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Investigating Barriers to the Effective Integration of Information and Communication Technology in Moroccan EFL Classrooms

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ABSTRACT

The emergence of Information and Communication Technology (ICT) has profoundly transformed educational practices all over the world. The Moroccan context has been no exception. In response to the growing demand for ICT integration in education, Morocco has implemented several national strategies, long-term programs, sectoral initiatives, and emergency procedures to integrate ICT into education. Among these are the GENIE Program, MASSAR, and the distance-learning platforms introduced during COVID-19, such as TelmidTICE and taalim.ma. Morocco also implemented national strategies to integrate ICT into public institutions and governmental organizations, namely Maroc Numeric 2013 and Maroc Digital 2020. However, most of these initiatives fell short of achieving their intended goals. Thus, the main objective of this study is to investigate the reasons behind the limited success of ICT integration in Moroccan education, with a primary focus on EFL classrooms. The study examines both external and internal barriers to ICT integration in Moroccan EFL classrooms, adopting a mixed-methods approach that combines quantitative and qualitative data. The study sample consists of both middle and high school EFL teachers from different regions in Morocco. The findings indicate that ICT integration in Moroccan EFL classrooms remains limited due to both external and internal barriers. External barriers are linked mainly with ICT-related aspects, while internal barriers are linked with teachers' attitudes, skills, and practices.

INTRODUCTION

One of the most recognizable Moroccan initiatives to integrate ICT into education is the GENIE Program. The program had four main components. It aimed to provide schools with the necessary ICT infrastructure, to train teachers on how to integrate ICT into their teaching practices, to provide the necessary digital resources, and to ensure effective and actual ICT integration in education. The program was also revised in the Urgency Plan. The Urgency Plan allocated more funding and effort to ICT integration. It stressed the importance of equipping schools with computers and internet access, providing more training programs for teachers on ICT integration, developing more digital resources, and encouraging the pedagogical use of ICT across all school subjects, including languages.

Although these programs and others achieved visible progress, yet they did not fully meet their intended goals as it is going to be shown throughout this paper. These initiatives prioritized hardware over pedagogical change. It is true that several schools were equipped with the necessary ICT equipment, yet teachers were not supported in changing how they teach. As a result, teachers kept teaching in their traditional ways. The only difference now was that they did it through technology. That is, ICT was not integrated to make teaching and learning more interactive, placing students at the center of the process. On the contrary, students were passive recipients of information through technology. Even when teachers received ICT-related training, it was very

short and not subject-specific. For example, EFL teachers did not receive training on how to integrate ICT for language teaching. In addition to lack of training, teachers did not receive much technical support. After the initial funding ended, many schools could not maintain the equipment or renew licenses, which ultimately led to the gradual deterioration of many ICT environments. In the case of technical breakdowns and the absence of regular maintenance, teachers would simply abstain from using such equipment, especially in rural areas. Urban schools benefited more from these initiatives due to better infrastructure and connectivity. By contrast, rural schools often lacked electricity, internet, and ICT infrastructure, which made ICT integration very difficult. Ultimately, there was a digital divide within the Moroccan educational system.

Limited ICT integration in Moroccan education, however, is not only linked to the aforementioned barriers; it is also related to teachers, the contexts in which they work, and the broader system within which they work. For example, many teachers showed resistance to change and negative attitudes toward ICT integration. They perceived it as extra work rather than a tool to transform their teaching practices, preferring to remain in the comfort zone of traditional chalk-and-talk practices. In addition, there were also cultural and systemic barriers. After the introduction of ICT, the Moroccan educational system remained exam-oriented, focusing on memorization rather than creative or digital learning. ICT entails student-centered practices, yet teachers followed teacher-centered pedagogies

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that feed students information to prepare them to sit for exams. As a result, ICT did not bring about actual change in Moroccan education. Another major issue was lack of institutional coordination. These initiatives were not clear enough due to the involvement of multiple ministries and agencies, which often led to overlapping responsibilities and weak coordination. Besides, there was no specific national monitoring system to track how ICT was integrated in classrooms, and therefore, evaluation and follow-up reports focused heavily on numbers rather than actual improvement in teaching and learning.

