# Do Moroccan EFL teachers integrate ICT IN EDUCATION?
## –A quantitative study–

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## Abstract

This quantitative study investigated the extent to which teachers have access to Instructional and Computing Technology (ICT) as well as their perceptions of its effectiveness as an instructional tool. The researcher collected completed surveys from 30 teachers from Morocco who all taught English as a Foreign Language (EFL) to students in secondary classrooms. Results indicate that while a majority of teachers support the use of ICT, its implementation has been hampered by lack of physical hardware as well as lack of reliable access to broadband internet. Teachers in the study participated in professional development activities related to ICT, but it was unclear from their responses whether or not the training was beneficial for their pedagogy. Recommendations for future research are included as well as several recommendations to ameliorate some of the obstacles to ICT implementation.

**Key words** : Quantitative , Perception, ICT, Implementation, teachers

### 1–Introduction

Technological advances have marked the course of human history, and have significantly changed society. One such advance is the proliferation of instructional and computing technology (ICT) utilized in classrooms all over the world. This investigation will focus on the attitudes of secondary teachers in Morocco who teach English as a Foreign Language (EFL). Specifically, the study will measure the teachers' attitudes towards several aspects of the use of ICT in the classroom.

In Morocco, the proposed site of this study, there exists a lack of research, which measures the impact of the perceptions of teachers as to the effectiveness of this implementation of technology. Hargreaves (1994) posits that teachers' voices should be heard clearly and early on when any educational reform is proposed. Several researchers (Freeman & Johnson, 1998; Kumaravadivelu, 2006; Richards, 2008; Tsui, 2013) argue that the core of any teacher education or professional development must center on the activity of teaching itself, the teacher who does it, and the context in which it is done. The researcher conducted this study to identify important beliefs held by teachers in Morocco regarding the incorporation of technology as they teach English as a Foreign Language (EFL) to their secondary (grades 6–12) students.

### 2–Review of the Literature

Instructional technology allows teachers and students to communicate with others internationally. In addition, it allows them and access resources (e.g., videos, podcasts, music, news sources, etc.) in multiple languages that were previously

unavailable to teachers and students. Other important benefits of ICT include the ability of classmates to communicate with one another as well as distant learners in the target language, as well as supplemental practice (in the form of quizzes and drills) that can provide immediate feedback when learning language. As importantly, ICT use has the potential to change learning environments from 'teacher-centered' to 'student centered' as EFL learners progress from passive receptacles of knowledge, to those who actively seek resources to further their own learning (Muir-Herzig, 2004).

Finally, several researchers have demonstrated the potential increase in student motivation when using ICT, which can lead to students becoming more autonomous and interested in the language acquisition process (Csizer & Dornyei, 2005; Hoven, 1999, Szendeffy, 2008). By allowing students to access the Internet to seek out resources and opportunities for meaningful communication, researchers have consistently found that students engage in more authentic and meaningful activities, which lead to greater engagement and positive learning gains (Martins, Steil, & Todesco, 2004). As students utilize ICT and expand their ability to communicate in the target, oftentimes students begin to see the importance of this increased connectivity in regards to future life opportunities.

## 3-Globalization and ICT

As schools and businesses become more connected and interact more; globalization and other reforms invite waves of change. These waves of change affect all aspects of human life, including education, language, and culture

(Canagarajah, 2005). With the proliferation of English in major professional fields such as science, technology, commerce, and education, there is an increased demand for effective teaching and learning of English across the globe. Being proficient in English are seen as vital for the workforce in countries which seek to participate fully in the global economy and "want to have access to the information that forms the basis of social, educational, and economic development" (Burns & Richards, 2009, p. 143). In non-English speaking countries, this situation necessitates a reconsideration of the manner in which English is taught in schools, to prepare students for economic prosperity in their lives.

