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Barriers to ICT Integration in Moroccan Secondary School EFL Classrooms

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Abstract
There is a broad consensus in the literature that the use of Information and Communication Technology (ICT) has become an effective tool that can be used for educational purposes. The use of ICT in the classroom creates better learning opportunities and enhances the quality of teaching. However, barriers to ICT integration hinder this process. The aim of this paper is to explore the perceived barriers to ICT integration that Moroccan secondary school teachers encounter in EFL classrooms. This study adopted a mixed-methods design, and data were collected through two instruments: a survey questionnaire and a semi-structured interview. Secondary school EFL teachers in the area of Agadir, Morocco, participated in this study and of the 80 informants who completed and returned the questionnaire, 8 of them were interviewed. The findings indicate that the major barriers that teachers encounter in integrating ICT into the classrooms were lack of adequate ICT facilities in the schools, lack of time, lack of continuous and effective ICT training, technical problems, and lack of technical support. Further, various solutions and recommendations are offered to minimize these barriers and maximize the beneficial use of ICT in the teaching and learning process in Moroccan EFL secondary school settings.
Keywords: Barriers, EFL Settings, ICT, Moroccan Educational Context, Technology Integration
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1. Introduction

Researchers have used several classifications to categorize barriers to teachers' ICT use in the classroom. Various studies have approached the ICT integration barriers from the perspective of the individual (teacher), the institution (school), or the system as a whole. However, since the purpose of this paper is to probe into and identify the present barriers that currently face EFL teachers in their school contexts as well as potential future barriers, the focus of the review of the literature will be mainly on the teacher-level and school-level barriers.

2. Review of the Literature

ICT, which stands for information and communication technology, can be defined as a "combination of computer, video and telecommunication technologies, as observed in the use of multimedia computers and networks and also services which are based on them" (Van Damme, 2003). More precisely, it refers to teachers' technology use for educational purposes such as instructional preparation, instructional delivery, and technology as a learning tool for students (Inan & Lowther, 2010). Integrating ICT in teaching and learning is not an easy process, but a complex one which might encounter various obstacles which are known in the literature as "challenges" or "barriers" (Schoepp, 2005). In this respect, a barrier is defined as "any condition that makes it difficult to make progress or to achieve an objective" (WordNet, 1997, as cited in Schoepp, 2005, p. 2).

2.1 Teacher-level Barriers

Many researchers who investigated the challenges to ICT integration in teaching agreed that lack of teachers' confidence, competence or negative attitudes towards ICT use in education are serious obstacles that prevent integrate ICT in EFL classrooms. In this regard, findings from a considerable number of studies on ICT use suggest that lack of confidence (Becta, 2004), fear of failure (Beggs, 2000), and anxiety (Balanskat et al., 2006) are among the major barriers to teachers' incorporation of ICT into teaching practices. Research argues that lack of confidence and experience with ICT impacts teachers' motivation towards classroom ICT integration (Balanskat et al., 2006; Cox et al., 1999; Osborne & Hennessy, 2003). On the other hand, teachers who have confidence about their classroom ICT use tend to understand its usefulness. Cox at al. (1999) found that teachers who confidently use ICT believe that ICTs are useful and helpful in their teaching practices, and they are willing to further extend their future ICT use. Perhaps one of the main reasons for teachers' lack of confidence with ICT use in teaching is their lack of or limited competence in integrating ICT into pedagogical practices (Becta, 2004). Research findings have reported that lack of teacher competence is a common barrier among teachers worldwide including developed countries such as Australia (Newhouse, 2002) and Denmark (Balanskat et al., 2006), and those in the process of development, for instance Syria (Albirini, 2006), Saudi Arabia (Al-Alwani, 2005; Almohaissin, 2006), and Morocco (Fatmi, 2010). Findings carried out in Europe, for example, showed that teachers who do not make use of ICT in their classrooms state that 'lack of knowledge and skills' is a

constraining factor that prevents them from using ICT in their teaching (Empiricia, 2006). Likewise, in the developing countries, teachers' lack of technological competence is regarded as a significant obstacle that stands against their willingness to accept and adopt ICT in their teaching practices (Pelgrum, 2001; Al-Oteawi, 2002). Negative attitudes towards ICT and resistance to change is perceived to be a major barrier to teachers' use of ICT in their teaching practices (Becta, 2004; Gomes, 2005; Schoepp, 2005). Empiricia (2006) argued that teachers who believe that ICT use in teaching is devoid of any benefits are usually those who use no ICT in their classrooms. According to Watson (1999), teachers are different and so they handle change differently. Hence changing teachers' attitudes is an important requirement to take into account before integrating ICT into the classroom as their attitudes influence their teaching practices.

