

Challenges for Using ICT in Education: Teachers' Insights

Hadi Salehi and Zeinab Salehi

Abstract—A number of studies have argued that the use of new technologies in education is essential in the information age. The integration of information and communication technology (ICT) in teaching and learning provides more opportunities for teachers and students to work better in an information age. However, some barriers may discourage teachers to integrate ICT in the classroom and prevent them to introduce supporting materials through ICT usage. Examining the barriers for using ICT in education can assist the educators to overcome the obstacles and integrate the ICT in everyday education. This study aims to investigate the teachers' perceptions of the barriers and challenges preventing teachers to integrate ICT in the classroom. Therefore, a validated questionnaire was administered to 30 high school English teachers who were selected from the five main educational districts in the city of Isfahan, Iran. Stratified random sampling was used to select equal number of respondents from each educational district. The findings indicated that although teachers had a strong desire to use ICT in the classroom, they were encountered with some barriers. Insufficient technical supports at schools and little access to Internet and ICT were considered as the major barriers preventing teachers to integrate ICT into the curriculum. Moreover, the descriptive analysis of the results showed that shortage of class time was another significant barrier discouraging teachers to use ICT into the classroom.

Index Terms—Information and communications technology (ict), challenges, barriers, insight, curriculum.

I. INTRODUCTION

Nowadays, the use of technology as a tool to develop the different language skills has received great attention so that English language teachers are frequently exposed to new practices [1]- [4]. Apart from curricular changes that come officially- usually from the Ministry of Education in each country- workshops and short trainings introduce new techniques and activities or promote new materials. Accordingly, English language teachers are accustomed to frequent subject innovations, but not necessarily more resourceful or open to new ideas. The use of technology devices, such as televisions, tape recorders and video recorders have been incorporated as a tool for language teaching since 1960s. There was evidence of many problems in terms of technical skills at the beginning, and it took about a generation for the technical skills and the technical problems to be ignored out. However, teachers are faced with some barriers that prevent them to employ information and communications technology (ICT) in the

classroom or develop supporting materials through ICT. Therefore, this study aims to explore the high school English teachers' perceptions of the challenges and barriers preventing teachers from using ICT in the classroom.

II. LITERATURE REVIEW

A. Integration of ICT in Teaching and Learning

The integration of ICT in teaching and learning is not a method; rather it is a medium in which a variety of methods, approaches and pedagogical philosophies may be implemented [5]. This statement shows that the effectiveness of ICT depends on how and why it is applied and integrated. In 1980, Taylor stated that ICT usage is classified to tutor, tool and tutee [6]. Tutorial programmes lead learners step-by-step through a programme such as drill and practice. Using technology as a tool can help other types of problems, for example, technology as a tool is frequently seen in tutorial or explanatory programmes [7]. ICT acts as a tutee where students programme the computers in order to gain more understanding.

A number of different ICT tools and applications may be integrated in teaching and learning [8]. Some of these tools and applications may be designed specifically for educational purposes and some others for more general use. The choices of resources, and the way they are used, can be linked to different learning theories which may be invoked to explain or predict learning benefits from the use of ICT [9]. Roblyer and Edwards believe that the use of ICT in education has evolved from two main approaches, namely directed and constructivist instructional methods [10]. The theoretical foundations of directed instruction are based on behaviorist learning theories and information processing theory, which is a branch of cognitive psychology. The theoretical foundations of the constructivist approaches are based on the principles of learning derived from cognitive learning theory.

B. Barriers for Using ICT in the Classroom

The process of using ICT in everyday education is very complicated. The opportunities provided by ICT to support teaching and learning are not problem-free. The virtually limitless opportunities of access to information in an educational context can pose a real danger of information overload if the teachers do not have the skills in filtering information for relevance, or are unable to establish a coherent organizing principle. Both students and teachers may lack the necessary skills to access, process and use information [8]. Even there are a number of difficulties which act as barriers and prevent teachers to integrate ICT into the classroom. As Schoepp defines, a barrier is considered as any condition that makes it difficult to make

Manuscript received January 16, 2012; revised February 17, 2012.