To this end, across the world, governments and private organizations spend an estimated $19 billion *per year* on technology in PK–12 schools, including software, hardware, infrastructure, internet connectivity, and training (Dexter, Richardson, & Nash, 2016). With the addition of new technologies, students and teachers from all over the world can connect, communicate, and share information. However, many reforms such as these are done without full consideration of the context-specific constraints that exist within specific educational environments. One such constraint is the extent to which teachers 'buy in' to the reforms, in this case, the inclusion of instructional technology in the classroom, and are willing to effectively implement them on a day-to-day basis.

According to Little (2001), when a change in teaching methods is introduced, teachers consider its intended scope and "interpret its aims and strategies in relation to their own values, beliefs, practices, and circumstances" (p. 286) and respond

according to their assessment of the benefits of the change. Even though researchers are increasingly realizing the importance of teacher perceptions on implementing change, policy makers across the world often continue to ignore teachers' perceptions and beliefs and rely on compulsion and blind adherence to get teachers to adopt change (Hargreaves & Fullan, 1992).

Morocco has launched several initiatives to prepare Moroccan teachers and learners as well for the general use of educational technology in teaching and learning. Therefore, one of the main elements of the national education policy to achieve these goals is the incorporation of Instructional and Computing Technology (ICT) in the education system. In other words, these reforms aim to improve and enhance the education system by employing and integrating technology in schools across the country of Morocco. According to Becker & Ravitz (2001), many researchers have expected that the significance of technology in the classroom will continue to increase, and therefore new research is needed to gauge the impact of new technologies on the experience of teachers and students. In the early 20th century, E. H. Smith (2000) wrote "computers will not replace teachers, but teachers who use computers will, inevitably, replace teachers who do not" (p. 17)

However, the integration of technology in the school curriculum continues to be a complex and challenging process (Cooper, 1998). In fact, it can be argued that in practice this integration process has focused more on the purchase and installation of computers and Internet connections in schools, than on improving

curricula, pedagogy, teacher training or support. In other words, the extent to which existing technology resources: computers, hardware, software, Intranet, Internet, extranet in schools are being used and utilized for instructional purposes is still very much undetermined. Therefore, the issue of evaluating technology resources in Moroccan schools is crucial and needs continuous monitoring and evaluation.

Beginning in the early 21st century, schools all over the world experienced a paradigmatic shift in that teachers were now expected to successfully incorporate technology in their everyday instruction. Francom (2016) conducted a widely cited study of both small and large school districts in one state in the U.S. and found that barriers to effective use of technology can be classified as either first- or second-order barriers. First-order barriers are those, which are external to the teacher, including physical resources (available technology) as well as training and support to use ICT (Ertmer, 1999). Second-order barriers are defined as those, which are internal to the teacher; including self-efficacy, beliefs about learning, and beliefs about the role, that technology should play in education (Ertmer, 1999).

The most significant first-order barrier is lack of physical access to a variety of technology. This phenomenon of unequal access is a term researchers call the 'digital divide' (van Dijk, 2006, p. 221). The digital divide ordinarily refers to the gap between those who do and those who do not have access to new forms of ICT. However, researchers have warned that the term 'digital divide' can be confusing nomenclature because it suggests a simple divide between two groups with a large

gap in between each (Mason & Hacker, 2003). In reality, rather than being two disparate and static groups, those will access and those without undergo shifts in their status as technology becomes less cost-prohibitive or as people choose to not use new technology. Furthermore, researchers have found that the term 'divide' indicates some kind of technological determinism imposed on individuals. In developing countries such as Morocco, pre-conceived biases such as these are detrimental to any effective educational reform, which includes ICT in the solution.

Van Dijk (2006) completed a comprehensive study on the digital divide and determined that four categories which are important when analyzing the inequality of access and usage for computer technology. The four categories are **material access**, **motivational access**, **skills access**, and **usage access** and will be explained in details in the following pages.