2.2 School-level Barriers

A considerable number of studies reported that many teachers make little to no use of ICT in their classrooms not due to teachers-related barriers, but due to school-level barriers such as lack of time, effective ICT training, accessibility, and technical support. Many researchers probed into the issue of teachers' lack of time and found that time limitations and the difficulty in scheduling enough time for classes with ICT use as a real obstacle to teachers' technology integration in the classroom (Al-Alwani, 2005; Becta, 2004; Beggs, 2000; Schoepp, 2005; Sicilia, 2005). Lack of effective training is also one of the barriers most frequently referred to by many researchers (Albirini, 2006; Balanskat et al., 2006; Beggs, 2000; Özden, 2007; Pelgrum, 2001; Schoepp, 2005; Sicilia, 2005; Toprakci, 2006). Findings from these studies revealed that unavailability of or deficiency in training in digital literacy and absence or insufficiency of adequate pedagogical training in methods and techniques of using ICT in the classroom were clear barriers to incorporating new educational technologies into the classroom practices. Other studies indicated that lack of access to ICT-based learning and teaching resources and materials either temporarily or permanently both at work or at home is another major hindrance for teachers which discourages them and, hence, prevents them from using ICT in their teaching (Albirini, 2006; Al-Alwani, 2005; Becta, 2004; Empiricia, 2006; Gomes, 2005; Korte and Husing, 2007; Osborne and Hennessy, 2003; Pelgrum, 2001; Sicilia, 2005). Lack of technical support in the classroom and whole-school ICT resources were also identified as one of the main barriers preventing teachers from using or continuing to use ICT in teaching (Lewis, 2003; Pelgrum, 2001; Sicilia, 2005). These barriers prevent successful integration and application of ICT into the teaching practices (Toprakci, 2006).

Overall, research in the integration of ICT in education identified a set of factors, several of which were previously alluded to in this section, as global barriers to ICT use in the classroom teaching practices. The following are the most frequently referred barriers in the literature: lack of teachers' confidence, teachers' attitudes towards ICT tools, teachers' resistance to change, poor training opportunities, teachers' poor training in ICT, lack of or poor inclusion of pedagogical aspects in ICT use, lack of competencies and skills required for effective integration of ICT in teaching, lack of ICT skills, lack of time, scheduling difficulties, lack of sufficient ICT tools and materials, lack of quality ICT hardware and software, technical problems, lack of technical support, poor administrative support, and poor funding.

3. Method

3.1 Research Design

A mixed-methods approach of investigation was used to collect data in this study. This mixed-methods design combined quantitative and qualitative methodological approaches. The mixed-methods approach "is used when the strengths of each method offset the weaknesses of the other method so that together they provide a more comprehensive and complete set of data." (McMillan, 2004, p. 289). Furthermore, opting for a mixed-methods design in this study led to triangulate the data through utilizing different types of data collection and analysis (McMillan, 2004). Triangulation of data collection necessitates qualitative cross-validation via using multiple methods of data collection (Wiersma, 1995). Therefore, adopting more than one method expanded our understanding of the issue under scrutiny and confirming the findings from various data sources was rendered possible (Creswell, 2003).

3.2 Participants

The target population of the current study is EFL teachers working in different Moroccan public secondary schools. Through convenience sampling methods (Cohen, 1988), the population of this study was sampled. The sampling method which is based on opportunity sampling required choosing the nearest individuals to serve as informants.

Since it is difficult to access a large population of teachers of English all over the country, convenience sampling method was deployed to recruit the samples from accessible population (Ary, Jacobs, & Razavich, 2002). The samples from the accessible population are public EFL secondary school teachers in the city of Agadir and EFL teacher participants in an annual conference which took place in Agadir during the period of

collecting the data. Although this study opted for convenience sampling, generalizing the findings was possible given the considerable number of the informants which made it possible for the sample to exhibit features that are similar to the ones of the target population (Creswell, 2002). Besides, similar characteristics are shared by the sample and the target population namely standardized curriculum, standardized pre-service training, discipline taught (EFL), and standardized national pedagogical guidelines.

Concerning the survey questionnaire, 120 questionnaires were administered to 120 Moroccan public secondary school teachers of English. The return rate was 66.6%, yielding a final sample of 80 informants for this study. As regards the interviews, the researcher opted for purposive sampling. The advantage of purposeful sampling lies in selecting information-rich cases for a more in-depth analysis of the issue under investigation (Patton, 2002). Using purposive sampling helped identify eight informants that were chosen for the interview phase. The interview sample was selected based mainly on the informants' willingness to be interviewed, and on cases that might best illuminate the issue in question.

3.3 Instruments

For the sake of triangulation, two instruments for data collection were used in this study: a survey questionnaire and a semi-structured interview. While the findings obtained from the teacher questionnaires' responses were analyzed quantitatively, the interview results were analyzed qualitatively. What follows is a detailed description of the development of the instruments.