H. Salehi and Z. Salehi are with Faculty of Literature and Humanities, Najafabad Branch, Islamic Azad University, Najafabad, Isfahan, Iran (Corresponding author's email: hadisalehi1358@yahoo.com) (zeinab.salehi1364@yahoo.com).

progress or to achieve an aim [11]. The educators have used different categories to classify the barriers for teachers to use ICT in the classroom. Some researchers have classified the barriers into two major categories of extrinsic and intrinsic barriers. Ertmer referred to extrinsic barriers as first-order and cited access, time, support, resources and training and intrinsic barriers as second-order and cited attitudes, beliefs, practices and resistance [12]. Al-Alwani defined extrinsic barriers as barriers which are related to organizations rather than individuals and intrinsic barriers as those which are related to teachers, administrators, and individuals [13].

Some other researchers grouped the barriers into two categories of teacher-level barriers and school-level barriers. Becta classified the barriers based on whether they refer to individual (teacher-level barriers), such as lack of confidence, shortage of time, and resistance to change, or to the institution (school-level barriers), such as lack of effective training in solving technical problems and lack of access to resources [14]. Balanskat et al. classified them into micro level barriers, such as those related to teachers' attitudes and approaches to ICT, and meso level barriers, such as those related to the institutional context [15]. They also added a third group called macro level barriers, such as those related to the wider educational framework. Additionally, another group of researchers refer to the barriers as those pertaining to two types of conditions: material and non-material. As Pelgrum classifies, the material conditions refer to the insufficient number of computers or copies of software [16]. The non-material barriers refer to teachers' insufficient ICT knowledge and skills, the difficulty of integrating ICT in instruction, and insufficient teacher time.

In the US, the most important barriers to high school teachers' use of ICT were insufficient number of computers, lack of free time for learning and lack of classroom time for students to use computers [17]. Teachers in larger schools and city schools were more likely to report lack of computers as a barrier and teachers in schools with high minority student populations were more likely to report outdated, unreliable computers as a barrier [17]. In a study in UK, Jones reported that lack of personal confidence and insufficient access to the ICT resources were the key barriers for majority of the surveyed teachers [18]. Some other factors which were more internal to the teachers such as resistance to change and lack of awareness of the benefits of the ICTs for learning were reported in Jones' study. In the New Zealand, lack of time for professional development to learn about the new technologies and lack of time to explore technologies such as the internet and social networking services were repeatedly reported by teachers as the significant barriers for using ICT in the classroom [19]. Other factors such as ICTs not being considered as important enough to be a priority, contentment with current approaches and lack of confidence to integrate ICTs in the curriculum were reported by the teachers as well.

III. METHODOLOGY

A validated questionnaire was used to examine the high school English teachers' perceptions of the challenges and

barriers preventing teachers from using ICT in the classroom. Thirty high school English teachers (18 male and 12 female) were stratified randomly selected from all the educational districts in the city of Isfahan, Iran, to respond to the questionnaire. The participants were familiar with the use of ICT since most of them used the Internet for the purposes of gathering information, sending email and working on social networking.

The questionnaire consisted of five main parts and was designed and prepared in English. However, to achieve the aim of this paper, the results obtained from parts two and four are reported in the following section. Part two consisted of three multiple-choice items related to the teachers' familiarity with ICT and part four, including eight items, dealt with the factors that discourage teachers to use ICT in the classroom. All the items in part four were designed on a five-point Likert scale of agreement, where one = strongly disagree, two = disagree, three = undecided, four = agree and five = strongly agree. The five-point Likert scale was employed as it is one of the most commonly accepted Likert scales in the education field [20], [21], [22]. In the analysis phase of the study, frequencies, percentages and means for each item were calculated and presented in tables.

IV. RESULTS

The results and findings are presented in two separate sections. First, the analysis of the data obtained from the second part, teachers' familiarity with ICT, is presented. In the second section, the results are categorized according to the challenges and barriers preventing teachers from using ICT in the classroom.

