

## Drivers and Barriers to Adopting ICT: Mexican EFL Primary School Teachers' Perceptions

José Joaquín Enrique Erguera Guerreo

*Autonomous University of the State of Quintana Roo, Cozumel, MEXICO  
Department of Humanities and Languages (DHL)*

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### *Abstract*

Information and Communication Technologies (henceforth ICTs) have been widely used by English as a Foreign Language (EFL) teachers as a tool to enhance language learning. This study investigated the drivers and barriers of ICT adoption as perceived by EFL teachers at the primary school level in Mexico. A phenomenological approach was adopted, and semi-structured interviews were used to collect the data. The findings showed that teachers' positive attitudes towards technology, attention motivation, having access to ICT resources, and enhancing language learning are the main drivers which facilitate the use and adoption of ICT in their classrooms, while, lack of resources, emerging challenges when using ICT resources and teachers' demotivation are the main barriers. The study concluded that the current findings may help to better understand those factors, and hence inform EFL teachers, policymakers, and education authorities to develop actions to overcome the barriers and promote the pedagogical use of ICT.

*Keywords:* ICT, technology adoption, drivers, barriers, EFL teaching.

### 1. Background of the study

#### 1.1 *Information and Communications Technology and EFL Teaching in the Mexican educational system*

English as Foreign Language was officially introduced into the curricula of all the levels of basic education including primary schools in 2009, by the National English Program (henceforth, PRONI), previously known as the National English Program in Basic Education (NEPBE) launched by the Secretariat of Public Education (henceforth, SEP). The main mission of this program as stated in their curricular foundations is to respond to the needs of,

(...) contemporary society, predominantly governed by *information and communication technologies*, requires citizens with the competencies needed to insert themselves within a globalized changing world. Basic Education is responsible for providing students with the opportunity to develop these competencies (SEP, 2011: 87, italics by the author).

- Teachers' beliefs that ICT resources facilitate the learning/ teaching process and enhance language learning were two of the main drivers.
- Attention-Motivation and having access to their own ICT equipment were relevant for the teachers to decide to use ICT tools in their teaching.
- The lack of ICT resources was the main barrier that hinders the use of ICT.
- Some teachers stopped using ICT because of the emerging challenges when using ICT equipment.
- Teachers' demotivation and lack of interest in the integration of ICT was also an important barrier.

These principles motivated the SEP to assume the responsibility to educate the future citizens with the necessary skills such as the use and command of ICTs and the knowledge of one foreign language in this case “English”. Another, strong reason that pushed the creation of the PRONI was to reduce the gaps of inequality between students that go in private and public schools allowing with this that disadvantaged students have the opportunity to study English (Ramírez-Romero & Sayer, 2016).

The PRONI was designed into four cycles covering third grade of pre-school and all the primary and secondary school grades. These cycles were developed based on the Common European Framework of Reference for Languages (CEFR), additionally, the SEP developed a series of national standards for foreign languages called the National Certificate of English Level (CENNI, by its initials in Spanish). These standards were used to establish the expected levels that students should attain after having completed each PRONI cycle which was measured according to the hours of English teaching received, it is worth noting that on average students have 100 hours per school year of English instruction distributed in three classes of 50 min every week according to the school calendar. It is expected that when students concluded the four cycles, in other words, 3<sup>rd</sup> grade of secondary school, they will achieve a B1 level according to the CEFR levels. Figure 1 illustrates the expected achievement levels by cycle and grade based on the CEFR levels and the CENNI standards.