3.3.1 The Survey Questionnaire

The present study is part of a bigger research on teachers' ICT use in Moroccan secondary school EFL classrooms. The survey questionnaire adapted in this research is based on Chen (2008) which consists of six sections. As regards the research question that the current article deals with, section VI of the survey questionnaire was designed to collect data concerning the barriers to ICT integration. This section includes the following guided and open question 'what challenges do you face when you try to integrate ICT in English teaching?'. The respondents were given a list of the most common barriers to ICT integration in teaching to tick: 'lack of time', 'lack of ICT facilities in my school', 'I do not have enough training', 'I feel more comfortable with the way I have been teaching', 'I am not sure ICT will work', and 'administrative obstacles'. They were also allowed to add any other further barriers they face in integrating ICT in the classroom which are not stated in the suggested list of the barriers.

Prior to administering the questionnaires, a pilot survey was conducted to test the survey questionnaire using a smaller sample from two different public secondary schools in the city of Agadir. In this respect, 12 teachers were voluntary involved in the pilot survey. On the basis of the piloting results, the survey questionnaire was refined taking into consideration the informants' feedback received throughout the piloting procedure. What follows are the main adjustments that the questionnaire underwent:

1. Editing the wording of certain items (questions).
2. Including an additional item: 'would you like to take part in a follow-up interview on the same topic?'. This item was added with the objective of selecting volunteers for the follow-up interview.

3.3.2 The Interview

Regarding the qualitative part of the current study, a semi-structured interview was designed wherein precise questions based on the research question were developed to collect qualitative data. In more detail, the interview instrument was employed aiming at investigating aspects which the quantitative data could not or might not address (Creswell, 2003). In addition to that, as Lincoln and Guba (1985) and Merriam (1998) noted, interviewing informants while conducting research is one of the most commonly used research methods for a further understanding of the informants as human beings. The semi-structured interview questions sought to address and discuss teachers' perceived barriers to ICT use in their EFL classes and potential solutions to these barriers. Themes developed in the course of interviewing the informants were expanded by opting for further probing questions for which the informants were given the opportunity to further elaborate on.

3.4 Procedures

3.4.1 Data Collection

With the aim of answering the research question, a survey questionnaire and an interview with EFL teachers were employed as data collection procedures. As for the first data collection procedure, the survey questionnaires were administered with teachers of English practicing in various public secondary schools in the city of Agadir. The survey questionnaires were also administered to EFL teachers who participated in an annual conference which took place in Agadir. Concerning the second procedure of data collection, interviews, which followed the semi-structured interview protocol, were conducted with 8 selected teachers. Interviews were audio-recorded, following the informants' consent, for the purpose of coding, transcription, and analysis.

3.4.2 Data Analysis

3.4.2.1 Survey Data Analysis

To explore the barriers that the Moroccan EFL teachers face when they integrate ICT in the classroom, descriptive statistical procedures were used to analyze the questionnaire responses. Table 1 below offers a detailed description of the statistical analysis procedures adopted to answer the research question of the study.

Table 1. Statistical Analysis Procedures for the Research Question

Research question	Variables	Statistical procedure
What challenges do Moroccan teachers of English face when they integrate ICT in the classroom?	Perceived barriers	Descriptive (Frequencies)

3.4.2.2 Interview Data Analysis

To ensure that the study meets the requirements of qualitative research such as trustworthiness, credibility, confirmability, dependability, and transferability (Lincoln & Guba, 1985), the responses from the interviews were recorded and transcribed for data analysis. Emerging patterns and themes of data were classified based on content analysis of each individual transcript (Patton, 2002). Following the content analysis phase at the individual level, a cross-case analysis was applied in which all the individual analyses were compared to one another; grouping the responses from the informants and noting developing patterns.

4. Results

4.1 The Findings of the Questionnaire Data Analysis

The research question 'what challenges do Moroccan teachers of English face when they integrate ICT in their classrooms?' was asked with the objective of unveiling the barriers that Moroccan EFL teachers face in integrating ICT into their teaching practices in the Moroccan secondary schools. The respondents were given a set of challenges to the integration of ICT in teaching to tick that best describes the obstacles to ICT use in their EFL contexts where they teach. The respondents were also given the possibility to tick 'other' and state any further challenges that they encounter which are not included in the list given. The following is the list of the challenges:

1. Lack of time.
2. Lack of ICT facilities in my school.
3. I do not have enough training.
4. I feel more comfortable with the way I have been teaching.
5. I am not sure ICT will work.
6. Administrative obstacles.
7. Other: …