In light of the aforementioned issues, and based on Ertmer's (1999) categorization of barriers to ICT integration in education, this study aims to investigate both external and internal barriers that hinder ICT integration in Moroccan EFL classrooms.

ICT integration in Moroccan EFL classrooms remains very limited due to a wide range of external and internal barriers. This study seeks to identify these barriers and examine how they impede the effective integration of ICT in Moroccan EFL teaching and learning contexts.

Although the issue of ICT integration into Moroccan education has been studied, most research has focused on general ICT integration and systemic challenges at the national level. There is limited research concerning the specific barriers that Moroccan middle and high school EFL teachers encounter. This issue requires the use of a mixed-methods approach to investigate both quantitative patterns as well as teachers' personal experiences with ICT integration. This gap underscores the need for a comprehensive investigation that reflects the current realities of Moroccan EFL classrooms.

This study is significant because it investigates the issue of ICT integration in the Moroccan EFL context both quantitatively and qualitatively. It identifies both external and internal barriers to ICT integration in Moroccan EFL classrooms in addition to investigating personal experiences of Moroccan EFL teachers with ICT. Understanding these barriers is essential for supporting teachers in adopting technology-enhanced pedagogies.

The current study attempts to answer the following three questions:

A. What are the external and internal barriers that middle and high school teachers of EFL encounter in ICT integration in the Moroccan EFL classroom?

B. What ICT tools do Moroccan middle and high school teachers of EFL integrate in their classroom practices?

C. What are the personal experiences of Moroccan EFL teachers with ICT integration in EFL classrooms?

LITERATURE REVIEW

Defining ICT in Education

ICT has been defined in different ways by different scholars, depending on the contexts where it is used. Since this paper focuses on ICT within the field of education, it is only relevant to define it within this scope. According to Meenakshi (2013), the understanding of the importance of ICT in education depends heavily on the

understanding of ICT. This makes sense since ICT is very vague and can refer to a wide range of technological and technology-related means.

Srivastava (2016) explains that people tend to think that ICT refers only to computers and computer-related activities. She explains that while computers are part of ICT, the term refers to a variety of hardware equipment and software applications.

Tinio (2003) defines ICT as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. These technologies include computers, the internet, broadcasting technologies (radio and television), and telephony" (p. 4). The researcher explains that ICT does not include only modern technology because older technological tools, such as the telephone, radio, and television, are also part of ICT.

Barriers to ICT Integration

External Barriers

Lack of Technological Equipment

Balanskat *et al.* (2006) note that lack of ICT equipment remains a major barrier to ICT integration, explaining that schools that are equipped with the necessary ICT infrastructure are more likely to encourage ICT integration in educational practices. Becta (2004) argues that lack of access to ICT tools "can seriously limit what teachers can do in the classroom with regard to the implementation of ICT" (p. 11). Mumtaz (2000) states that teachers who have easy access to computers are more likely to use them in their teaching practices. Ghavifekr (2016) observes that lack of access to ICT resources is a significant barrier to ICT integration. Abedi and Ackah-Jnr (2023) also discovered that "the availability of technology learning materials and infrastructure resources" (p. 153) remains a major barrier to ICT integration.

Technical Problems and Lack of Technical Support

Balanskat *et al.* (2006) state that hardware and software issues are significant barriers that can negatively impact ICT integration. Computers that are not properly maintained are not reliable and are "likely to cause disruption even to the best planned lessons" (p. 51). Similarly, if the software is not appropriate, it "rather disengages both teachers and students from the learning process" (p. 51). Another issue that is closely related to this is lack of technical support. Rogers (2000) explains that lack of technical support is among the main barriers to ICT integration. Tong and Trinidad (2005, as cited in Afshari, 2009) note that "lack of technical support is very stressful for the teacher, which may affect the teacher's willingness in the adoption of ICT" (p. 87). In this respect, Madronio (2023) also highlights the issue of inadequate and ineffective ICT maintenance, explaining that it impacts teachers, administrators, and ICT coordinators negatively. According to the researcher, this in turn, impacts effective ICT integration.

