentes, el aprendizaje atractivo y el aumento del pensamiento creativo de los alumnos. Los resultados de 9 entrevistas mostraron que los siguientes tres factores (en orden de importancia) han reducido significativamente la tasa de utilización de la tecnología en las escuelas primarias de la ciudad de Qavar. 1- Desconocimiento o falta de competencia suficiente de los profesores en la tecnología y su uso en la enseñanza 2- un gran número de estudiantes y la falta de instalaciones 3- libros de texto voluminosos y no tener suficiente tiempo

Palabras clave: tecnología, proceso de enseñanza aprendizaje, sistema educativo

Resumo

Qualquer mudança e desenvolvimento efetivo na estrutura cultural, econômica, política, social, etc. da sociedade depende da mudança, transformação e desenvolvimento da instituição mais fundamental da sociedade, como a instituição de ensino. Hoje, estamos testemunhando importantes avanços e desenvolvimentos na educação em muitos países desenvolvidos ou em desenvolvimento, com o advento de novas tecnologias educacionais no processo de aprendizagem do ensino. É necessário estabelecer um sistema de ensino de acordo com o tempo e as condições usando as ferramentas mais importantes para o desenvolvimento e promoção, ou seja, novas tecnologias educacionais, aumentar a conscientização e melhorar a capacidade do capital humano e formação de pessoal qualificado e comprometido e agir sobre o desenvolvimento sustentável, a modernidade eficaz e eficiência estrada para superar estruturas tradicionais e antigas, entrando no domínio da concorrência científica, superar desafios e alcançar ideais ideais de sociedade, mas como eles foram capazes de escolas primário da cidade de Qavar desempenham o papel da tecnologia moderna em seu sistema educacional? No início, o método de pesquisa era o método de biblioteca e, em seguida, era um método qualitativo. Os dados foram coletados por meio de entrevista semiestructurada e analisados por meio do método de análise tópica. Os resultados da primeira parte deste estudo sugerem que o uso da tecnologia tem sido eficaz na mudança de atitude, a aquisição de competências e melhoria da capacitação e desempenho acadêmico dos professores, aprendendo atraente e aumentar o pensamento criativo dos alunos. Os resultados de 9 entrevistas mostraram que os três fatores a seguir (em ordem de importância) reduziram significativamente a taxa de utilização de tecnologia nas escolas primárias da cidade de Qavar. 1- Falta de competência suficiente dos professores em tecnologia e seu uso no ensino 2- um grande número de alunos e falta de instalações 3- livros-texto volumosos e não ter tempo suficiente.

Palavras-chave: tecnologia, processo de ensino-aprendizagem, sistema educacional.

Introduction

The most important phenomenon that 21st Century organizations are facing it is the

phenomenon of information and communication technology as an effective factor in the process

of business communication in the current era. Production of science and technology is a condition for the survival of societies and the state of growth and production of science determine fate of each country in different countries. Technology development is the essential factor of achieving sustainable development, economic development and fight against poverty (Sharifi, Mohammad Davoodi and Eslamieh, 2012). Information and communication technology could become a component of modern societies in a short time so that understanding information and communication technology and mastering the basic skills and concepts of information and communication technology have been considered as a part of the central core of education and training these communities along with reading, writing and counting in many countries (Ghaffari, 2009). Education is a universal, dynamic and effective institute on all of the widespread ethical, political, economic, religious, legal, social and cultural manifest and secret behaviors and norms of the society. The nature of its activities and its goals is enhancing the ability of creativity, prosperity and talent development, raising the level of public and specialized awareness, determining the strategy of achieving excellence, development, prosperity and growth. So, one of the essential elements of the development of a country is its education sector. This part has an immense importance because it is both an important tool of development and it is also one of the development goals. Traditional teaching methods are inefficient and slow and they don't have the power of transferring new concepts to learners. Therefore it is necessary to use the tools of modern technologies effectively (Noroozi et al, 2008). Educational systems have used different strategies in order to teach human resources and these strategies have also been changed with developments and widespread changes of various dimensions of educational systems simultaneously (Jahanian, 2009).