According to the results in the Figure 1 below, 80% of the teachers (n = 64) who participated in this survey stated that lack of ICT facilities in their schools is a major obstacle that they face, 32 teachers (40%) indicated that lack of time is a serious barrier to the use of ICT in their teaching, and 19 teachers (almost 30%) mentioned that they face administrative obstacles whenever they plan usage of ICT in their classrooms. Fourteen teachers (17.5%) revealed that they do not have enough training (either technically or pedagogically or both) for employing ICT tools in their teaching practices. Eight teachers (10%) stated that they feel more comfortable with the way they have been teaching, whereas 4 teachers (5%) revealed that they are not sure ICT will successfully work and give fruitful outcomes if integrated in their teaching. Three teachers (3.8%) complained about lack of electricity in the classrooms where they teach, 2 teachers (2.5%) complained about the over-crowded classes they have, and 1 teacher (1.3%) stated that he/she encounters Internet connection issues. One teacher (1.3%) complained about the fact that there are no working plugs in their classrooms, 1 teacher (1.3%) complained about the fact that he/she has no fixed classroom and keeps changing classrooms every session, whereas one teacher (1.3%) revealed that he/she finds it difficult to find suitable content whenever he/she plans to integrate ICT in his/her teaching practices.

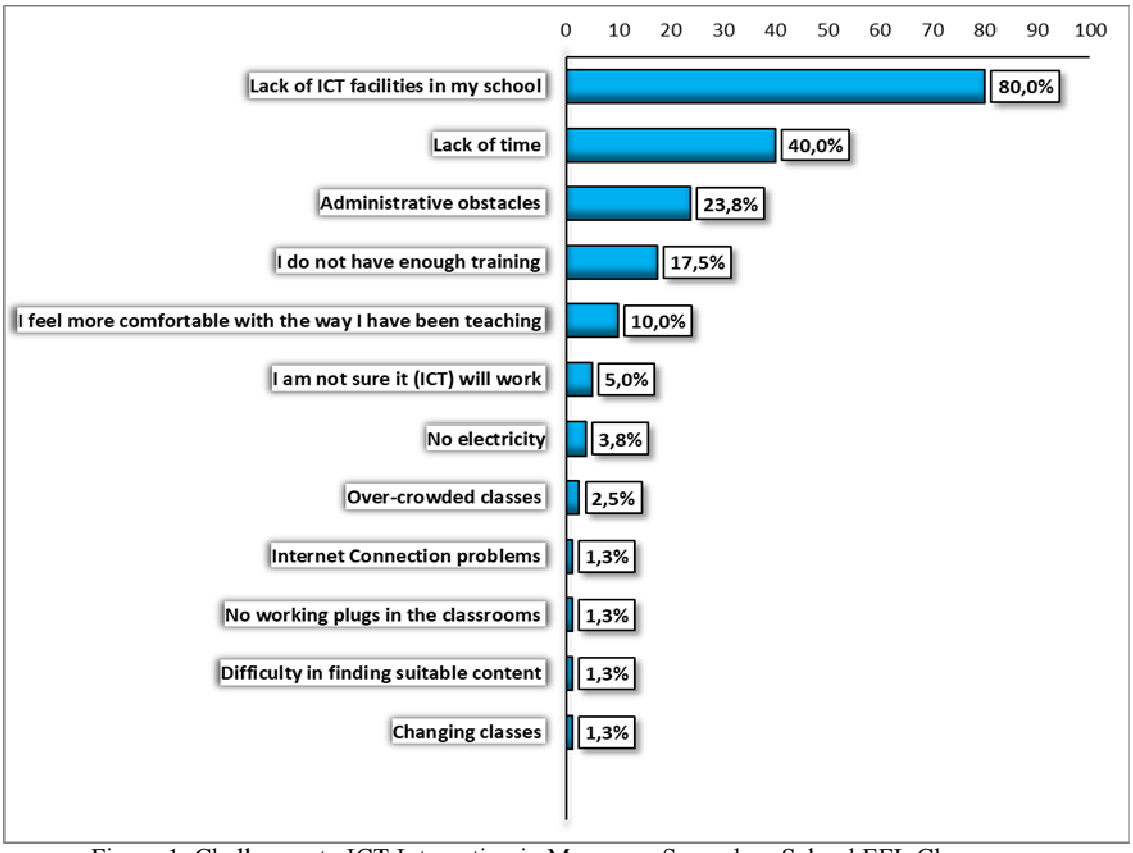

Figure 1. Challenges to ICT Integration in Moroccan Secondary School EFL Classrooms

4.2 The Findings of the Interview Data Analysis

Regarding the participants' perceived barriers to ICT integration in the classroom, the categories of barriers that emerged from the interviews were consistent with the most frequently faced barriers reported by the quantitative survey. The most frequently mentioned barriers in the interviews were: (1) lack of adequate ICT facilities in the schools, (2) lack of time, (3) lack of continuous and specific training in ICT, (4) technical problems, and (5) other barriers.