A. Teachers' Familiarity with ICT

TABLE I: TEACHERS' FAMILIARITY WITH ICT

Items	Variables	Frequency	Percent (%)
How is your personal experience with ICT?	Never Used	2	6.6
	Limited User	7	23.3
	Frequent User	14	46.6
	Confident User	7	23.3
How do you judge yourself in using ICT in your classes?	Never Used	10	33.3
	Limited User	13	43.3
	Frequent User	5	16.6
	Confident User	2	6.6
How do you think of other teachers' familiarity with ICT?	Never Used	11	36.6
	Limited User	14	46.6
	Frequent User	3	10.0
	Confident User	2	6.6

This part of the questionnaire, including three items, was related to the teachers' familiarity with ICT. When the respondents were asked about their personal experience

with ICT, it was found that the majority of high school teachers (70 %) considered themselves as frequent or confident users of ICT. This belief is a clear indication of the high school teachers' familiarity with ICT; however, this does not necessarily mean that the teachers will integrate ICT into the curriculum. Less than one fourth of the respondents (23.3 %) were limited users of ICT and just two teachers had never personally used ICT. When the teachers were requested to judge about themselves regarding the use of ICT in the classroom, the majority of them (76.6 %) stated that they never use ICT in the classroom or they prefer to use it very little. As it can be seen in Table 1 and Figure 1, most of the teachers (83.2 %) believed that their colleagues are not familiar with ICT or they use the ICT very little. Based on the surveyed teachers' perceptions, just one sixth of the teachers (16.6 %) are frequent or confident users of ICT. In fact, the results of this item are not consistent with the results obtained from the first item in this part in which the teachers were asked about their personal experience with ICT.

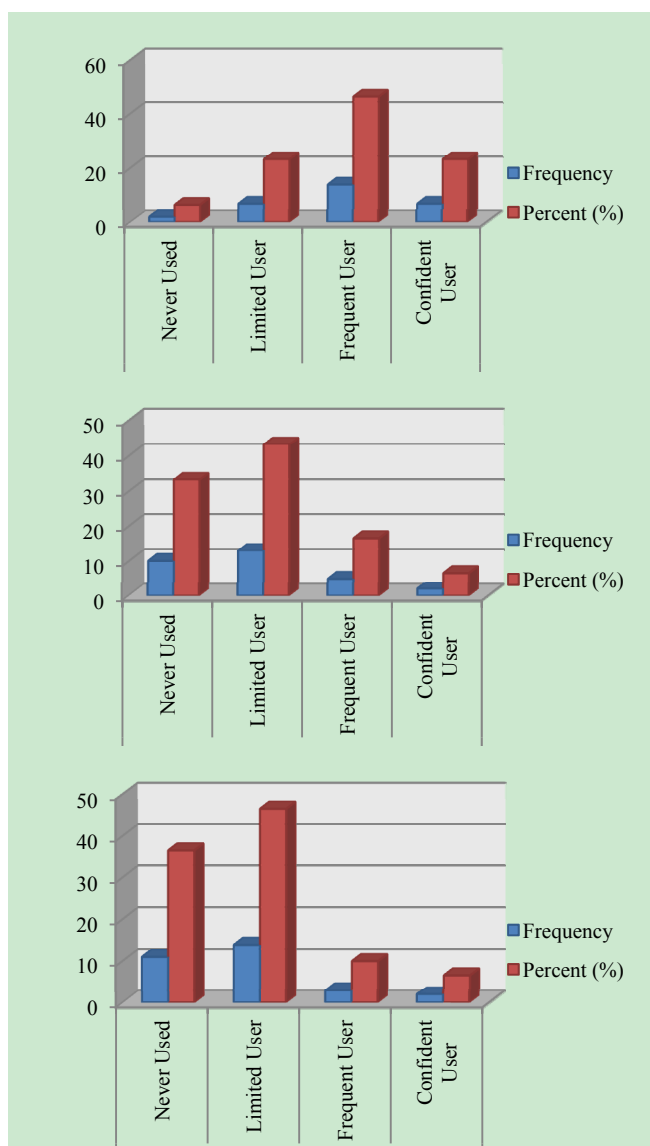


Fig. 1. Teachers' familiarity with ICT.

B. Barriers Preventing Teachers from using ICT

This part aimed to explore the teachers' perceptions of a

list of 8 factors that prevent them to use ICT in the classroom. The obtained results are shown in Table 2. Table 3 and Figure 2 also show the most significant barriers according to the mean scores. As it can be seen, just three items got the mean scores equal to or above 3.50, indicating the teachers' attitude towards these three items as the most important barriers that prevent them from using ICT in teaching activities. Teachers believed that insufficient technical supports at schools and little access to Internet and ICT prevent them to use ICT in the classroom. Shortage of class time was another significant barrier for the teachers to integrate ICT into the curriculum. Moreover, the item "Time needed to learn using ICT prevents me to use ICT" received 40 percent of the teachers' agreement.