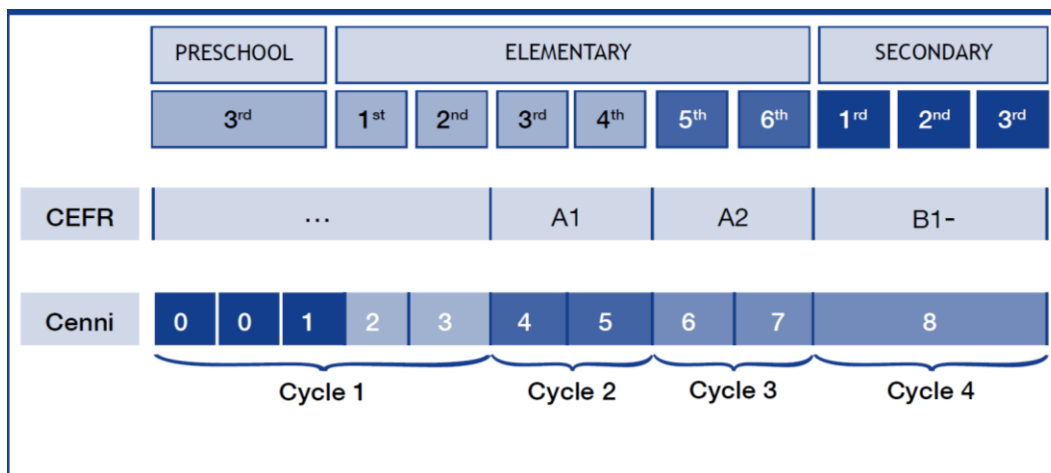


Figure 1. Expected achievement levels by cycle and grade  
Source: Secretariat of Public Education [SEP] (2011: 66)

The educational policies and programs regarding the adoption of ICTs in primary public schools followed a similar path as the English language programs. According to Morales et al. (2002), the first ICT programs were launched in the 1990s which main goals were the installation of computer equipment in the classrooms, the establishment of computer labs or media classrooms, the creation of computer training workshops and the construction of training centres. However, it was until 2005 where the most ambitious ICT program was developed

“*Enciclomedia*” which was characterized for the digitization of textbooks, the distribution of multimedia resources, and the provision of computers, interactive whiteboards and digital projectors (Ramírez-Romero & Sayer, 2016). Enciclomedia was soon abandoned by the new Mexican authorities, however, in 2009 a new project called ‘*Digital Skills for everyone*’ (HDT, by its initials in Spanish) was implemented in some primary schools where media and telematics classrooms were built and equipped with ICT equipment like computers with wireless internet access and educational software (SEP, 2009). The last two projects implemented regarding ICT were Mi Compu M.X and a pilot plan program called @prende 2.0. The former was launched in 2013 which the main objective was to provide of laptops with educational content to students from some primary public schools (Díaz-Barriga, 2014) and the latter started on 2014 and finished in 2018 which was implemented in some states and in a small number of schools where students of 5th grade were given some electronic tablets with educational resources (SEP, 2014). However, despite all these ICT programs, policies and strategies in the 2018 report of the National Institute for the Evaluation of Education in Mexico (INEE, by its initials in Spanish) informed that just 35% of primary public schools have access to at least one computer for educational purposes, however 52% of all these schools have no access to internet.

## 2. Statement of the problem

Despite the increasing academic research in the use, adoption and integration of ICTs in education, very little is known about the drivers and barriers of ICT adoption as perceived by EFL teachers at the primary school level in Mexico. A few studies have investigated the barriers and challenges that teachers face when using ICTs in primary public schools in the Mexican context (Santiago-Ramirez et al., 2013; Medina-Romo et al., 2017; Gomez-Dominguez et al., 2019). However, none of these studies provides evidence of the factors that facilitate the integration of ICTs as well as those internal or teacher-level factors that influence ICT adoption. This study is an attempt to fill this gap.

## 3. Research objectives

The main aim of this study is to identify the main drivers and barriers that facilitate or hinder the adoption of ICTs by EFL teachers working in primary public schools in Mexico. Gomez-Dominguez et al. (2019) carried out a quantitative study about the use of ICT by EFL teachers in the same context of this research, in which through the distribution of a questionnaire to 30 primary school EFL teachers provided evidence of the external or school level barriers that affect the adoption of ICTs, however, this study would have been more relevant if it had included evidence of the teachers’ internal factors and explore the drivers of ICT adoption as well. This study attempts to complement Gomez-Dominguez et al. (2019) findings by analyzing teachers’ perceptions of the drivers and barriers and provide evidence of both teachers’ level and school-level factors.

## 4. Research questions

To advance the understanding of the main drivers and barriers of EFL teachers experience when using ICTs in primary public schools in Mexico. This study addressed the following two primary research questions:

- (1) What are the main drivers for EFL teachers using ICTs at primary school level in Mexico?

(2) What are the main barriers for EFL teachers using ICTs at primary school level in Mexico?