Lack of or Inappropriate ICT training

Unal and Ozturk (2012) observe that lack of knowledge about ICT among teachers reflects the absence of ICT-related training. In their study, only six teacher participants reported that they benefited from ICT-related training programs while they were in-service. Other participants stated that they received no training in this regard. The researchers continue that even when such training programs are provided, they are “mostly for general knowledge and skills” (p. 942). Many participants in Abedi and Ackah-Jnr’s (2023) research also “identified lack of specified pre-service training and in-service professional development as a major barrier to using technology for meaningful teaching” (p. 154).

Lack of Time

Manternach-Wigans *et al.* (1999, as cited in Becta, 2004) note that teachers are concerned about the availability of time to learn how to use ICT and experiment with it both inside and outside the classroom. Preston *et al.* (2000, as cited in Becta, 2004) explain that teachers need much time to explore and prepare appropriate ICT resources, which they fail to do because they face time constraints. Cuban *et al.* (2001, as cited in Becta, 2004) also report that participants in their study explained that they “would need hours to preview web sites, prepare multimedia materials for lessons, and to undertake training” (p. 15). Unal and Ozturk (2012) highlight lack of time as a real barrier that teachers encounter in the process of ICT integration in education. Half of their study participants stated that they struggled to use technology in their teaching mainly due to time constraints.

The Impact of School Environment

Afshari (2009) notes that contextual factors play an important role in the process of ICT integration. The researcher explains that “it is crucial to involve those who have a stake in the outcomes, including teachers, parents, students, and the community, and allow them to assist in the creation of the vision by contributing their knowledge, skills, and positive attitudes” (p. 84).

After collecting data from teachers, headteachers and education officials, Abedi and Ackah-Jnr (2023) found that lack of support in schools is a major barrier to ICT integration. They explain that “according to some participants, school leaders are crucial in cultivating positive school cultures and shared vision that support and sustain teachers’ use of technology in the classroom” (p. 155).

Lack of Motivational Feedback and Incentives

Granger *et al.* (2002, as cited in Hew and Brush 2006) explain that encouraging teachers is essential to help them overcome their misconceptions about ICT integration in education. Al-Shboul (2017) highlights “low motivation for using new technologies” (p. 67) as one of the most encountered barriers to ICT integration. Equally important, Du Plessis and Webb (2012) explain that rewards and incentives are very important in the process

of ICT integration. In their study, the overwhelming majority of their teacher participants thought that receiving rewards and incentives encouraged them to learn more about ICT integration. Other participants thought that lack of rewards and incentives discouraged them from acquiring the necessary ICT skills.

Internal Barriers

Negative Attitudes Toward ICT

Abedi and Ackah-Jnr (2023) state that the way teachers perceive technology can have a major impact on ICT integration in educational contexts, explaining that participants in their study stated that some teachers abstained from using technology mainly because they did not have enough confidence in the potential of ICT. Christensen and Knezek (2016, as cited in Abedi & Ackah-Jnr, 2023) note that teachers’ beliefs about ICT can have a major impact on their willingness to integrate technology in their teaching practices. Lawton and Gerschner (1982, as cited in Afshari, 2009) state that “the successful use of technology in the classroom depends to a large extent on the teachers’ attitudes toward these tools” (p. 90). Similarly, Asare *et al.* (2023) argue that ICT integration success depends heavily on how teachers perceive ICT. Based on research studies, they explain that teachers who have positive attitudes toward ICT are more likely to integrate it in their classroom practices.

Lack of ICT Knowledge and Competence

Based on the collected data, Abedi and Ackah-Jnr (2023) conclude that lack of technological proficiency poses a significant barrier to effective ICT integration in education, explaining that this issue is caused by “lack of technology professional development and training” (p. 156). Becta (2004) states that the first prerequisite in the process of ICT integration is possessing some knowledge of ICT itself. Pellegrino (2007, as cited in Becta, 2004) explains that “technological literacy has fast become one of the basic skills of teaching” (p. 259). Mijares (2022) argues that the findings of his study indicated that “teachers have a high level of ICT competency based on the National ICT Competency Standards for Teachers (NICS) in terms of technology operations and concepts” (p. 28). However, he explains that teachers do not have the necessary ICT skills to use ICT for meaningful learning.