Nowadays, we face a situation in which education is inevitable to choose the modern tools and functions that are appropriate in the so-called era by the access of learners to the Internet and various passages of getting information and consequently effectiveness of global and non-indigenous culture (Shahbaz, Zamani and Nasr Isfahani, 2018). Comprehensive programs have been compiled for equipping schools with various facilities such as computers and the Internet in many countries

such as developed and developing countries. Innovation of new educational methods, use of computers in classrooms, use of educational software and multimedia, use of the Internet and e-mail, development of educational networks, appearance of e-learning, etc. have been the modern outcomes of use of information and communication technology in education (Noroozi et al, 2008). Information and communication technology is a critical step in the 21st century which facilitates the provision of information across the globe and plays a vital role in the development of countries. Information and communication technology is responsible of guiding and developing human knowledge in the information era now. Information and communication technology is a term that include concept of the use of information technology in the production, storage, processing, retrieval and dissemination cycle. A combination of computers, satellites, telephones, televisions and other electronic devices which are the tools of communication and information management constitute the information technology. It leads to more effective and efficient action and reaction (Ostad Hasanloo, Abdalrahimi and Jalilzadeh, 2014). The role of information and communication technology is mentioned in the process of teaching learning in the first part of this research and the amount of information and communication technology application is addressed in primary schools of Qavar city.

Statement of the problem

Information and communication technology is a tool of thinking and action and it adds to the students' reasoning ability and creativity and it increases access to qualitative education. Therefore, lack of attention to it will have consequences for the country's education and the quality of its output as a global citizen who will have to work in an increasingly interconnected economy, trade and culture in a not too distant future and its outlook is the country's backwardness in competitive world and long run international arena surely (Zamani and Kardan, 2010). Science and technology development has made the necessity of development of educational activities process undeniable. Today's educational systems need to train forces that are capable of understanding the complex world. They are capable of being creative and innovative managers and leaders and behave logically. Therefore, it is expected that education provide active and participatory

learning among students. We need to change the former procedures inevitably in order to achieve such an approach.

Every country's development infrastructure is based on the country's education whose main pillars should be sought in primary education. Its importance is so much that it's neglecting lead to harmful effects on various dimensions of any land's progress and excellence. Background and conditions of personality formation and multilateral growth of individuals is prepared in this period. As some of the authorities suggested, this period is the most suitable opportunity of education and learning and it is the beginning of the growth of child's talent. If children don't learn the necessary skills in these ages, there will be no opportunity of compensating them in the next stages of growth. Matthew Lipman¹ (2000) found in his educational experience that higher-educated learners who lacked power of reasoning, power of distinction and judgment didn't master in these skills in the primary period. It can be said that information and communication technology has a positive effect on the teaching learning process undoubtedly and it leads to creativity and knowledge generation by engaging teacher and student in addition to improving academic achievement according to the expressed issues and studying the results of researches. It is very important and it also has a specific meaning for the primary school's students who are the basis and essence of the development of education. As what is suggested, the current research is going to answer the following question: To what extent do Qavar teachers use the technology in the classroom?

Literature

Many researches have been done about the relationship between the role and effect of information and communication technology on teaching- learning process. Results of these researches suggested that application of information and communication technology has a positive effect on students' academic performance in the classroom. Afzalnia (2008) has considered this effect and believes that changes such as changing the role of learners and

