What Are the Barriers in the Use of Computer Technology in EFL Instruction?

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Abstract

A lot of teachers have serious problems in the effective use of computer technology. There are many barriers facing EFL teachers to use computer technology in their instruction. This paper reviews some of the important barriers toward using computer technology in EFL instruction. They are availability of hardware and software, lack of computer knowledge, lack of computer experience, inadequate computer technology support, time factor, teacher attitudes, and lack of professional development in computer technology integration. A review of these barriers will indicate how they influence the teaching and learning processes and what could be done to urge EFL teachers to use computer technology in their instruction.

Keywords: hardware and software, knowledge, experience, support, time, attitudes, professional development

1. Introduction

According to Zhao and Frank (2001) and Naimova (2008), computer technology is usable in language classroom because both teachers and learners can access to the target language in different fields. It assists teachers guide their students' learning and connect curriculum to the real world activities. Henry and Worthington (1998) and Naimova (2008) said that computer technology helps students collect information, investigate a topic, and be more productive. It influences students' motivation to learn and increases their interest. A connection can be made between new information and what learners already know within and outside of the course syllabus through computer technology. Learners can find new information through computer technology that cannot be found in traditional textbooks.

The learning environment in a classroom can be changed by the computer technology. It is an important instrument for learning in the classroom and helps learners to succeed. Students can develop their language creativity through the help of computer technology (Machnaik, 2002). According to Naimova (2008), computer technology changes the teachers' role. It takes them from the role of lecturers to the facilitators of learning and helps students become more independent. According to Bennett et al. (2000), technology is a tool that helps teachers to meet their instructional goals. It is considered as key ingredients that can bring about basic educational challenges. Bajcsy (2002) stated that technology provides useful materials to both teachers and students and helps them interact with each other.

Wilson (2002) said that technology provides numerous possibilities to increase educational experiences and expand academic opportunities. Thompson, Schmidt, and Stewart (2000) emphasized that technology has a high potential to facilitate basic changes in teaching and learning. Whitehead et al. (2003) said that the use of technology increases cooperative learning, integration of curriculum and teacher communication. While computer technology has a lot of advantages, there are some obstacles that prevent teachers to use it in their classrooms. This paper aims at investigating some of the significant barriers that stop EFL teachers using computer technology in their instruction. The aims of this paper are to explain availability of hardware and software, review the lack of knowledge and experience, review inadequate computer technology support, discuss the time factor, elaborate teacher attitudes, and examine lack of professional development in computer technology integration.

2. Availability of Hardware and Software

Ginsberg and McCormick (1998) and Naimova (2008) conducted a research. 1163 teachers participated in this study and the purpose was to show the barriers teachers encounter in using computers. The findings obtained from this study indicated that the most serious barriers influencing the implementation of computer technology are computer hardware. Teachers reported that the limited number of computers and printers was their main concern. The hardware factor is related to the barrier of accessibility. An important strategy for decreasing the student-to-computer ratio is computer lab. Some teachers lack enough time in the computer lab and this causes them not to use computer technology appropriately in teaching. The subject being taught dictates accessibility to computer hardware. The position of computers and the accessibility of students to them are two barriers to teachers who are implementing computer technology (Middleton, Flores, & Knaupp, 1997).

The second problem is that it is very difficult to do scientific activities in a computer laboratory. These tasks need more tools than staff members can do into a room. The third problem is pertinent to the limitations of computer labs. According to Middleton, Flores, and Knaupp (1997), computers should be placed in classrooms so that students can access to them and use them in meaningful and practical ways. The barrier of restricted access impedes the real use of computer technology in instruction. A significant element to the diffusion of computer technology is the use of hardware and software resources (Gülbahar, 2005). Computer technology can be utilized by teachers in their educational procedure. This may appear when they see the capability of on-line classes and the chance of making net-based instructional subjects. So, hardware, software and web structures are necessary for integrating computer technology in education (Richardson, 2000).