The Effect of Age

Abedi and Ackah-Jnr (2023) explain that teachers with more seniority think that the use of technology is only for new teachers or teachers whose school subject is ICT. Similarly, the National Centre for Education Statistics (2000, as cited in Afshari *et al.* 2009) conclude that teachers with less experience in the profession tend to use ICT tools in their teaching practices more than teachers with more years of experience. Hsu *et al.* (2007) also corroborate this view by stating that “teachers with a seniority of less than ten years tended to have more computer skills because they more likely were able to take

computer-based instruction courses in their teachers' training programs" (p. 122). In Morocco, Fatmi (2012) explains that age influences how teachers perceive ICT. The researcher concludes that younger teachers use ICT more often. However, Ertmer *et al.* (2007) observe that the level of ICT integration among novice teachers does not differ significantly from that of experienced teachers. The researchers explain that although novice teachers use ICT tools to prepare their lesson plans and teaching materials, yet they do not direct their students to use ICT tools.

The Effect of Gender

The European Commission (2002, as cited in Becta, 2004) reports that 77% of male teachers use a computer off-line compared with 66% of female teachers. Bradley and Russell (1997, as cited in Becta, 2004) note that female teachers show more feelings of anxiety and frustration than male teachers when it comes to the use of computers. Jamieson-Proctor *et al.* (2006) also observe that there is a huge difference between male and female levels of confidence regarding the use of ICT, with male teachers demonstrating higher levels. However, Cuban *et al.* (2001) explain that there is no gender effect on the use of ICT. In Moroccan, Fatmi (2012) concludes that female teachers exhibit more positive attitudes toward the use of computers than male teachers do.

MATERIALS AND METHODS

Research Hypothesis and Objective

In this research, it is hypothesized that middle and high school teachers of EFL encounter both external and internal barriers to ICT integration in Moroccan EFL classrooms. Therefore, the study seeks to explore and understand these barriers.

Population and Sampling

The population sample in the study is Moroccan middle and high school teachers of EFL. The study employed a non-probability sampling technique, specifically convenience and voluntary (self-selection) sampling. Participants were selected based on accessibility and willingness to participate. The questionnaire was distributed both in person and online via Facebook and WhatsApp groups dedicated to Moroccan EFL teachers. Many variables of the participants were taken into account, such as gender, age, school level distribution, work experience, and work area. In this section, all these variables are presented in detail.

Overall, the number of the participants in this study is 143 middle and high school EFL teachers from different regions in Morocco.

Table 1 shows that 48 participants (33.6%) are females and 95 (66.4%) are males (N = 143, where N is the number of participants)

Table 1: The gender of participants

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	48	33.6	33.6	33.6
	Male	95	66.4	66.4	100.0
	Total	143	100.0	100.0	

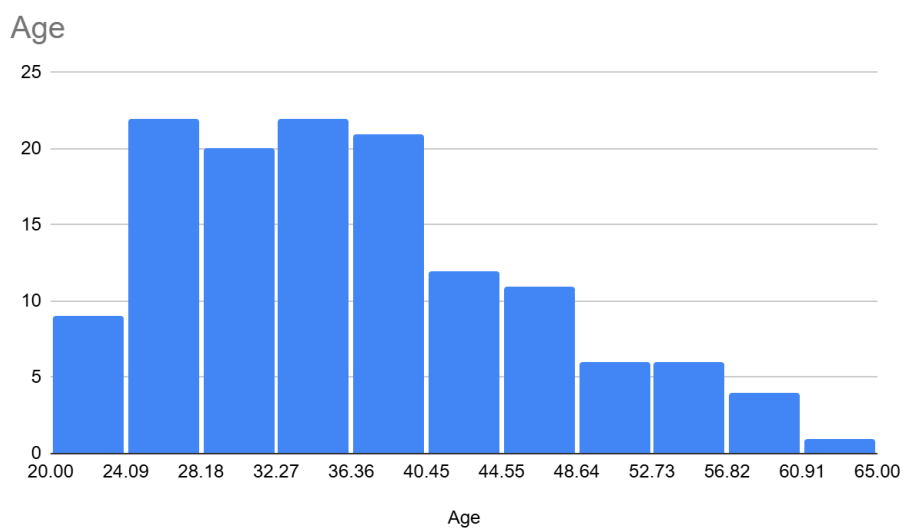


Figure 1: Distribution of participant ages

Figure 1 illustrates that participant ages range from approximately 20 to 65 years, with the majority of

participants concentrated between 25 and 40 years. Table 2 demonstrates that 63.6% (N = 91) of participants