## 5. Literature review

### 5.1 Theories about technology adoption and teachers' perceptions towards the adoption of ICTs

According to the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003), four factors explain what influences people's perceptions on the adoption of new technologies: performance and effort expectancy, social influence and facilitating conditions. A later review added three additional factors: hedonic motivation, price value and habit to provide insights into the technology user's perceptions as a consumer, and the model was renamed to UTAUT2 (Venkatesh et al., 2012) (Figure 2.1). Although the UTAUT2 model was not designed in the educational context, it provides insights into the factors and perceptions that may influence teachers' adoption of ICT in their teaching contexts.

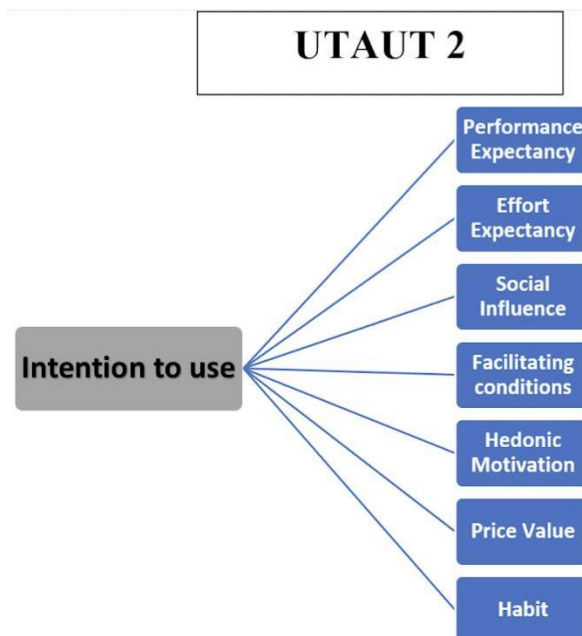


Figure 2. Unified Theory of Acceptance and Use of Technology 2

Based on the above model, teachers' perceptions can be broadly categorized into five major areas: performance expectancy, effort expectancy, social influence, facilitating conditions and hedonic motivation. *Performance expectancy* is expressed through the perceived benefits that teachers find when using ICTs to increase students' attention and motivation, saving time, developing effective activities (Jimoyiannis, 2008; Sipila, 2014). For example, the use of certain resources like audio-visual materials captures students' interest in the learning content. *Effort expectancy* is closely related to teachers' digital skills (Barbaran, 2014); most of the teachers are familiar with the new technologies, however, this issue should be evaluated in terms of teachers' pedagogical knowledge regarding ICT use. *Social influence* plays a vital role as students, parents and educational authorities expect that teachers' make use of these resources (Oyaid, 2009; Uluyul & Sahim, 2016); this means that teachers are pressured to include ICT resources into their teaching with the main goal to support learners' learning and equip them with digital skills, however, it is important to mention that teachers as well need to be encouraged and supported by their educational community including students' parents, colleagues and school authorities.

*Facilitating conditions* is perhaps the most influential factor because to teachers adopt ICTs successfully, they need to have access to ICT resources such as equipment, appropriate infrastructure, training as well as, technical and pedagogical support (Barbaran, 2014; King & Boyatt, 2014), if there is a lack of these facilitating conditions teachers will not be able to integrate these resources successfully. Finally, *hedonic motivation* as teachers need to be intrinsically motivated to use ICTs (Bennett et al., 2007; Jimoyiannis & Komis, 2007), the good thing in this perception is the fact that ICT use has the potential to motivate both the teacher and the learner, for example by using gamification or attractive audio-visual resources.

It is important to mention that by teachers' perceptions towards the use of ICT this study refers to the thoughts, interpretations and beliefs that are shaped because of teachers' background knowledge and previous personal and professional experiences which influence their practice in the classroom (Ertmer et al., 1999; Borg, 2006). To illustrate this point, Jimoyiannis (2008) developed a framework (see Figure 3.3) where all those internal and external factors that influence teachers' attitudes and perceptions towards the adoption of ICT are interconnected with each other. For instance, if teachers have ICT skills but lack of ICT pedagogical knowledge this last factor will negatively affect teachers' perceptions towards the use of ICT into their teaching practice.