A study was carried out by Albirini (2006) towards investigating the elements connecting to teachers' attitudes about information and communication technologies. A questionnaire was developed to gather information about teachers' understanding of computer qualities, cultural realization, computer knowledge, computer disposal, and individual features. 63 male and 251 female teachers took part in this study. The findings obtained from this study indicated that 57% of the respondents had computers at home while only 33.4% of the respondents had computers at school. This result indicates that computers are not enough for teachers. It was concluded that computer access is one of the serious obstacles to the usage of computer.

Mumtaz (2000) stated that lack of funds is one of the main causes that prevent teachers from using computer in their instruction. A report was issued by Mumtaz (2000) regarding teachers' utilization of computer. It indicated a relationship between access to computers and the application of computers. Instructors who had computers in their classes used them in teaching than those who lacked; 50% of teachers who had computers in their schools applied them to inquiry and activities relevant to the provision of their lessons. 78% of teachers stated that restricted access to computers is a barrier to the effective use of computers in their classes. It can be stated that the practical application of computer depends upon the availability of hardware and software for both teachers and students.

3. Lack of Computer Knowledge

According to Mumtaz (2000), almost all teachers like to use computer technology but a lot of them either do not use it frequently or do not know how to appropriately utilize it. Teachers who do not use frequently computers should develop and practice the necessary skills of computers and those who do not know how to apply them stopped completely the basic tasks that are necessary for the effective use of computer. Suitable patterns are needed for infrequent users to perform technology. Lack of computer knowledge is a barrier for teachers to use computers in their classrooms. Many teachers need two or three years of experience to become significant users of computers in education. If teachers want to be skilled in applying technology in their classes they should have at least five years of experience in using it (Pelgrum, 2001). Knowledge of teachers is an important factor for their success in the educational processes (Pelgrum, 2001). The relation between using computer in instruction and some other variables was examined by Berner (2003). It was indicated that the faculty's belief in their computer literacy was the greatest predictor of their usage of computers in their classes. It was also concluded that teachers should develop their knowledge based on the aims of education they want to pursue with the aid of computer technology.

According to Bordbar (2010), teachers who do not have adequate knowledge and skill about computer technology show negative attitudes about its use. In addition, Dashtestani (2013) conducted a study about the attitudes of the Iranian EFL teachers in using CALL materials and the necessary skills to use these materials. Three groups took part in this study. They were EFL teachers, teacher educators and teacher trainers. The results indicated that these groups had positive attitudes about utilizing CALL materials while teacher educators had somehow more positive attitudes than the other groups. It was also found that the Iranian EFL teachers did not

have enough skills to use CALL materials. The results also showed that the Iranian EFL teachers do not use CALL materials in their EFL courses.

The above findings generally show that there is a significant relationship between computer attitudes and computer literacy of teachers. It is important to include particular teacher training courses to improve teachers' computer literacy that will lead to teachers' positive attitudes about the use of computers within their classroom.

4. Lack of Computer Experience

Rozell and Gardner (1999) said that there is a connection between teachers' computer experience and their computer attitudes. If instructors have more experience with computers, they will show positive attitudes towards them. Al-Oteawi (2002; Bordbar, 2010) declared that many teachers who had negative attitudes about the use of ICT in instruction did not have enough knowledge to make good decisions. A study was done by Peralta and Costa (2007). It was about primary school teachers' competence towards using ICT in education. Researchers found that competence affected Italian teachers' use of ICT in instruction. It was also indicated that teachers who have high experience with computers have high confidence to use them efficiently. A study was performed about the relationship between teachers' attitude and acceptance of computers. The results obtained from this study showed that though many teachers say computer technology is a significant part of students' education, their lack of knowledge and experience results in a lack of confidence to include it in their lessons (Francis-Pelton & Pelton, 1996; Bordbar, 2010).

According to Afzalkhani and Lawwaf (2013), the Iranian teachers' experience is so limited because they do not have sufficient knowledge and skill to use teaching methods based on information technology. The same findings have been found by Yaghoubi and Shamsayi (2004), Razavi and Rahimidoost (2005), Atashak and Mahzadeh (2010), Karimi et al. (2011), Soleimanpour, Rezaei, and Bakhtiari (2013), and Zadeh Rahim, Hoseini, and Malekmohammadi (2014).