4.2.1 Lack of ICT Equipment

The interview data analysis revealed that the most important barrier which was mentioned by the respondents was lack of ICT equipment in the schools. Five out of the 8 interviewed teachers expressed their concerns about the lack of adequate ICT hardware and software as a major obstacle in using ICT for instructional purposes. Teacher 5 stated that:

> The school has not got any multimedia class that will facilitate the use of ICT. Sometimes you need to move from one class to another which led to a waste of time. Teachers work with their personal materials. This means that the ministry should equip schools with enough and high-quality materials.

Teacher 8 stressed the issue of unavailability of adequate ICT facilities in the schools. She also complained about the problem of having access to the ICT equipment even if it is available: "…not enough tools available at school, not usually available when needed."

4.2.2 Lack of Time

Lack of time was the second most frequently mentioned barrier by the participants. Of the eight teachers participating in the study, two felt that there was not enough time to cover the entire syllabus and integrate ICT at the same time. They expressed their concern about the lack of time to prepare and plan lessons in which ICT is integrated for instructional purposes. Teacher 7 stated that integrating ICT into her teaching practices is "time effort and money consuming". Similarly, Teacher 4 believed that covering the syllabus was a priority for both teachers and students. He noted that long programs that they should cover leave them with very tight time to plan ICT-based lessons.

4.2.3 Lack of Continuous Effective ICT Training

Analysis of the interview data revealed that lack of continuous and specific training in ICT was one of the major factors inhibiting ICT integration. Two out of the 8 teachers in this study stressed on the fact that there is neither specific nor continuous training in ICT. Teacher 5 when asked about the Microsoft Office Specialist training expressed his dissatisfaction about such in-service ICT training in terms of its ineffectiveness:

> I am not satisfied. Again, the time allotted to the training is not enough; three sessions of two hours for Excel, the same for Word & Power Point! I think continuous training is needed for effective learning in this case. Also, the training sometimes is not to the point; I mean it does not meet the real needs of most of the teachers. I am not pessimist about the training, but there is something missing, especially when the trainer comes across with some teachers who still have a problem with how to move the mouse, let alone dealing with Power Point or Excel!

The same teacher continued to express his dissatisfaction about the in-service GENIE training program complaining: "I have no idea about the program; they only gave us a kind of booklet and a CD!".
Similarly, teacher 7 who integrated ICT in her classroom at least twice a week stated that she benefited from ICT course in her pre-service training and other ICT trainings as part of her in-service training such as GENIE and Microsoft Specialist. However, she noted that the ICT training she had lacks professionalism, she said:

> No (I am not satisfied), simply because it does not include all the programs/applications a teacher ought to master for a better ICT usage in class. The few programs the training is devoted to are processed in a very unprofessional and shallow way.

Likewise, teacher 4 who mostly employs ICT in his classroom teaching practices, expressed his dissatisfaction about lack of effective preparation and planning in the in-service ICT trainings that he has taken by saying: "No, I am not (satisfied), as it was not well-prepared and the problem of mixed ability classes. I was more developed than others, so we repeated what I already know". Teacher 8 sided with this by saying: "not at all (I am not satisfied). It was a kind of peer teaching training. I had learned just a little!".

Finally, teacher 2 noted that the in-service training in ICT (GENIE and Microsoft Office Specialist) are superficial and sometimes the Ministry of Education just wants teachers to take such one-shot ineffective trainings, she said: "No (I am not satisfied), they are very superficial and do not help teachers to implement ICT…they just wanted us to do it". Teacher 3 supported that by saying: "the objective of the training is good, but four days are not enough!".

4.2.4 Technical Problems

Two teachers mentioned technical problems as a major barrier to ICT use in the classroom. Teacher 6 who integrated ICT in his teaching practices on a daily basis expressed his concern about the technical breakdowns that sometimes happen while he is using ICT in his classroom by saying: "…the unexpected technical issues. Sometimes you plan and suddenly the material is not working for some reason!". Teacher 2 who often taught using ICT in her classroom, pointed out that the technical problems are a hindrance to ICT integration in the schools, and when they happen, they make the use of ICT time consuming, she said: "…technical problems which make its use time consuming".

4.2.5 Other Barriers

Analysis of the interview data revealed a variety of obstacles that the teachers who participated in the interviews consider as obstacles that hinder the use of ICT in their classrooms. Teacher 4 pointed out that overcrowded classes and the negative backwash effect of exams are among the challenges he faces in integrating ICT in the classroom. Teacher 7 felt that the problem sometimes comes from students themselves as "they might think it is a waste of time and nothing but a fun activity". The same teacher added that using ICT in her teaching is effort and money consuming which she believes is a real challenge in this regard. Similarly, teacher 3 expressed his concern about the fact that ICT tools are expensive when teachers decide to buy them for their classroom use in the schools where there is lack of ICT facilities.