Table 2: The school level distribution of participants

School Level Distribution					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school teacher	91	63.6	63.6	63.6
	Middle school teacher	52	36.4	36.4	100.0
	Total	143	100.0	100.0	

Table 3: The work experience of participants

Work Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	From 2 to 5 years	26	18.2	18.2	18.2
	From 5 to 10 years	28	19.6	19.6	37.8
	Less than 2 years	23	16.1	16.1	53.8
	More than 10 years	66	46.2	46.2	100.0
	Total	143	100.0	100.0	

are high school teachers and 36.4% (N = 52) are middle school teachers.

Table 3 presents that 26 participants (18.2%) have been working in teaching from 2 to 5 years and 28 (19.6%) from 5 to 10 ten years. Twenty-three (16.1%) have been

in the job for less than 2 years and 66 (46.2%) have a work experience of more than 10 years.

Table 4 demonstrates that 43.4% of participants (N = 62) work in rural areas, whereas 56.6% (N = 81) work in urban areas.

Table 4: The area where participants work

Work Area					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rural area	62	43.4	43.4	43.4
	Urban area	81	56.6	56.6	100.0
	Total	143	100.0	100.0	

Research Instruments

The main data collection instrument that was used to collect data was the questionnaire. It was developed on Google Forms. It contained both quantitative and qualitative research questions. It was distributed among teachers both in-person and digitally via Facebook and WhatsApp groups created by and for Moroccan EFL teachers, especially the Only Lesson Plans and Materials Facebook group. The questionnaire consisted of 17 items in total. It included 13 quantitative, closed-ended items that gathered quantitative data on demographic variables, frequency of ICT integration, types of integrated ICT tools, and perceived barriers. It also included 4 qualitative, open-ended items that primarily gathered qualitative insights into teachers’ personal experiences with ICT integration and contextual factors that impact it.

Validity and Reliability

To ensure that the questionnaire was valid, the items were designed based on literature on ICT integration barriers and were examined for content relevance. The questionnaire was also piloted with a small group of Moroccan EFL teachers to check its clarity and appropriateness. For reliability, the consistency of scale items was examined. The consistency between

quantitative and qualitative findings also reinforced the credibility of the results.

Ethical Consideration

The participants were informed about the purpose of the study and assured that their participation was completely voluntary. The questionnaire included a consent statement clarifying that the responses would be kept anonymous and confidential. No personal information of the participants was collected. The participants had the right to withdraw their responses at any time. These procedures ensured that the study adhered to the ethical standards of research.

Data Analysis

The collected quantitative data was first downloaded from Google Forms in Excel sheets, and then it was imported into SPSS and analyzed statistically. For the qualitative data, it was also downloaded from Google Forms in Excel sheets and analyzed thematically. The themes mainly contained different external and internal barriers to ICT integration into Moroccan EFL classrooms. Quantitative and qualitative data were analyzed and interpreted concurrently because each method provided insights that enhanced and supported the other.

RESULTS AND DISCUSSION

The findings of the study confirmed the major barriers identified in the target literature with regard to equipment availability, technical support, and teacher training. These barriers were highlighted by the findings of Balanskat *et al.* (2006) and Becta (2004). Lack of ICT equipment, maintenance, and support impede teachers from integrating ICT in their teaching practices. The findings also showed that Moroccan EFL teachers continue to experience inadequate ICT training, which aligns with the conclusions drawn by Unal and Ozturk (2012) and Abedi and Ackah-Jnr (2023).