Zadeh Rahim, Hoseini, and Malekmohammadi (2014) stated that teaching experience is one of the effective factors in the Iranian teachers' use of computer technology. Aghajani and Zamani (2012) said that the number of the years of teaching experience is negatively related to the level of computer technology use by the Iranian teachers. That is, teachers with more years of teaching experience are less inclined to use technology in their instruction. This finding may be due to the lower levels of skills related to technology and the lack of enough training for the use of technology in instruction.

Aghajani and Zamani (2012) and Mastari Farahani, Rezaei Sharif, and Ostadhasanloo (2012) also stated that age is one of the important factors that can justify the Iranian teachers low level of technology use with more teaching experience. Younger teachers have enough knowledge and skills in technology and they are more in exposure to technological advancements.

In addition, Bordbar (2010) expressed that teachers who use computer technology are those who have more teaching experiences in their classroom. Based on the findings of the above studies, it is concluded that teachers who have enough experiences in teaching their courses with computer technology will use it into their instruction more than those who lack experience and have positive attitudes about the use of computer technology in the classrooms.

5. Inadequate Computer Technology Support

One of the significant factors that impact the utilization of computer is the inadequate computer technology support in hardware/software. A study was done in the US. It was indicated that some factors stopped teachers to integrate computer technology. They are technical support, the lack of practical training, and lack of planning for computer technology integration. Based on the outcomes obtained from this study, it was proposed that in order to perceive how computer is effectively applied by teachers, it is essential to investigate the teachers' beliefs and attitudes and the other external factors such as computer support that may affect their computer uses (Shi & Bichelmeyer, 2007; Li & Ni, 2010). Teachers who are using computer technologies in their classrooms need sufficient support from computer experts and should learn different software programs. Workshops and electronic message boards are the means that can motivate and support teachers who are using computer technologies (Boutler, 2007; Dupin-Bryant, 2004). Teachers' teaching methods are personal and can be impacted by intrinsic and extrinsic factors (Burnston, 2003; Machnaik, 2002).

A computer technician is needed for the application of ICT in the instruction of science and if this technician is not available, the lack of technical support brings about a lot of problems for teachers (Gomes, 2005). Yilmaz (2011) said that it is significant to equip schools with technical support concerning the repair of hardware and internet connections to continue the use of ICT in their schools. According to Tong and Trinidad (2005) and

Buabeng-Andoh, (2012), lack of technical support will disappoint teachers to make use of ICT and frustrate them from integrating computer in their classes. Some researchers indicated that that technical support assists teachers to utilize computer in their instruction. They said that ICT support affects instructors to use it in their teaching without losing their time to solve hardware and software difficulties (Buabeng-Andoh, 2012; Korte & Husing, 2007).

Afshari, Abu Bakr, Wong, and Afshari (2010) conducted a study to determine the extent to which the Iranian secondary school principals use computers. One of the significant results of this study was that the high level of computer access is necessary for principals to create an important effect on the level of their computer use. In addition, principals should have enough funds to buy hardware and software. Dashtestani (2012) stated that the Iranian EFL teachers should be provided with enough financial supports to use CALL materials for their EFL courses. EFL authorities and course designers should adopt appropriate strategies to make decisions on how to provide EFL teachers with new software tools and CALL resources. Moreover, Soyoof, Sedighi, Sedighi, and Talei (2013) examined the Iranian teachers' perceptions of computers in their classrooms. Participants were interviewed for 30 minutes regarding the effect of computer technology on teaching new materials in Iran. The results of this study showed that language teachers had several reasons why the use of computers in Iran is so restricted. They said that one of the most important reasons was the lack of budget for providing computers that prevent them from using computer in their instruction.

According to the findings obtained from the above studies, it is concluded that the lack of support prevents teachers from using computer technology. The other outcome of the above studies is that computer experts, availability of hardware and software, training, and workshops are the important factors that support teachers to use computer technologies in their classrooms.