### 4– Material access

Material access, the extent to which teachers have ICT available for their use, was the primary focus of most research conducted in the 1990s and early 2000s. The first widely distributed surveys in developed countries in the 1990s gathered data on income, education, age, sex and ethnicity (van Dijk, 2000) for users of technology. Results indicated stark differences in access to computers and technology based on income levels (National Telecommunication and Information Administration, 2000). These results are logical based on the cost-prohibitive nature of computers even 20 years ago. In the years since 2002, researchers have discovered that the

gender gap has significantly declined in nations considered to be in the economic 'core' of global economics (Horrigan & Rainie, 2002). In these countries, the percentage of people from lower incomes with access to technology began to approach the same levels as those from higher incomes. However, in developing countries (such as Morocco), physical access and thus the digital divide grew wider and continues to expand to this day (United Nations Statistic Division, 2004). Researchers have come to the consensus that in poor countries, lack of income "remains the decisive barrier to access" (van Dijk, 2006).

**5– Motivational access**

Another important barrier to ICT access is the motivation levels of teachers who are expected to effectively incorporate technology in their classrooms. In large scale surveys conducted with citizens, researchers identified both the **'have nots'** and the **'want nots'** (NTIA, 2000). When asked, participants who rejected the adoption of computer technology listed reasons such as the perceived lack of usefulness of computers, lack of skills to understand the technology, as well as a generalized dislike of technology, in general. In regards to the current study, identifying teachers' beliefs towards ICT, in general, and their beliefs about their own effectiveness using ICT will be examined. Through survey responses, the researcher will examine the extent to which teachers not only have access in their classrooms, but also to determine to what extent teachers actually *want* access in their pedagogic endeavors.

In studying perceptions to technological access, researchers have utilized psychological and mental explanations to explain how and why people choose to use or not use computer technology. Included in these inquiries is the extent to which people feel unease or anxiety when using computer technology. Computer anxiety is a feeling of discomfort, stress, or fear experienced when using a computer or related technology (Rockwell & Singleton, 2002).

In 2003, researchers at UCLA conducted a large-scale study of computer users in North America and they found that 30% of new computer users (those who had used computers less than six months) and 10% of experienced users (those who have used computers longer than six months) experienced moderate to high levels of technophobia, which is defined as "anxiety or trepidation when using computers" (UCLA, 2001, p. 25). By asking teachers to report on their comfort levels when using computers, the researcher can identify the extent to which Moroccan teachers resist the incorporation of ICT in their EFL classrooms.

Researchers (Finn and Korunkonda; 2004) conducted a psychological research on people who use computers and identified five personality dimensions which significantly affect perceptions towards and use of computers. The five dimensions identified by these researchers are agreeableness, conscientiousness, neuroticism, extraversion, and openness, and all seem to affect efficacy and comfort with technology use. Based on survey and interview data, researchers found that neuroticism exacerbates problems experienced when using computers and extraversion and openness ameliorates many of them (Hudiburg, 1999).

## 6– Skills access

The next component of access worth noting is that of *skills access.* Broadly defined, this is the individual's ability to manage the hardware and software (Steyaert, 2000). Gunkel (2003) outlined, it behooves researchers to look 'beyond access' to also pay attention to the social, psychological, and cultural impacts of incorporating technology (p. 499). To test perceived skill levels versus actual skill levels of computer users, Hargittai (2003) performed experimental research in which she measured both formal and informal skill levels of computer users. Her research indicated enormous differences between the ability levels of computer users as measured by time necessary to complete specific tasks.

The general findings of these inquiries indicate (1) that the divide of skills access are greater than the divides of physical access, and (2) that while access gaps in developing countries are narrowing, skills access has remained a significant obstacle to the effective use of technology (de Haan, 2003). When analyzing large-scale survey responses from computer users, researchers (van Dijk, 2000; de Haan, 2003) discovered that people with high levels of traditional literacy (as measured by reading ability and educational achievement) also possess higher levels of digital 'literacy.' The other important finding from this line of research is that people learn more of these skills in practice, by trial and error, than by formal professional training (de Haan & Huhsmans, 2002). In the context of this proposed study, examining perceived levels of ICT skills by teachers seems particularly important to their effective implementation in Moroccan classrooms.