teachers, more participation of students with peers, more use of resources outside of textbooks and developing and improving design and presentation skills are the outcomes of his studies (Afzalnia, 2008). Results of researches of Daizadeh, Hosseinzadeh and Gaznavi (2010) suggested that application of Information and Communication Technology (ICT) has increased academic motivation, promoting questioning skills, boosting research morale, increasing academic achievement and academic achievement of third-grade students in secondary school overall. Use of information and communication technology has increased creativity of students in the classroom (Zangeneh, Moosavi and Badali, 2013). It plays an effective role in motivation, depth and breadth of learning, its sustainability, elimination of students' tiredness and misery and the creation of subjective skills in order to answer questions and it makes the learning climate more attractive for them (Amir Teymoori, 2008). It has a significant effect on students' academic achievement. It enriches the learning environment and it is necessary to have interaction between learner and learning resources (Sattari and Mohammadi, 2011) (Seraj, 2004). ICT-based education also leads to the students' dynamics in the classroom and encourages them to have more activity and generate knowledge (Armitage and Leary, 2003). Results of researches of Najafi (2008), Goodarzvand Esmaili Seighaldehi (2011), Sheykhi and Gholami Haredashti (2014), Niaz Azari, Behnamfar and Andi (2012), Waxman and Michko (2003), Kaffash, H. R., Abedi Karjiban, Abedi Karjiban, S., and Talesh Ramezani (2010), Sangra and Gonjalez (2010) and Adeyemi (2012) suggest the effect of application of information and communication technology on the process of teaching- learning and it encourages the teacher and student to be more stimulated in the classroom.

Research question

Main question: How much is the extent of using information and communication technology in the classroom. Present some reasons please?

¹ Matthew Lipman

Methodology

Data were collected by a semi-structured interview and then they were analyzed by theme analysis method. Its statistic population was teachers of Qavar city. The sample size was selected based on theoretical saturation rule. So, new data were not obtained after 9 interviews. Samples were selected by simple randomized method. Data were analyzed based on theme analysis at three levels of data, concept and theme. 4 interviews were randomly selected from the interviews in order to get interview reliability and they were retested within 14 days. The reliability of interviews was equal to 89% after determining the total number of interviews and the number of agreements and disagreements. It indicates the reliability of the interviews and the appropriateness of their reliability.

Studying the research findings

We have achieved the same answers from very little - little use of technology in the classroom environment through the 9 interviews and research questionnaires but the reasons of not using it were showed in table I.

Table I. themes and conceptual categories which are extracted from the interviews)

Main topic	Themes	Conceptual categories
Reasons of very little - little use of technology in the classroom environment of teachers of Qavar city	Personal factor (A)	Lack of familiarity or lack of having sufficient control on computer by the teacher and its usage (A1)
		Higher technological skilled student than teachers and teachers' sense of self-bereaved (A2).
	Educational environment factor (B)	Large number of students and lack of sufficient space (B1)
		Lack of facilities and intelligent classrooms (B2)
	Other factors (C)	High volume of textbooks and lack of enough time (C1)
		Meeting the expectations traditionally and being satisfied of them (C2)

Themes and conceptual categories analysis

Three personal factors, educational environment and other factors are mentioned as important and essential reasons of interviewees for not using the so-called technology in the classroom environment in this research. The findings of the interview are as following along with what has been suggested.

I - Personal factors (A): lack of familiarity or lack of having sufficient control on computer by the teacher and its usage (A1) is the first concept category of personal factor. Seven interviewees pointed to their lack of familiarity or their less familiarity with the use of computers. For example, one of the interviewees states:

"I know only how to turn on and turn off the computer. The school doesn't have a technological assistant. The principal and other assistants don't have time to be always in the intelligent classroom. "

Another interviewee states: "I can use the computer to an extent that I want to run a simple program. If the system presents a specific message during running the program, I can't read the message or I don't know how to continue the program".

The second concept category is in the form of a personal factor, a higher technological skilled student than teachers and teachers' sense of self-bereaved (A2). Twenty eight respondents believed that the students' skill of using technology is more the teachers' skill of using it and students are more capable in this regard. We interviewed with two teachers in this regard:

"Nowadays, children can use this technology better than us. When I get some trouble while I am using my cell phone, I asked my students to help me in this regard. I understand from my students' conversation in the classroom that

they are more capable than me .It's too hard for me to not be succeed in using this technology. "

"One of the sixth elementary school curriculums is the IT course. It is hard for me to teach computer. Students regulate their system themselves and I only explain this lesson with looking at the board. They are responsible of regulating the system. I have felt self-bereaved for many times. "

2- Educational environment factor (B): The first conceptual category is the large number of students and lack of sufficient space in terms of this factor (B1). One of the interviewees states: "There is only one computer in our school. The internet speed rate is usually very low and we must wait for uploading some of the programs or reading some of the DVDs. A computer for 27 students."