5. Discussion

One of the purposes of conducting interviews with teachers in the present study was to explore as many factors that affect ICT integration as possible, including those which were not included in the quantitative data. Both quantitative and qualitative data analyses revealed an important number of factors which hinder ICT integration in the classroom. These factors include (1) lack of / inadequate ICT facilities in the schools, (2) lack of time, (3) lack of continuous and effective training on ICT and (4) technical problems and lack of technical support.

5.1 Lack of or Inadequate ICT Facilities in the Schools

In this study, the most significant barrier to ICT integration is lack of or inadequate ICT equipment in the secondary schools and classrooms. This finding is supported by several previous studies which showed that there is a strong correlation between the amount of ICT use and the number of ICT tools available in the schools (Leh, 2000; Becker & Ravitz, 2001; Pelgrum, 2001; Al-Alwani, 2005; Sicilia, 2005; Albirini, 2006; Empiricia, 2006; Toprakci, 2006). In general, conclusions from these studies indicated that the limitations on access to ICT hardware and software resources in the school setting negatively impact teachers' motivation towards classroom ICT integration (Osborne and Hennessy, 2003).

It is worth mentioning, however, that recent several studies have indicated that access to ICT is necessary, but it does not always guarantee the establishment of ICT integration in the schools (Ross & Lowther, 2003). In

this regard, it is reported that both the availability of ICT infrastructure and accessibility of ICT resources are not sufficient for setting a successful ICT integration in the classroom, especially when there is lack of high-quality hardware and suitable educational software (Balanskat et al., 2006). For instance, one of the participating teachers in the current study complained about lack of high-quality ICT hardware, saying: "the ministry should equip schools with enough and high-quality materials". Accordingly, it would not be surprising to see teachers with limited classroom ICT use even in schools where necessary ICT hardware and software is available (Cuban et al., 2001).

5.2 Lack of Time

The process of integrating ICT into the classroom teaching practices depends on the amount of time that teachers have to prepare and teach lessons which partially or completely integrate ICT. Findings yielded by the quantitative and qualitative analyses in this study identified lack of time as a barrier to integrating ICT in the classroom. Past research reports that teachers must spend time planning and designing curriculum activities that allow for the use of ICT within their classrooms. Maddin's (2002) study pointed out that time is a significant factor for teachers to integrate ICT in the sense that time which teachers need to plan lessons that include ICT and time which students need to use ICT in the classroom were of concern to the teachers. The teachers in the current study showed similar concern in that respect.

In this study, it is found that lack of time is the second most stated barrier to ICT integration by the teachers as 40 % of the participants indicated that lack of time is a serious barrier to ICT integration in their teaching. It is also worth mentioning that all the teachers who participated in the interviews have busy schedules with at least 19 hours and 5 classes to teach per week. This could explain the frustration the participants in this study have about the issue of lack of time as a major barrier to ICT integration in the Moroccan EFL classrooms. These teachers have less time during the day to prepare and plan ICT-based activities due to long working hours, and the very few hours left during the day after work are not enough for them to do planning for lessons with ICT use. The same barrier encountered by teachers in Saudi Arabia as reported by Al-Alwani (2005).

In concordance with the findings of the present study, lack of time has also been reported by a number of studies as a major obstacle in integrating ICT in teaching (Chiero, 1997; Jaber and Moore, 1999; Becker, 2000; Beggs, 2000; Schechter, 2000; English, 2002; Maddin, 2002; Becta, 2004; Shuldman, 2004; Al-Alwani, 2005; Gomes, 2005; Schoepp, 2005; Sicilia, 2005). The researchers in these studies commonly pointed out that time limitations due to busy schedules make it difficult for teachers to schedule sufficient time for classes with ICT integration. In this regard, planning and preparing lessons and creating curriculum activities that give room for ICT use requires exploring different web sites for resources and content or looking at various aspects of educational software. This process which is time consuming has been reported by Sicilia (2005) as the most common challenge that teachers faced in his study. Furthermore, exploring and practicing ICT tools, dealing with technical problems, and receiving adequate ICT use training are other aspects of ICT integration in class that require much more time which is a common issue among teachers (see Becta, 2004). Time is a critical factor in determining whether ICT will be integrated into the curriculum, and teachers' willingness to commit to spending extra time exploring technology on their own is vital to the success of ICT integration.