### 7– Usage access

Having sufficient motivation, physical access, and sufficient skills to use technology are all important considerations; however, researchers have also identified other factors, which significantly affect the use of technology. Through reports of self–usage, researchers have found identified significant differences in computer use based on social class, education, age, gender, and ethnicity (Park, 2002). Unsurprisingly, people from high SES levels and those with higher levels of education often have greater skills and technological knowledge, which mirror the 'knowledge gap' that has been observed from the 1970s until today (Cho et al., 2003).

Specifically, researchers found that the main difference between computer users were that people from high social positions based on income or education tended to use technology for different purposes than those from lower income and educational levels. Specifically, members of the high SES group routinely used technology for accessing information, communication at work and personally, and commercial endeavors. People from lower social status used technology for gathering information, communicating, shopping, and entertainment (Lenhart, 2004)

An important finding related to access relates to the speed at which people can access information. Specifically, having access to broadband connections (i.e., those connections with allow large amounts of information to be transmitted quickly) appears to have a strong effect on both the time spent using technology, as well as

the purposes for which it is used. People with access to broadband connections take much more advantage of opportunities with multi-media, they are much less deterred by the costs of connection and they use more applications for longer periods of time (Horrigan & Rainie, 2002a). As a result, a 'broadband elite' is created that use technology for ten or more activities on a typical day, and use technology for more creative uses of the internet (Horrigan & Rainie, 2002b).

By carefully considering the barriers identified by other researchers (e.g., material access, motivational access, skills and usage access), the author hopes that by examining teachers' perceptions of technology in the classroom, he can provide accurate and up-to-date information on the practical experiences of teachers in real classrooms as they teach students. It is hoped that the information gleaned from surveys will provide insight to administrators and officials in the Ministry of Education to improve the experience of teachers and students and to eradicate any barriers to the incorporation of ICT in their everyday instruction.

## 8– Teacher Preparation

In addition to the structural barriers listed above, the final component worth mentioning here is the dearth of effective preparation to train teachers how to effectively incorporate ICT in their EFL classrooms. Egbert, Paulus, and Namamichi (2002) posited that there is a lack of research, which studies the transfer of skills and knowledge of pre-service teachers from their university coursework to its implementation in the EFL classroom. Existing research indicates that pre-service teachers gain confidence in the use of ICT through formal teacher-

education coursework (Knezek, Christensen, & Rice, 1998) and that it is possible to improve teachers' favorable attitudes towards ICT use through effective coursework (Lam, 2000). Unfortunately, much of the existing research does not explain what, specifically, pre-service teachers take away from pre-service coursework and actually use in their classrooms (Egbert, Paulus, & Nakamichi, 2002). Bigimlus (2009) proposed that rather than simply training teachers how to incorporate specific aspects of ICT, rather, teacher education programs should provide pedagogic training for teachers so that they internalize the utility of ICT in their classrooms.

These conclusions were echoed by Newhouse (2002) who proposed that in addition to training on how to use ICT, teachers need to understand the myriad ways in which ICT can be used in content-specific contexts to aid comprehension and language acquisition. A consistent theme which pervades these researchers' writing is that when pre-service teachers lack adequate preparation and ongoing support, their effective use of ICT decreases, to the detriment of the students (Sicilia, 2005). As a result of this, as a component of the data gathering process, EFL teachers will be asked to describe the types of training they received while completing their university coursework, as well as to describe any systematic and ongoing training they receive to effectively incorporate ICT in their teaching.

**9– Methods and Research Questions**

To investigate the perceptions regarding access and use of instructional technology, the researcher utilized a survey instrument, which was administered to

teachers who are currently teaching in Morocco. Participating teachers were emailed a link with a survey instrument which gathers demographic data, as well as prompts that contain Likert-type responses. Within this survey instrument, teachers will be asked if they are willing to participate in semi-structured interviews to uncover their experiences with ICT in their EFL classrooms. Particular attention will be paid to any structural or systematic barriers to the effective incorporation of ICT in their classrooms. To determine teachers' perceptions, there are two main research questions which guide this study.

1) To what degree do teachers in the study have access to and training for using ICT effectively in their EFL classrooms?