The second conceptual category is the lack of intelligent classrooms (B2). Two of the interviewees states in this regard: "We have no intelligent classroom at all. There is one computer in one of the classes. There is also an usual and low quality curtain in the classroom too. It means that we haven't an intelligent board. We can't always use this semi-intelligent classroom. If we need this computer for teaching, the classrooms must be displaced and we must take the student to the intelligent classroom. This displacement and control of students spends many time and it isn't worth the trouble."

"One of our classes is the intelligent classroom but of course we haven't an intelligent board. This white curtain can meet our needs. We can't always use the computer because this computer belongs to all of the classrooms. We must coordinate with the school's principal and use it by turns."

3- Other factors (C) : High volume of textbooks and lack of enough time (C1) is the first category of the third factor of utilizing information and communication technology in the primary schools of Qavar. One of the teachers states: "I have not enough information about use of computer in teaching lessons. One of the school's classrooms is also an intelligent classroom but the volume of books is so high that I haven't the opportunity of teaching most of the lessons by computer. If I can finish these lessons until the end of academic year, I have performed an outstanding task. "

The second category of topic No. 3 is meeting the expectations traditionally and being satisfied of them (C2). One of the teachers states: " Is teaching without computer problematic? What are the advantages of teaching with computer? I am agree of traditional teaching. I will only achieve my goals by the traditional teaching and I don't need to teach with computer. I am agree of teaching certain lessons and case studies with computer but it is not always necessary to use computer for teaching all of the lessons."

Discussion and conclusion

Nowadays, role of information and communication technology is not overlooked in the education. Information and communication technology provides a framework or structure through which the educational quality is enhanced and students and teachers can achieve extensive learning resources with this technology, increase their motivation and learning and use different learning forms (Rahmani et al, 2006) . Teaching methods also must change and develop in accordance with the conditions by introducing the technology into the education. Traditional teaching methods don't meet the needs of students. Knowledge and leading education age needs empowered, expert and competitive human resources. Since, teachers are the main implementers of education, education administration needs skilled, empowered and up to date teachers in the field of use of technology in the classroom in order to adapt to the changes in the age of technology and entering the global competition field. Most of the participants didn't have sufficient control over the use of teaching technology in the present study and they are unaware of the benefits of using it and they are satisfied with traditional methods. Development and improvement of the educational system requires educated and literate teachers. It is necessary to change the attitude of teachers towards technology and it is also necessary to change the classroom environment from static to dynamic technology. "Researches suggested that whenever and wherever the information technology is used in training and repetition of teaching materials, the training time is reduced to one-third contrary to the teachers' attitude in the statistical population of the present research, so using information technology is more cost-effective than teaching with educational auxiliary tools or increasing study's hours." (Reis Dana, 2002) Lack of proper mental framework and lack of awareness of all kinds of

electronic tools and programs and their benefits have led teachers to not the role of technology and its use in an educational environment. Findings of the interview also showed that lack of sufficient space, inadequate facilities, vast volume of textbooks and a large number of students have faced the students with challenges of use of technology in the classroom. No one has neglected the role of education and especially the primary school in the process of sustainable development of the country. Sustainable education is formed in the first period of education, namely the primary school. So, it is recommended to the senior managers and administrators of education administration that pay special attention to role and importance of using technology in the educational environment by providing appropriate fields and conditions such as preparing sufficient facilities, preparing intelligent classes, providing adequate space and educating teachers based on modern technologies.