5.3 Lack of Continuous and Effective Training in ICT

The present study concluded that lack of continuous and effective training in ICT is one of the obstacles that hinder a successful ICT integration in the classroom. The qualitative data analysis revealed that quality and length of the ICT training programs are of paramount significance to teachers' readiness and willingness to ICT integration in their teaching practices. Although the quantitative data analysis showed that 44 % of the teachers participating in this study had pre-service training on ICT and 39 % of them had taken the GENIE training as part of in-service training, the majority of the interviewees expressed their concern and dissatisfaction about both the low quality as well as the insufficient amount of time allotted to the ICT training they had taken. These findings agree with findings yielded by several previous studies (Cox et al., 1999; Beggs, 2000; Pelgrum, 2001; Alhamd et al., 2004; Becta, 2004; Gomes, 2005; Balanskat et al., 2006; Toprakci, 2006).

In this respect, studies conducted by Beggs (2000), Pelgrum (2001), Toprakci (2006), and Özden (2007) concluded that one of the major obstacles to ICT integration in education was lack of adequate training opportunities in the use of ICT in the classroom for teachers. This includes lack of effective training on ICT in general and specifically insufficient or limited amount of in-service training in ICT that teachers receive. As revealed by the qualitative findings from the interviews in this study, lack of or inadequate training in digital literacy and lack of pedagogy-based technology training on best ways of using ICT for educational purposes were considered as obstacles to the employment of ICT in the schools (see Gomes, 2005). On this basis, the current study raises the issue of the complexity of the trainings on ICT use in Moroccan education. In this regard, there is a set of components to be taken into consideration to guarantee the effectiveness of the training such as the pedagogical aspect of the training, time allotted for training, skills emphasized in the training, and technology

use in initial teacher training (pre-service training) (see Becta, 2004).

The qualitative analysis of the interview findings indicated that inappropriate teacher ICT trainings which are devoid of pedagogy do not help teachers integrate ICT effectively into their classroom teaching practices. This issue is raised when teacher training programs focus on developing teachers' ICT skills rather than addressing the pedagogical side of the teachers' classroom practices with regard to ICT use (see Balanskat et al., 2006). Based on the answers from the interviews, it seems that failure in using ICTs for educational purposes is highly likely due to the weakness of teachers' training on ICT use in Moroccan schools. This was reflected during the interviews in that the teachers felt the need for further training on detailed and subject-specific areas on how to integrate ICT into the curriculum. They might have received training about ICT hardware and software, but they needed specific and effective training on how to pedagogically use ICT in the curriculum. A similar conclusion was reached by Alhamd et al. (2004) in a study conducted in Saudi Arabia. Accordingly, it is of paramount importance to provide pedagogical training on how to use ICT in education rather than simply train teachers on how to use ICT tools inside their classrooms (see Cox et al., 1999; Becta, 2004).

5.4 Technical Problems and Lack of Technical Support

The interview data analysis revealed an interesting finding related to the integration of ICT in the classroom. The present study concluded that, technical issues and lack of technical support were important factors behind teachers' decisions to utilize or ignore ICT. In support of this conclusion, Sicilia (2005) stated that "Technical barriers impeded the smooth delivery of the lesson or the natural flow of the classroom activity." (p. 43).

In this study, the informants complained about the unexpected technical breakdowns that happen while they are using ICT, and that lack of technical support, which makes ICT use time consuming, is one of the issues they were worried about. Likewise, many of the respondents in Becta's (2004) survey raised this issue indicating that ICT technical problems discourage them from integrating ICT into their teaching due to the fear of probable ICT hardware and software breakdown during the delivery of the lesson. In line with this, Toprakci (2006) found that the lack of ICT technical support was a major obstacle to the integration of ICT in the Turkish schools. Almohaissin's (2006) study revealed that Saudi teachers would agree to integrate ICT in the curriculum, but they think they will face hardware or software technical problems.

Gomes (2005) insisted that to ensure a successful ICT integration into the curriculum, this process requires technicians in the schools, and lack of technical assistance and maintenance is always due to the unavailability of technicians in the school setting. On account of this, it is of significance to have technical assistance in the schools. The availability of ICT technical support in the schools help teachers integrate ICT more quickly and more productively in teaching without losing classroom time on fixing and troubleshooting hardware and software issues (see Korte and Husing, 2007). Also, according to Sandholtz et al. (1997) and Sandholtz and Reilly (2004) teachers feel more ready to integrate ICT in educational settings that readily provide technical assistance.

6. Pedagogical Implications

On the basis of the results from this investigation, the current study drew various implications for the use of ICT in EFL settings within the Moroccan educational context. In this regard, with the aim of facilitating the process of ICT use in the Moroccan schools, stakeholders should be aware of the constraints and barriers to ICT integration as contextual factors that negatively affect its use in education. These barriers continue to hinder teachers' effective ICT use in their teaching and learning process.