2) How effective and worthwhile is the implementation of ICT in schools from the perspective of teachers?

**10– Findings of the Study**

Thirty Moroccan teachers completed the survey instrument yielding a response rate of 46.8%. Of the 30 respondents, 83.3% (n=25) were male and 16.7% (n=5) were male. While the sample was unbalanced in that it contained a much higher percentage of males to females, this was not a concern because a vast majority of teachers of English in Morocco are male.

Results are found in Table I below:

**Table 1 Participants' experience teaching**

| Number of years you have taught | n | percentage |
|---|---|---|
| In first year | 2 | 6.67% |
| 1 full year – 5 years | 3 | 10% |
| 6 – 10 years | 4 | 13.33% |
| 11 –15 years | 6 | 20% |
| 16 – 20 years | 8 | 16.67% |
| 21 – 25 years | 2 | 6.67% |
| 26 or more years | 5 | 26.67% |

The most commonly reported number of years of experience was 16 – 20 (n=8), however, all other categories contained a minimum of two responses for each. By asking the participating teachers about their years of experience, it allowed the researcher to look for patterns in responses, which may have indicated a difference in perceptions between new, or novice teachers who are just beginning their careers and those who have been teaching longer.

**11– Participants' Locations**

Table 2 below lists the cities in which the teachers lived and taught at the time the study was conducted.

**Table 2 Survey participants' home cities**

| City | Number of techears | City | Number of techears |
|---|---|---|---|
| Dakhla | 4 | Dcheirra | 1 |
| Laayoune | 3 | K. M'gouna | 1 |
| Agadir | 2 | Kenitra | 1 |
| Casablanca | 2 | Mohamedia | 1 |
| Guelmim | 2 | Meknes | 1 |
| Smara | 2 | Ouarzazate | 1 |
| Marrakech | 2 | Taroudante | 1 |
| Tetouan | 2 | Tinghir | 1 |
| Azzemour | 1 | Tiznit | 1 |

As presented in Table 2, teachers who responded to the request to complete a survey came from 18 different cities in both the south and north of Morocco, which provided a robust sample from which the researchers gathered data.

**12– Description of classroom characteristics**

Questions 10, 11, and 19 gathered data regarding the teachers' class size, primary language of instruction they use with their students, and the nature of the teaching activities which take place in the teachers' respective classrooms. Results are found in Table 3.

**Table 3   What is the average number of students you teach in your classes?**

| Average class size | Frequency | Average class size | Frequency |
|---|---|---|---|
| Less than 10 | 1 | 21 – 25 | 1 |
| 10 – 15 | 1 | 26 – 30 | 5 |
| 16 – 20 | 1 | 31 – more | 21 |

These results were not unexpected by the researcher. Moroccan teachers have long struggled with large class sizes, with the problem being worse in urban environments. In its report on class size in Morocco conducted in 2013 (the latest statistics available), the European Centre for Research Training and Development reported that the average student teacher ratio for secondary classrooms in Morocco was 38:1 (Elhassani, Alami, Zaki, Faoubar, & Haouzi, 2016).

**13– Preferred language and type of instruction**

Question 11 asked participants to report their primary language of instruction. A vast majority of the teachers (90%; n = 27) answered that the primary language of instruction was English. Two teachers reported using Moroccan Arabic and one reported teaching primarily in French. These results were to be expected for teachers of English; however, the researcher was encouraged by the fact that more teachers reported delivering their instruction using the target language of instruction (i.e., English).

**Table 4**: **Preferred method of teaching**

| Method | Frequency |
|---|---|
| Mostly teacher–led (whole group lecture) | 1 |
| More teacher–led with some student–led | 5 |
| Even balance of student led and teacher led | 12 |
| More student–led activities than teacher–led | 5 |
| Mostly student–led activities with few teacher–led | 6 |
| *No response* | 1 |

The participants' responses demonstrated that the largest percentage of teachers (41.3%; n=12) utilized a balanced approach when teaching their students English. The responses to this question are promising for the researcher because the utilization of ICT offers many opportunities for students to be actively engaged in learning activities as they use technology to perform certain tasks.