References

- Adeyemi, B. A. (2012). Effects of computer assisted instruction (CAI) on students' achievement in social studies in Osun state, Nigeria. *Mediterranean Journal of Social Sciences*, 3(2), 269-277.
- Afzalnia, Mohammad. (2008). Design and acquaintance with materials centers and learning resources. Tehran: Samt Publications.
- Amir Teymoori, M. (2008). Teaching and learning media. Tehran: Savalan Publications.
- Armitage, S. and Leary, R. (2003). *E-Learning series: A guide for learning technologist*. Heslington Generic Center.
- Daizadeh, H, Hosseinzadeh, B, Ghaznavi, M. (2010). Investigating the role of (ICT) on academic performance of high school students, leadership and educational management quarterly, 4(4), pages: 81-97.
- Ghaffari, Z. (2009) "A Study of the Effects of Information Technology on Improving Teacher Training". Materials and Research Papers of Alaameh Tabatabaie Educational and Cultural Complex, Resalt Newspaper.
- Goodarzvand Chegini, M and Esmaili Seighaldehi, M. (2011). Effect of data technology on educational effectiveness. Quarterly Journal of Research of the New Approach on Educational Management, Second year, No, 3, pages: 1-24.
- Jahanian, R. (2009). Educational modern approaches, Publisher: Sarafraz, First publication.
- Kaffash, H. R., Abedi Karjiban, Z., Abedi Karjiban, S., & Talesh Ramezani, M.(2010). A close looks in to role of ICT in education. *International Journal of Instruction*, 3(2), 64-82.
- Lipman, M. (2003). *Thinking in education*. Cambridge University Press.
- Najafi, H. (2008) . Effect of information and communication technology on the academic achievement of Ardabil high school students in 1384-2006, Payk Noor, 6(3), pages: 86-92.
- Noroozi, M; Zandi, F and Moosimdeni, F. (2008). Ranking of information and communication technology methods in the teaching process of school learning. Quarterly educational innovations, 26(7), pages: 9-34.
- Niaz Azari, K; Behnamfar.R and Andi, S. (2012). Effect of information and communication technology on learning of primary school students. Quarterly Journal of Information and Communication Technology in Educational Sciences, Second year, No, 3, pages: 31-43.
- Ostad Hasanloo, H; Abdolrahimi, H and Jalilzadeh, H. (2014). Effect of information technology in developing and improving educational quality. Educational Research No 29, autumn and winter 2014.
- Rahmani, J, Movahedinia, N and Salimi, Gh. (2006). Conceptual model of educational roles of information and communication technology in education. Educational Sciences' knowledge and research, 10, 11, pages: 49-66.
- Reis Dana, F. (2002). Information and communication technology application and benefits. Educational technology, No, 2, page: 16.
- Sangra, A., & Gonjalez, S. (2010). The role of information & communication technology in improving teaching & learning processes in primary & secondary school. *Journal of ALTJ*, 18(3),207-220.
- Sattari, S and Mohammadi, P. (2011). Investigating the relationship between use of information technology and educational success of high school students. Information and

Communication Technology in Educational Sciences, 4(1), pages: 81-96.

Seraj, Sh. (2004). Concept of information literacy and informational literacy from the perspective of the library. E-mail magazine, 3(3), pages: 6-11.

Sharifi, A; Mohammad Davoodi, A and Eslamieh, F. (2012). Relationship between use of information and communication technology and teachers' performance in the process of teaching- learning. Quarterly Journal of Information and Communication Technology in Educational Sciences, Second year, No, 4, pages: 145-167.

Shahbaz, S; Zamani, E and Nasr Isfahani, Ahmadreza. (2007). Investigating the accessibility of teachers and their utilization of information and communication technology in secondary schools of Isfahan. Information Technology and Science, Volume 23, No, 1,2, pages: 23-44.

Sheykhi, S and Gholami Harewdashti, S. (2014) . Role of information and communication technology in education. Educational Studies Journal, Medical education development and studies center of Army Medical University, Second year, No, 2, pages: 48-54.

Waxman, H. C., & Michko, G. M. (2003). *A meta-analysis of the effectiveness of teaching and learning with technology on student outcomes*. Retrieved from <http://treeves.coe.uga.edu/edit6900/metaanalysisNCREL.pdf>.

Zameni, F and Kardan, S. (2010). Investigating the effect of information and communication technology on mathematics learning. Quarterly Journal of Information and Communication Technology in Educational Sciences, 1(1), pages: 23-38.

Zangeneh, H; Moosavi, R and Badali, M. (2013). Effect of information and communication technology on development of creative thinking. Innovation and creativity in the humanities, third Volume, No, 2, pages: 39-58.