One notable finding is the impact of contextual factors

in the Moroccan context, particularly the rural-urban divide. In addition, the qualitative responses revealed that classroom management issues and overcrowded classes are major barriers to ICT integration in Moroccan EFL classrooms. Issues such as large-sized classrooms and misuse of ICT tools by students are emerging concerns that are less frequently highlighted in the target literature, suggesting that ICT integration in the Moroccan context is shaped not only by structural issues but also by specific cultural and systemic constraints.

Analysis of Quantitative Data

Table 5 shows that 132 participants (92.3%) possessed

Table 5: ICT knowledge

ICT Knowledge		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	7.7	7.7	7.7
	Yes	132	92.3	92.3	100.0
	Total	143	100.0	100.0	

Table 6: ICT training

ICT Knowledge		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	93	65.0	65.0	65.0
	Yes	50	35.0	35.0	100.0
	Total	143	100.0	100.0	

Table 7: ICT integration

ICT Integration		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	15	10.5	10.5	10.5
	Yes	128	89.5	89.5	100.0
	Total	143	100.0	100.0	

ICT knowledge and only 11 (7.7%) did not.

Table 6 demonstrates that 35.0% of participants (N = 50) received ICT training, whereas 65.0% (N = 93) did not.

Table 7 illustrates that 128 participants (89.5%) integrated ICT in classroom practices, while only 15 (10.5%) did not.

Table 8 shows that participants integrated different ICT

tools in their teaching. A total of 93 participants (65.5%) used data shows, 90 (63.4%) used speakers, 83 (58.5%) used mobile phones, 65 (45.8%) used online platforms, 64 (45.1%) used desktops and laptops, 27 (19.0%) used tablets, 21 (14.8%) used televisions, and 7 (4.9%) used interactive whiteboards.

Table 8: ICT tools integrated into classrooms by participants

Integrated ICT Tools		Responses		Percent of Cases
		N	Percent	
Integrated ICT Tools ^a	Desktops_and_laptops	64	14.2%	45.1%
	Data_shows	93	20.7%	65.5%
	Interactive_whiteboard	7	1.6%	4.9%
	Mobile_phones	83	18.4%	58.5%
	Tablets	27	6.0%	19.0%
	Televisions	21	4.7%	14.8%
	Speakers	90	20.0%	63.4%

	Online_platforms	65	14.4%	45.8%
Total		450	100.0%	316.9%

a. Dichotomy group tabulated at value 1.

As illustrated in Table 9, 69 participants (48.3%) used the aforementioned ICT tools occasionally, 37 (25.9%) used them very often, 30 (21.0%) used them fairly often, and 7 (4.9%) never used them.

Table 10 shows that a total of 130 participants (92.2%)

used ICT tools to teach listening, 67 (47.5%) used them to teach grammar, 62 (44.0%) used them to teach reading, 50 (35.5%) used them to teach writing, and both speaking and vocabulary were taught through ICT by 91 participants (64.5%).

Table 9: The frequency of ICT integration

Frequency of ICT Integration					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fairly often	30	21.0	21.0	21.0
	Never	7	4.9	4.9	25.9
	Occasionally	69	48.3	48.3	74.1
	Very often	37	25.9	25.9	100.0
	Total	143	100.0	100.0	

Table 10: Language aspects taught via ICT

Language Aspects Taught via ICT				
		Responses		Percent of Cases
		N	Percent	
Language_Aspectsa	Reading	62	12.6%	44.0%
	Writing	50	10.2%	35.5%
	Listening	130	26.5%	92.2%
	Speaking	91	18.5%	64.5%
	Vocabulary	91	18.5%	64.5%
	Grammar	67	13.6%	47.5%
Total		491	100.0%	348.2%

a. Dichotomy group tabulated at value 1.

Table 11: External and internal barriers to ICT integration

Barriers to ICT Integration				
		Responses		Percent of Cases
		N	Percent	
Barriers_to_ICT_Integrationa	Lack_of_adequate_equipment	120	18.9%	85.7%
	Time_constraints	62	9.8%	44.3%
	Syllabus_design	43	6.8%	30.7%
	Lack_of_access_to_materials	87	13.7%	62.1%
	Technical_problems_and_lack_of_support	78	12.3%	55.7%
	Lack_of_ICT_training	75	11.8%	53.6%
	Inappropriate_ICT_training	30	4.7%	21.4%
	Impact_of_school_environment	36	5.7%	25.7%
	Lack_of_incentives	22	3.5%	15.7%
	Students	17	2.7%	12.1%
	Resistance_to_change	27	4.3%	19.3%
	Lack_of_competence	19	3.0%	13.6%
	The_effect_of_age	16	2.5%	11.4%
The_effect_of_gender	3	0.5%	2.1%	

Total	635	100.0%	453.6%
a. Dichotomy group tabulated at value 1.			