**14–Frequency of technology use**

Questions 14, 15, and 16 gathered data on the use of technology for specific instructional purposes, as well as in the teachers' personal lives. Results from teachers regarding their use of technology is listed in Table 5.

**Table 5   How many hours per week do you spend using technology outside of school?**

| Number of hours | never | 1–2 hours | 2–4 hours | 4–6 hours | 6–8 hours | 8–10 hours | +10 hours |
|---|---|---|---|---|---|---|---|
| frequency | 1 | 0 | 4 | 1 | 6 | 4 | 13 |

Of the 29 teachers who responded, almost all (96.5%; n=28) used technology in their personal lives for two or more hours per week. During the qualitative data gathering, the researcher will ask the participants more questions about the types of technology they use in their personal lives in an effort to understand the reasons for the frequency of use. Another question asked teachers to report on their technology use in their classrooms. Table 6 contains their responses.

**Table 6   How often do you integrate computer technology in your classroom?**

| Number of hours | Frequency |
|---|---|
| Never | 0 |
| Very rarely (a few times per year) | 6 |
| Once or twice per week | 12 |
| Most days | 9 |
| Every day | 2 |

Teachers were asked to quantify their use of ICT regarding student–centered

activities. Their responses are found in the Table below.

**Table 6 Frequency of student–centered activities**

| Type of activity by students | Never | One per week | 2–3 times per week | few times per week | Daily | **Total** |
|---|---|---|---|---|---|---|
| Use the internet | 5 | 7 | 1 | 12 | 3 | **28** |
| To find information | – | – | – | – | – | **–** |
| To prepare digital presentations | 11 | 9 | 2 | 4 | 1 | **27** |
| Digital portfolios | 14 | 8 | 0 | 4 | 1 | **27** |
| To store student work | – | – | – | – | – | **–** |
| Access a CD–Rom | 14 | 8 | 0 | 4 | 2 | **28** |
| For games or info | – | – | – | – | – | **–** |
| Use digital cameras | 18 | 4 | 4 | 2 | 0 | **28** |

Results from this question indicate that in almost all instances, the most frequent responses were that the teachers never used technology for these purposes.

The researcher used the survey questions to investigate this further. Those responses are reported later in this paper.

### 15– Access to Technology

Researchers have identified specific barriers which prevent teachers from incorporating technology in their classrooms (Horrigan & Rainie, 2002a). The most important barrier which exists is the lack of equipment and connectivity. Researchers call these *First Order* barriers and they are identified as the most important factor which stops teachers from using technology effectively in their teaching (Ertmer, 1999). To gather data as accurately as possible, after teachers rated three aspects of access to technology, they were asked to list the specific barriers they faced using a constructed response format. Table 7 contains response data from the participants related to the issue of access.

**Table 7**: **Access rates**

| Promt | Excellent | Good | Fair | Poor |
|---|---|---|---|---|
| How would you access to technology at your school? | 2 | 10 | 7 | 11 |
| How would you rate your students' access to technology at school? | 1 | 5 | 4 | 20 |
| How would you rate your access to IT personnel at your school? | 2 | 6 | 9 | 13 |

● response rate of 100% (n = 30)

The responses from this question demonstrate that in all cases, the most

frequent response is 'poor' whether it relates to teacher or student access to technology or support personnel. To use ICT effectively, teachers need to have high-speed internet access, as well as the software (i.e., programs to be used for instructional purposes) and hardware (e.g., digital cameras, digital projectors, functioning computers with new operating systems, etc.) which are critical for use. Immediately following these prompts, the teachers were asked, "What is the most significant barrier you now face using technology for instruction?" Twenty-four teachers provided a written answer for this question. The researcher and his university supervisor reviewed the responses and created categories into which the responses were placed.

Of the 30 teachers who participated in the study, 80% (n=24) provided a written response. Some answers contained responses which fit into more than one category resulting in 38 specific barriers which were mentioned. Responses are organized by frequency of occurrence from more common to less common. The responses to this question are presented in Table 8 below.