6. Time Factor

The time factor is a major barrier in the usage of computer. Teachers do not like to use computer technology because it can shorten learning time for learners. The actual time spent for teaching and learning is not enough for teachers and this may stops them using the computer technology (Roszell, 1995). 29 conditions were identified by Roszell (1995) that influenced the usage of computer in teaching. The results indicated that one of the most important conditions impacting teachers' readiness to include technology in their education is the lack of time for developing lessons that use computer technology. Lack of time is a barrier that stops teachers using computer technology (Mumtaz, 2000). This barrier appears in two methods: (a) Release time and (b) scheduled time. A research was done by the U.S. Department of Education and National Center for Education Statistics (2000). Findings obtained from this study showed that 82% of the participants believed that insufficiency of release time stopped them practicing computer technology in their classes. Teachers said that with their scheduled classes, they lacked sufficient opportunities to practice applying computer technology in their classes. Nearly 80% of the teachers stated that there was not enough time scheduled for their students to utilize computers. It can be stated that the lack of time needed to use computer into the syllabus is an important subject.

7. Teachers' Attitudes

Integrating computer in the classes is so complicated that requires a change in the attitudes of teachers. This change is obtained in the long run. A study was conducted by Drent and Meelissen (2008). It was about the factors which restrict the usage of ICT by teachers. The results indicated that some factors like student–centered teaching, positive attitude towards ICT, and computer experience affect on the application of ICT by teachers. The other outcome of this study was that attitude towards computer had more effect on teachers in ICT use by teachers. Almusalam (2001) expressed that teachers' attitude is one of the major predictors of the use of new technologies in instructional environments. Positive attitudes about computers influence teachers' acceptance of the usefulness of computer technologies and affects whether teachers integrate these resources into their classroom (Akbaba & Kurubacak, 1998; Clark, 2000). Yildirim (2000) represented that positive attitudes are developed in teachers who use computers more and promote further use of the computer in their daily teaching tasks and do activities that need computer technology. Huang and Liaw (2005) emphasized that teachers' attitudes about technology affect their acceptance of the usefulness of technology and its integration into instruction.

Ghobadi and Yeshodhara (2013) conducted a study to investigate the EFL teachers' obstacles in using educational technology in Iran. The findings of this study showed that negative attitudes and beliefs had a great impact on the Iranian EFL teachers not to use educational technology in their classrooms. Furthermore, Sophocleous (2012) investigated teachers' attitudes of the usefulness of computer technologies in their learning. Obtained results from this study indicated that these technologies are the excellent instruments for teachers to utilize them in their instruction with their students.

Tahriri, Azim Dokht, and Derakhshan (2013) carried out a study about identifying the Iranian EFL teachers' attitudes in using computer technology in their classes. 40 male and female EFL teachers took part in this study. The results obtained from this study showed that the Iranian EFL teachers had highly positive attitudes about using computer technology in their EFL instruction.

Mollaei and Riasati (2013) carried out a study about the attitudes of the Iranian EFL teachers in using computer technology in their instruction. The findings obtained from both qualitative and quantitative data indicated that the Iranian EFL teachers have positive attitudes concerning the use of computer technology in their classrooms. In addition, Sadeghi, Rahmany, and Doosti (2014) stated that the Iranian EFL teachers who were working with computers more than the other teachers indicated positive attitudes about using them in their instruction.

Bordbar (2010) stated that teachers' attitudes about computers affect not only their own computer experiences, but also the experiences of the students they teach. In fact, it has been suggested that attitudes about computers affect teachers' use of computers in the classroom and the likelihood of their benefiting from training. Positive attitudes often encourage less technologically capable teachers to learn the skills necessary for the implementation of technology-based activities in the classroom.

The results obtained from the above studies indicate that in order to promote positive attitudes about computer technology among teachers, it is very important to pay attention to what teachers perceive of computer technology and its usefulness in their instruction, what their knowledge and skills are or what skills they need to further develop. It is also concluded that the more positive teachers' attitudes were about computer technology, the more likely they were to use it in their classrooms.