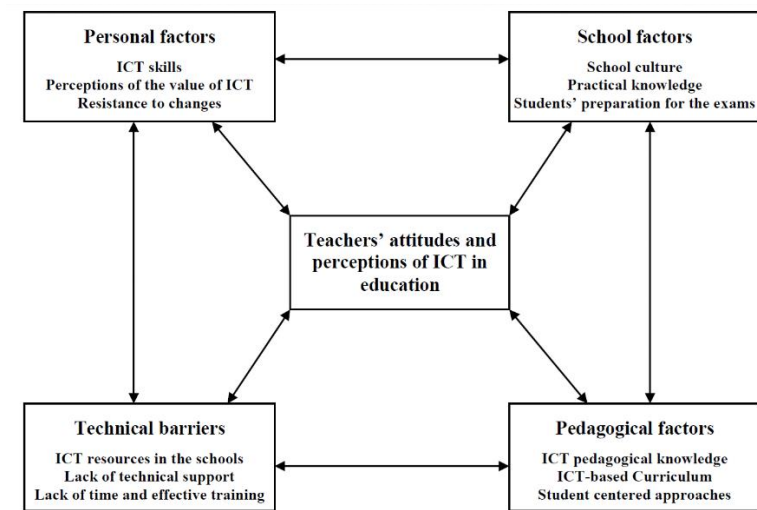


Figure 3. Factors influencing the adoption of ICT by the teachers  
Source: Jimoyiannis (2008: 5)

Research carried out by Steel and Hudson (2001) reported that pedagogic, technical, social, and cultural perceptions and experiences of teaching staff towards educational technologies were vital to determine the factors that were facilitating and affecting the successful integration of ICTs in a UK university. Other studies have reported that although teachers' have positive attitudes and perceptions towards the adoption of ICT, their negative experiences such as technical barriers, and lack of support from their schools influence their lack of interest and demotivation towards the use of ICT in their courses (Al-Senaidi et al., 2009; Kopcha, 2012; Galvan-Malagon & Lopez-Perez, 2017).

There have been no detailed investigations about teachers' perceptions of ICT in Mexico. The studies found during the literature search were those focusing on teachers' beliefs towards the use of ICTs in primary and secondary public schools (Kalman, 2013; Andrade-Pulido, 2014). Both studies concluded that the contexts in which teachers work as well as their beliefs about teaching and learning determine their use of ICTs in the classroom.

## 6. Methodology

This study has adopted a qualitative mode of inquiry, in the form of a phenomenological research design. Qualitative research has been conceptualized as a “situated activity” in which the researcher adopts the role of the observer to provide “an interpretative, naturalistic approach to the world” (Denzin & Lincoln, 2011: 3). In other words, the researcher approaches the phenomenon into its natural setting, and interpret and make sense of it by analyzing and interpreting the data provided by the participants using his inductive and deductive reasoning to establish patterns or themes and, in this way, give meaning to the participants’ voices (Creswell, 2013).

One of the main reasons that motivated me to choose a qualitative approach is because of the nature of this study which is targeted to identify the main drivers and barriers based on participants’ perceptions towards the adoption of ICTs in their teaching practice and qualitative research design has the potential to identify and interpret those factors and provide an in-depth analysis (Creswell, 2013; Mills & Birks, 2014).

### 6.1 Phenomenological research

Phenomenology research is described by many academics as the study of the lived experiences of persons (van Manen, 2007; Denscombe, 2014; Cohen et al., 2018) which the main objective is to interpret and give meaning to those experiences and “not explanations or analyses” (Moustakas, 1994: 13). In line with this, van Manen (2017) claims that phenomenology as a qualitative research method aims to provide meaningful insights of the phenomenon under study, by providing “the richest and most descriptive data” (Creswell, 2019: 351). It is worth noting at this point, that phenomenology methodology as described by Denscombe (2014) is suitable for small-scale research projects because is economic and the main resource is the researcher himself. These two characteristics and the nature of the research questions were the main reasons that motivated me to adopt phenomenology research.

### 6.2 Participants

A final sample of seven EFL teachers met the sampling criteria described above and participated in the online semi-structured interviews. Table 1 below shows the participants’ demographic information.

Table 1. Participants’ demographic information.