**Table 8**: **What is the most significant barrier you face now when using technology for instruction?**

| Category | Frequency |
|---|---|
| Lack of equipment/equipment broken | 17 |
| Lack of internet | 6 |
| Lack of training | 4 |
| Class size | 4 |

| Lack of time | 3 |
|---|---|
| No barriers | 2 |
| Culture and curriculum not compatible | 1 |
| No electricity | 1 |

The most frequent response provided by teachers (n=17) was a lack of functioning equipment for use during instruction. Twenty percent of the participants (n=6) mentioned the lack of internet connection in their schools. In total, eight teachers mentioned lack of training or time as the most significant barriers.

In chapter five, the researcher will explain these responses further, however, it is impossible to know from these responses how class size influences the use of ICT, all other factors being equal. It is possible that if teachers had more training to use technology with large classes that class size would not be a barrier. It is also possible that class size was mentioned because teachers are not able to take their students to a computer laboratory, which has enough computers for every student in a large class.

It should be noted that one teacher who took the survey mentioned the lack of electricity as a barrier and that two teachers who were interviewed mentioned lack of electricity as a barrier. The data were collected in the nineteenth year of the 21st century, and it is important to recognize that some schools in Morocco only have resources, which were available to schools in other countries in the 19th

century (e.g., chalkboards and no lights or electricity).

### 16–Professional Development/Training

Teachers who responded to the survey were asked (Q20) "Have you ever had professional development for ICT?" One teacher chose not to respond to the prompt, but of the 29 who chose to respond, 58.6% (n=17) answered 'yes.' The type of professional development available to teachers varies widely, so teachers who answered affirmatively to this question were directed to describe the specific type of training they received.

In total, 60% (n=18) teachers mentioned at least one type of professional development activity related to ICT. An important theme emerged when reviewing the responses regarding the origin of the professional development activities for the teachers. The most common response (44.4%; n=8) mentioned training that took place at a professional conference. The most commonly mentioned conference was MEARN (backwards). MOOC was mentioned three times three times (16.7%). Most professional development activities provided to teachers in Western Europe and the United States are offered, organized, and funded by local school districts. As a result, teachers often have input as to the types of training as well as follow up support from local teachers and trainers. The implications of this will be discussed in Chapter 5.

### 17–Technology use for Communication

Questions 17 contained five prompts which reflected the frequency with which teachers used ICT to communicate.

The responses are presented in Table 9.

**Table 9** : **Technology for communication**

| Regarding communication, how often do you use technology to communicate? | | Never | Daily | Weekly | Rarely |
|---|---|---|---|---|---|
| Personal | with administrators or other teachers | 8 | 8 | 8 | 4 |
| | With Your students | 4 | 4 | 6 | 14 |
| | With parents of your students | 0 | 0 | 2 | 26 |
| Instructional | Using a digital projector | 4 | 13 | 9 | 2 |
| | Use Power Point to present content | 3 | 13 | 8 | 4 |

Of the 30 teachers who participated in the survey, 28 (93.3%) provided a response. Regarding personal professional communication, a majority of Moroccan teachers of English do not communicate with parents or students using emails. While a majority of teachers (57.1%; n= 16) regularly communicate with other professionals in their schools, the fact that four teachers reported never communicating with administrators electronically indicates that the expectation for using email either does not exist or that teachers do not have computers and internet access provided by their schools.

**18–Teachers' Beliefs and Perceptions of Technology**

Two questions on the survey instrument asked the participants to describe

their beliefs and perceptions regarding a variety of topics related to technology.