TABLE II: BARRIERS PREVENTING TEACHERS TO USE ICT

Statements	Strongly disagree and disagree		Undecided		Agree and strongly agree	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Shortage of class time hinders me to use ICT.	8	26.6	3	10.0	19	63.3
Little access to ICT prevents me to use ICT.	2	6.6	4	13.3	24	80.0
Few ICT technical supports at schools discourage me to use ICT in classroom.	1	3.3	2	6.6	27	90.0
Society views about ICT hinder me to use ICT.	17	56.6	5	16.6	8	26.6
Colleagues' negative views about ICT hinder me to use ICT in the class.	22	73.3	5	16.6	3	10.0
School views about ICT discourage me to use ICT.	20	66.6	3	10.0	7	23.3
Time needed to learn using ICT prevents me to use ICT.	14	46.6	4	13.3	12	40.0
Requirements of qualifications discourage me to use ICT.	17	56.6	3	10.0	10	33.3

TABLE III: BARRIERS PREVENTING TEACHERS TO USE ICT ACCORDING TO THE MEAN SCORES

Statements	Mean
Few ICT technical supports at schools discourage me to use ICT in classroom.	4.33
Little access to ICT prevents me to use ICT.	4.23
Shortage of class time hinders me to use ICT.	3.50
Time needed to learn using ICT prevents me to use ICT.	2.93
Requirements of qualifications discourage me to use ICT.	2.60
Society views about ICT hinder me to use ICT.	2.50
School views about ICT discourage me to use ICT.	2.30
Colleagues' negative views about ICT hinder me to use ICT in the class.	2.20

However, more than two-thirds of the respondents believed that their colleagues' negative attitudes and school

views about ICT do not influence their perceptions of using ICT in the classroom. More than half of the surveyed teachers (56.6 %) also stated that society views about ICT and requirements of qualifications do not hinder them to use ICT applications in the classroom. In general, other people's opinions regarding ICT do not influence the teachers' perceptions of using ICT applications in the classroom.

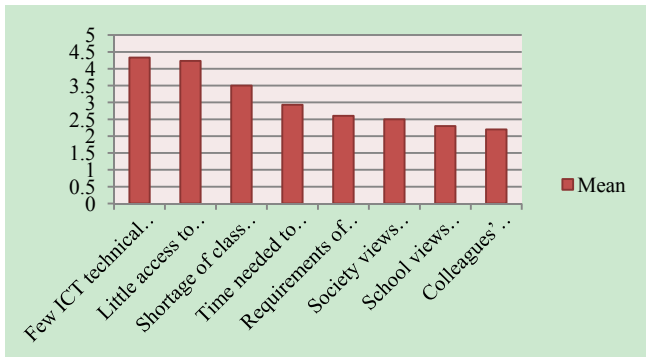


Fig. 2. Barriers preventing teachers to use ICT according to the mean scores.

V. CONCLUSION

The integration of information and communications technology in teaching and learning is considered as a medium in which a variety of approaches and pedagogical philosophies may be implemented. However, ICT as a teaching aid is more complicated in that it demands more specific skills from the teachers. Moreover, teachers are faced with some challenges and barriers that prevent them to employ ICT in the classroom or develop supporting materials through ICT. This study concluded that the high school teachers are familiar with ICT and ICT usage; however, this does not necessarily mean that they integrate ICT into the curriculum. In addition, insufficient technical supports at schools and little access to Internet and ICT prevent teachers to use ICT in the classroom. Shortage of class time and time needed to learn using ICT were reported as two other key barriers for teachers to integrate ICT into the curriculum.

In order to integrate ICT into the curriculum, on the one hand, teacher training institutions should provide appropriate and sufficient support for the teachers. On the other hand, teachers should be aware of what is happening in the classroom and what changes are occurring. Therefore, possible effective uses ICT can be applied in teaching and learning, which will eventually lead to the improvement of educational programs.

REFERENCES

[1] G. Dudeney, *The internet and the language classroom* (Vol.X). Cambridge: Cambridge University Press, 2000.
 [2] C. Chapelle, *Computer applications in second language acquisition: Foundations for teaching, testing and research* (Vol.XVII). Cambridge: Cambridge University Press, 2001.