Table 11 presents the barriers to ICT integration reported by participants. The most frequently cited barrier was lack of adequate equipment (120; 85.7%), followed by lack of access to materials (87; 62.1%), technical problems and lack of support (78; 55.7%), and lack of ICT training (75; 53.6%). Time constraints were also reported by a considerable proportion of participants (62; 44.3%), along with issues related to syllabus design (43; 30.7%). Less frequently reported barriers included inappropriate ICT training (30; 21.4%), resistance to change (27; 19.3%), lack of incentives (22; 15.7%), and lack of competence (19; 13.6%). The least reported barriers were students (17; 12.1%), the effect of age (16; 11.4%), and the effect of gender (3; 2.1%).

Analysis of Qualitative Data

Defining ICT in Education

We asked participants to define ICT in their own words. The responses provided a variety of perspectives, reflecting the participants' understanding and experiences with technology in education. The definitions included the following:

Participant 1 stated that with regard to teaching, ICT refers to the tools that are used to deliver "lessons in a more interesting and efficient way." Participant 2 explained that "in language teaching, ICT is a way to transmit knowledge to students. It helps teachers to easily deliver a lesson, using data projectors or any other ICT tools. It makes students engaged and on task." Participant 3 reported that ICT refers to "The use of technology to facilitate teaching and learning." Similarly, Participant 4 stated that ICT "is a method that teachers use to facilitate learning and make it much more entertaining and engaging." Participant 5 defined ICT as "ways and means used in the teaching context to facilitate the content for students via the use of technology."

Experiences of Participants in ICT Training

When we asked participants to describe the ICT training that they received, their responses were as follows:

Participant 6 said: "the training that I have received in ICT was very poor and it didn't provide me with any helpful techniques that I can use in class." Participant 7 said: "Well, we mainly discussed how ICT is reshaping the future of humanity. Apart from this, we learnt that using ICT tools should be based on the teacher's awareness of his students' cultural background. In other words, not any ICT content is appropriate for Moroccan classrooms of English." Participant 8 explained that "the training was meant for teachers to get acquainted with ICT tools and find ways to integrate them into the teaching and learning process." Participant 9 noted that the training "was really an outstanding experience." The participant also said: "I learnt how to apply ICT in real classroom practices and how to teach easily."

Other ICT Barriers Reported by Participants

When asked about other barriers that were not mentioned in the study, participants provided the following responses: Participant 10 explained that "it's difficult to use and manage ICT within large group classes" because "students usually fail to respond seriously to the use of such techniques, which they are accustomed to use just for fun." Participant 11 raised the issue of "misuse of technology tools, such as mobile phones, by students." Participant 12 stated that "the curriculum is exam-oriented, so the focus is always on accuracy." Participant 13 said that "rural students do not know how to use computers." Participant 14 argued that "assessment using ICT is not thoroughly explored." Participant 15 explained that "school staffs are not well aware of the importance of ICT," and that "teachers sacrifice their money, time, and effort to make the interactive experience a success." Participant 16 said that "sometimes some teachers don't find a safe place where to keep their materials," and that these tools "are heavy to be carried, especially if one lives far from the school building." Participant 17 observed that "classrooms are not suitable for an appropriate use of ICT."