8. Lack of Professional Development in Computer Technology Integration

One of the barriers that stops teachers learn how to use computer technology is insufficient teacher training (Bauer & Kenton, 2005; Yang, 2008). In a study that was done by Yang (2008), it was exhibited that because of the lack of information technology experts, 46.3% of the 378 teachers stated that they did not have any professional development in computer technology integration. The type of training that teachers receive is also very important. In order to have a change in teachers' teaching methods, professional development must be content-focused and collaborative and this will certainly lead to students' learning (Li & Protacio, 2010; Shi & Bichelmeyer, 2007; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). Teachers will be able to gain new knowledge from the professional development and integrate it with their teaching methods if enough attention is paid to particular content areas or specific teaching approaches. Teacher professional development should not only pay attention to the particular programs and subject areas and teaching methods but also to the computer technology applications (Dudeney & Hockly, 2007; Parks et al., 2003; Zhao, 2003).

The efficacy of computer technology integration is actually related to the teaching methods, rather than computer itself. Teacher professional development should not only focus on how to utilize specific instructional tools, but also on the importance of teaching methods, content and context (Dudeney & Hockly, 2007; Parks et al., 2003; Zhao, 2003). Professional development programs have been used by many educational institutions. They provide teachers with the necessary skills to include computer into their teaching and learning and also provide numerous initiatives to urge teachers to use computer technology (Sheumaker, Slate, & Onwuegbuzie, 2001). Although teachers' knowledge about computer is very important in the integration of ICT, but this is not enough for the actual use of computer technology. Teachers can use computer technology in their teaching and learning through training programs (Sandholtz & Reilly, 2004). According to Smerdon et al. (2000; Bordbar, 2010), teachers who spent more time in training activities were more prepared to teach with computer technology. Teachers can use computer technology and change their teaching methods through professional training programs (Buabeng-Andoh, 2012). If training programs have high quality, the period for training will be long and new computer technologies are provided for teachers to teach and learn. These can cause teachers to integrate computer into their instruction (Buabeng-Andoh, 2012).

Rezaiee (2009) investigated the barriers of development of e-learning in Iran. The results showed that the lack of appropriate training facilities were the main obstacles in using technology. Afshari, Abu Bakr, Wong, and Afshari (2010) conducted a study to determine the extent to which the Iranian secondary school principals use computers. One of the findings of this study was that school should be provided with enough budgets and these budgets should involve funds for training teachers and for hardware and software upgrades.

9. Practical Implications of This Study

Based on the review of the related literature, it is concluded that the serious barriers teachers encounter with the use of computer technology in their EFL instruction can be removed provided that they should have:

1) Access to hardware and software to use computer in their instruction;

2) Sufficient knowledge and experience to utilize computer technology appropriately;

3) Adequate computer technology support from computer experts and technicians;

4) Abundant time to implement computer technology into their curriculum;

5) Positive attitudes to use computer technology effectively;

6) Sufficient training in computer technology.

10. Conclusion

Computer technology has a lot of advantages for teaching and learning. Teachers should use computer technology in their classrooms despite the many barriers influencing its performance. Based on the paper, it can be stated that there is a difference between EFL teachers' views of computer technology and the real implementation of this technology in their instruction. The reason of this discrepancy is the existence of various kinds of barriers to the usage of computer technology in EFL instruction. These obstacles should be identified and removed by teachers in designing their educational activities. It is expected that EFL teachers try to match what is actual with what is desired in their courses they should be encouraged to use different kinds of computer technology in their instruction. Educational authorities should represent and overcome these obstacles if they believe in the inclusion of computer technology in their EFL instruction. Teachers should have enough hardware and software types, computer facilities, enough time and experience, and positive attitudes if they are going to use computer technology in their EFL instruction. This is the task of educational authorities to provide teachers with enough facility-based supports. Particular teacher training programs should be included in EFL instruction to make better teachers' computer knowledge and training on the skills of computer knowledge that are specifically essential for teaching should be included in teacher training programs. Teachers should develop their technological skills and use computer technology for their own classrooms. The advantages of computer technology can only be understood if teachers understand the barriers confronting them in the use of computer technology in instruction. The success of the utilization of computer is not dependent on the availability or lack of one individual factor but is determined through considering a series of interrelated factors. By knowing the barriers, teachers can find solutions for eliminating them and expand practical training programs for the effective application of computer technology.

Acknowledgments

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