**Table 10 Teacher beliefs regarding the use of computer technology**

**in the classroom**:

| | Strongly agree | Agree | No opinion | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Increases student achievement | 18 | 8 | 4 | 0 | 0 |
| Causes students to reject traditional teaching methods | 4 | 11 | 6 | 7 | 1 |
| Promotes student collaboration | 10 | 15 | 3 | 2 | 0 |
| Makes classroom management more difficult | 0 | 7 | 3 | 11 | 8 |
| Takes too much time and effort | 3 | 11 | 4 | 9 | 2 |
| Promotes the development of communication skills in English | 10 | 15 | 3 | 1 | 0 |
| Is only successful if teachers have technology at home | 8 | 9 | 7 | 5 | 0 |
| Makes you feel more confident as an educator | 11 | 11 | 3 | 3 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| Requires specialized training to be successful | 11 | 14 | 3 | 2 | 0 |
| Improves student engagement during lessons | 13 | 15 | 1 | 1 | 0 |

Question 12 asked teachers to report their perceptions related to several of the same concepts measured in the question regarding the teachers' beliefs. All of the prompts indicated favorable perceptions towards the use of ICT in their classrooms. The results from this question are presented in Table 10.

**Table 10 Teacher perceptions regarding the use of computer technology in the classroom**:

| | Strongly agree | Agree | No opinion | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Is unnecessary because students will learn computers at home | 1 | 4 | 1 | 15 | 8 |
| Improves my ability to teach | 8 | 13 | 5 | 2 | 1 |
| Requires specific training to be effective | 10 | 15 | 3 | 2 | 0 |
| Reduces the pressure on teachers | 8 | 14 | 3 | 3 | 1 |
| Helps the teacher accommodate different learning styles | 12 | 16 | 1 | 1 | 0 |
| Improves student motivation to learn | 16 | 13 | 0 | 0 | 0 |
| Promotes the development of interpersonal skills in students | 12 | 11 | 4 | 2 | 0 |
| Increases stress and anxiety for students | 1 | 4 | 4 | 15 | 5 |

One prompt from this question contained a concept not addressed in other questions. Specifically, teachers were asked if ICT helps the teacher to accommodate for different learning styles of their students. Almost all of the teachers (93.3%; n=28) agreed that the incorporation of ICT is beneficial to teachers when addressing different learning styles.

### 19–Recommendation for future research

Because of the limited sampling techniques, the results of this finding should not be generalized to include all teachers of English in Morocco; however, some important findings emerged from this study, which warrant further investigation. The first, and arguably most important, is the lack of basic infrastructure present in classrooms.

The Ministry of Education should direct its resources to conduct a comprehensive study of all Moroccan schools regarding basic needs and then address these needs. There are currently more than 10,000 schools without access to necessities such as water, sewage, and electricity. In 2015, the Supreme Council for Education, Training, and Scientific Research initiated yet another reform (to be enacted from 2015–2030) which has the goal of creating a school system based on "equity, equality, opportunity, and quality for all, and the advancement of the individual and society" (El Kaidi, 2018). If this reform is to be taken seriously, the Ministry of Education first needs to address the basic needs of schools to first identify which schools lack basic infrastructure and then direct financial resources to these schools to ensure that all students have necessities at their schools. Students cannot

be prepared for the 21st century if the schools at which they are educated are still the same as those in the 19th century of more developed countries.

**20–Conclusion**

Results from this study make a significant contribution to understanding the day–to–day practicalities of how secondary Moroccan teachers' of English both perceive the use of ICT as well as the difficulties they face in implementing ICT in their classrooms. Despite the educational reforms implemented in Morocco in the past two decades, ICT has still failed to reach its potential due to a variety of reasons. For instance, while all of the teachers reported overwhelmingly positive attitudes towards the use of ICT, very few were able to tell the researcher specific ways that they consistently used ICT to improve the educational experience of their students.

Currently, the number of barriers to the successful implementation of ICT are so significant that ICT is being significantly under–utilized in many classrooms. These findings can serve as an important reminder that although many teachers are committed to the use of ICT, they simply lack the resources to effectively do so. If future reform efforts are to ensure "equity, equality, opportunity, and quality for all, and the advancement of the individual and society" (El Kaidi, 2018), then the Ministry of Education will need to direct resources to address both first and second order barriers faced by Moroccan teachers as they do their best to teach students in overcrowded, underfunded, and oftentimes neglected classrooms.

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