Participant Additional Insights into ICT Integration in Education

We asked participants to provide additional thoughts and comments on the issue under study. Their responses highlighted diverse perspectives and personal experiences, and included the following:

Participant 18 said: "personally, I use ICT whenever possible to save time and to make teaching less tiring." Participant 19 observed that "there is a difference between public schools and private schools and also between rural and urban areas as far as equipment and facilities are concerned." Participant 20 noted that "using ICT in teaching is time saving. Using digital devices can help teachers be more creative and opens the door for more innovative ways of teaching." Participant 21 explained that "there are no ICT materials in schools, so teachers buy their own materials." Participant 22 stated that "the school system is still traditional and sees ICT as inferior to the pedagogical system." Participant 23 reported that ICT integration requires "more engagement from officials since teachers are willing to use ICT in all pedagogical aspects." Participant 24 explained that "students tend to be noisy and out of control when using ICT." Participant 25 stated that "it is difficult to use ICT in some Moroccan EFL classrooms because of time constraints and the indifference of students." Last but not least, Participant 26 said that "ICT tools are very engaging, and they catch the attention of students. They also save time and reduce teacher talking time."

Discussion of the Findings

The findings reveal that Moroccan EFL teachers generally possess ICT knowledge, with 92.3% reporting familiarity with digital tools, and 89.5% integrating ICT into their

teaching. Despite this, only 35% had received formal ICT training, highlighting a gap between teachers' knowledge and structured professional preparation.

Teachers predominantly used accessible tools such as data shows (65.5%), speakers (63.4%), and mobile phones (58.5%), while more advanced technologies like interactive whiteboards (4.9%) were rarely used. ICT was applied most frequently to teach listening (92.2%), followed by speaking and vocabulary (64.5%), suggesting a preference for enhancing receptive and oral skills. Writing and reading were less frequently taught via ICT, indicating either a lack of suitable tools or limited confidence in using ICT for these skills.

The most commonly reported barriers to ICT integration included insufficient equipment (85.7%), limited access to materials (62.1%), technical problems and lack of support (55.7%), and inadequate training (53.6%). Time constraints (44.3%) and syllabus design (30.7%) further restricted ICT integration in Moroccan EFL classrooms. Qualitative insights highlighted other barriers, including large class sizes, students' misuse of devices, exam-focused curricula, and disparities between rural and urban schools.

Despite these barriers, participants reported positive experiences with ICT, noting that it made teaching more engaging, time-efficient, and creative. Teachers expressed willingness to use ICT whenever possible, but emphasized the need for practical, context-specific training, supportive school environments, and access to adequate ICT resources and equipment.

In summary, while Moroccan EFL teachers demonstrate knowledge of and positive attitudes toward ICT, effective integration is limited by structural, technical, and contextual constraints. Addressing these barriers through improved infrastructure, targeted training, and policy support can enhance ICT's role in facilitating interactive, innovative, and student-centered language learning.

CONCLUSION

The findings of the study showed that Moroccan middle and high school EFL teachers encounter multiple external and internal barriers that impede successful ICT integration in EFL classroom practices. The results confirmed much of the existing literature while also revealing context-specific barriers to ICT integration, especially overcrowded classrooms and students' readiness to integrate ICT tools in their learning practices. The findings also revealed a significant gap between rural and urban areas in the levels of ICT integration. The study highlights the need for improved ICT infrastructure, ongoing teacher training, and support so as to ensure effective ICT integration. Addressing these issues is essential for achieving the desired goals with respect to ICT integration in Moroccan EFL classrooms. Future research should build on these findings to explore innovative approaches that can support ICT integration in Moroccan education.

Limitations of the Study

This study is not without limitations. First, the questionnaire does not provide in-depth qualitative data compared with interviews or classroom observations. Second, although the sample included teachers from different parts of Morocco, it does not represent all Moroccan EFL teachers. Third, the study relied on self-reported data, which may involve bias in how participants perceive or describe their ICT integration. Future research may address these limitations by incorporating longitudinal data, classroom observations, or larger sample sizes.

Recommendations

For policymakers, they should improve ICT infrastructure in urban as well as rural areas, establish ongoing ICT training programs for EFL teachers, and ensure that ICT tools are maintained and teachers are technically supported. For school leaders, they should encourage ICT integration among teachers, and they should provide motivational feedback and incentives for teachers who integrate ICT effectively into classroom practices. For teachers, they should engage in ongoing professional development and ICT-related training programs, adopt effective classroom management strategies, and integrate ICT gradually to prepare students for learning through it.

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