As for ICT equipment, lack of or inadequacy of ICT equipment in the schools has been repeatedly referred to throughout the current study in both the survey data and the interview data. The literature and the findings of the present study agree that ICT hardware and software must be adequately available, operate properly, maintained regularly, and be updated to include new models of technology (Kotrlik & Redmann, 2005). In other words, schools and classrooms must be equipped with the necessary ICT facilities that are operational. Hence, it is of paramount importance to help teachers and students have more access to ICT in the schools by creating an infrastructure for ICT use such computer labs, Internet access, ICT equipment in the classrooms, and mobile laptop carts that can be moved from classroom to another.

As regards lack of time, findings from the survey and interview data revealed that many teachers feel that their schedules are too busy to allocate sufficient time to integrate ICT into their teaching practices. Thus, decision makers, education planners, and school administrators should reconsider teachers' busy schedules so that teachers could have more time during the day to devote for planning ICT-based lessons and activities. To do so, more and more teachers are to be recruited so that each teacher can have timetables with more free time for ICT integration.

Concerning lack of continuous and effective ICT training, as indicated by the qualitative findings of this study, the quantity and quality of ICT training that teachers have taken are important factors behind teachers' use of ICT or not. Qualitative data showed that most of the teachers were not satisfied with the length, content, and

practical part of the ICT training which they have taken. Most of the teachers also expressed their concerns about lack of pedagogy in the ICT training. Training teachers just on how to operate ICT tools while ignoring the pedagogical aspect of ICT use in the curriculum, would not be sufficient for an effective ICT integration in the classroom. Therefore, decision-makers, trainers, supervisors, and officials should first be aware of the relationship between EFL teachers' ICT training and their ICT integration into the classroom. They should also reconsider the current ICT training in terms of quantity, quality, and pedagogy. In-service ICT trainings should not be in form of one-shot sessions (e.g., a three-day course as is the case with the GENIE training program), but ongoing training during the whole academic year. Pre-service training on ICT use should cover both the technical and pedagogical dimensions of using ICT in the classrooms. Furthermore, ICT training should be introduced in form of intensive, up-front, and follow-up sessions. It is also important to take into account that teachers need time to apply what they have learned. They also need support to move them toward a successful integration of ICT into the classroom. Most of the time teachers are not consulted before training on ICT is provided. For this reason, any training on ICT should be preceded by a needs analysis that addresses what teachers know (their ICT knowledge and skills level), what they want to know, and what they need to know. Additionally, assessing teachers' needs would allow instruction to be provided on a more individual basis. Therefore, education planners ought to opt for better planning strategies for preparing teachers to use ICT in the classroom. This can be applied through informing EFL teachers of knowledge on "techno-pedagogy" (Tochon & Black, 2007, p. 296), making them aware of alternative teaching approaches to using technology, and giving them confidence and the necessary skills to apply their ICT knowledge in their teaching.

Finally, in terms of technical problems and lack of technical support, the present study found that the factor of lack of technical support played an important role in teachers' decisions to utilize or ignore ICT. The availability of technical assistance in the schools encourages teachers to integrate ICT more often into their classrooms without losing classroom time on fixing hardware and software breakdowns (Korte and Husing, 2007). In this regard, it is impossible to assume that, in schools where there is lack of technical support, teachers cannot ignore students and focus on fixing ICT breakdowns whenever it happens at the expense of students' classroom time. For this reason, there is an urgent need for specialists in providing the technical support needed for teachers to learn how to integrate ICT in their classrooms. This recommendation is supported by previous studies which stressed on the importance and usefulness of ICT technical assistance personnel in the school context. Hence, Moroccan education planners are required to provide an on-site technical support expert for each school to take charge of ICT technical issues. The technical support specialist should have both technical competence and pedagogical knowledge in order to provide on-going assistance for teachers with respect to hardware, software, and methodology (Hofer, Chamberlin, and Scot, 2004).

7. Conclusion

The purpose of this study was to probe into the barriers to ICT integration in the Moroccan teachers' secondary school EFL classrooms. To achieve this purpose, this study adopted a mixed-method approach of investigation - a combination of both quantitative and qualitative methods. This design used two instruments for data collection: a survey questionnaire and a semi-structured interview. This investigation concluded that the major challenges that Moroccan EFL teachers face in integrating ICT into the classroom were lack of adequate ICT facilities in the schools, lack of time, lack of continuous and effective training in ICT, and technical problems and lack of technical support. Several areas of future research can be targeted to better understand ICT integration in the Moroccan secondary school EFL settings, and the contextual factors which affect this integration. This study needs to be replicated with a larger number of teachers and within different contexts. Also, in-depth longitudinal studies are needed to track the issues related to ICT integration and examine any successful experiences with ICT integration.

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