[3] S. S. C. Young, "Integrating ICT into second language education in a vocational high school," *Journal of Computers Assisted Learning*, vol.19, pp.447-461, 2003.
 [4] M. M. Yunus, "Malaysian ESL teachers' use of ICT in their classrooms: expectations and realities," *RECALL: The Journal of EUROCALL*, vol.9, no. 1, pp. 79-95, 2007.
 [5] N. Garret, "Technology in the service of language learning: Trends and issues," *Modern Language Journal*, vol. 75, no. 1, pp. 74-101, 1991.
 [6] R. P. Taylor, *The computer in school: Tutor, tool, tutee*. New York: Teacher College Press, 1980.
 [7] B. Means, J. Blando, K. Olson, T. Middleton, C. Morocco, and A. Remz, "Using technology to support education reform," 1993. Retrieved 10 October 2011, from <http://www.ed.gov/pubs/EdReformStudies/TechReforms/>
 [8] M. M. Yunus, M. Lubis, and C. Lin, "Language Learning via ICT: Uses, Challenges and Issues," *WSEAS Transactions on Information Science and Applications*, vol. 6, no. 9, pp.1453-1467, 2009.
 [9] J. Wishart and D. Blease, "Theories underlying perceived changes in teaching and learning after installing a computer network in a secondary school," *Educational Technology*, vol. 30, no. 1, pp. 25-41, 1999.
 [10] M. D. Roblyer and J. Edwards, *Integrating educational technology into teaching* (2nd ed.). Upper Saddle River, New Jersey: Prentice Hall, 2000.
 [11] K. Schoepp, "Barriers to technology integration in a technology-rich environment," *Learning and Teaching in Higher Education: Gulf Perspectives*, vol. 2, no. 1, pp. 1-24, 2005.
 [12] P. Ertmer, "Addressing first- and second-order barriers to change: Strategies for technology integration," *Educational Technology Research and Development*, vol. 47, no. 4, pp. 47-61, 1999.
 [13] A. Al-Alwani, "Barriers to information technology in Saudi Arabia Science Education," Doctoral dissertation, the University of Kansas, Kansas, 2005.
 [14] British Educational Communications and Technology Agency (Becta), "A review of the research literature on barriers to the uptake of ICT by teachers", 2004. Retrieved December 13, 2008, from <http://www.becta.org.uk>
 [15] A. Balanskat, R. Blamire, and S. Kefala, *A review of studies of ICT input on schools in Europe*. European Schoolnet, 2006.
 [16] W. J. Pelgrum, "Obstacles to the integration of ICT in education: Results from a worldwide educational assessment," *Computers and Education*, vol. 37, pp. 163-178, 2001.
 [17] B. Smerdon, S. Cronen, L. Lanahan, J. Anderson, N. Iannotti, and J. Angeles, "Teachers' tools for the 21st century", 2000. Retrieved 8/12/2011, from <http://nces.ed.gov/spider/webspider/2000102.shtml>
 [18] A. Jones, *A review of the literature on barriers to the uptake of ICTs by teachers*. (Research report). London: British Educational Communications and Technology Agency, 2004.
 [19] N. Billowes, *ICT activities that make a difference*. Wellington: Ministry of Education, 2001.
 [20] L. Cohen, *Educational research in classrooms and schools: A manual of materials and methods*. London: Harper & Row, 1976.
 [21] A. Green, "Washback to learning outcomes: a comparative study of IELTS preparation and university pre-session language courses," *Assessment in Education*, vol. 14, no. 1, pp. 75-97, 2007.
 [22] M. M. Yunus, H. Salehi, and S. Kashefian-Naeeni, "The impact of high-stakes tests on the teachers: A case of the Entrance Exam of the Universities (EEU) in Iran," *Proceedings of the International Conference on Humanities, Society and Culture (ICHSC 2011)*, pp.221-22, 2011.

Hadi Salehi is a PhD candidate in TESL at National University of Malaysia (UKM). He received his BA in English Literature from Isfahan University, Iran, and his MA in TEFL from Tehran Payame Noor University. He is also a lecturer in the Faculty of Literature and Humanities, Najafabad Branch, Islamic Azad University, Iran. His main research interests include Language Learning Strategies, Material Development, and Language Assessment.