Participant No.	Gender	Age	Teaching experience	Qualifications	Class
1	Male	41	7 years	BA (English Language) MA (ELT)	Years 1-5
2	Female	29	7 years	BA (English Language)	Years 4-6
3	Male	38	3 years	BA (English Language)	Years 1-6
4	Female	40	6 years	BA (ELT)	Years 1-6
5	Female	27	6 years	BA (English Language)	Years 1-3
6	Female	39	10 years	BA (ELT)	Years 1-6
7	Female	33	6 years	BA (English Language)	Years 1-3

### 6.3 Data collection

#### 6.3.1 Online semi-structured interviews

Dornyei (2007) sustains that interviewing apart from being a communication routine, can be used as a “versatile research instrument” (p. 134). Denscombe (2014) makes the point that researchers opting for interviews should measure their feasibility as data collection method by considering the following three factors: Firstly, having access to potential interviewees who can describe what and how they experience the phenomenon under study (Moustakas, 1994). Secondly, considering the time and costs of travel, to tackle both issues I opted for video online interviews which allowed me to carry out the interviews in real-time while including visual contact without needing to travel to the study context. Thirdly, considering the kind of data that is needed, as the main goal of this research is to gain insights into teachers' perceptions regarding the use and adoption of ICTs, the best method to gather that kind of data is through in-depth semi-structured interviews (Moustakas, 1994; van Manen, 2017) because its flexibility mixed with well-developed and carefully selected questions allow the researcher to gain the desired information and have access to new lines of inquiry (Mills & Birks, 2014).

### 6.4 Data analysis

Moustakas's (1994) phenomenological approach of data analysis was chosen because its systematic procedures and detailed guidelines allow the researcher to provide rich and in-depth textual and structural descriptions and interpretations of the phenomenon under study as experienced by the participants (Creswell, 2013; Cohen et al., 2018). Figure 7. 1 illustrates all the steps involved in the Moustakas' method of data analysis.

From the verbatim transcript of your experience complete the following steps:

- a. Consider each statement with respect to significance for description of the experience.
- b. Record all relevant statements.
- c. List each nonrepetitive, nonoverlapping statement. These are the invariant horizons or meaning units of the experience.
- d. Relate and cluster the invariant meaning units into themes.
- e. Synthesize the invariant meaning units and themes into *a description of the textures of the experience*. Include verbatim examples.
- f. Reflect on your own textural description. Through imaginative variation, construct *a description of the structures of your experience*.
- g. Construct *a textural-structural description* of the meanings and essences of your experience.

Figure 3. Method of organizing and analyzing phenomenological data

Source: Moustakas, 1994: 121

Moustakas' approach begins by identifying and bracketing out researcher's personal experiences with the phenomenon under study and in this way focus entirely on participants' experiences (Creswell, 2013), and finish with a composition of the textural and structural descriptions and interpretation of the data. It is worth noting that Nvivo 12 plus was used to store, organize and code the data effectively, and WordStat 8 was used to carry out word frequency analyses to identify the main themes, next section will provide accurate descriptions of all the data analysis procedures.

### 6.5 Procedure

After transcribing all the interviews verbatim and stored in a Nvivo 12 plus file project I proceeded with the data familiarization through reading and re-reading the transcripts many times to identify participants' significant statements regarding the drivers and barriers of ICT use in their teaching contexts. Then, I started classifying and grouping the significant statements into two nodes one for drivers and another for barriers, Nvivo 12 plus automatically stored all these statements into two documents one for each node. After that, I downloaded both documents to proceed with a word frequency analysis using WordStat 8 which revealed the most used terms in both categories, those identified keywords along with constant comparative analysis were used to cluster the main themes.

### 7. The study main findings

The phenomenological in-depth analyses of the collected data answered our two research questions. Table 2 summarized the study findings with its corresponding research questions.

Table 2. Study findings.

Research Questions	Answers	
<b>1. What are the main drivers for EFL teachers using ICTs at primary school level in Mexico?</b>	<b>Facilitates the learning/teaching process</b>	<ul style="list-style-type: none"> <li>• Meaningful learning</li> <li>• Useful tool for teachers</li> <li>• Better than traditional teaching</li> </ul>
	<b>Attention-Motivation</b>	<ul style="list-style-type: none"> <li>• Increases student attention towards the learning materials</li> <li>• Increases student motivation</li> </ul>
	<b>Accessibility to their own ICT resources</b>	<ul style="list-style-type: none"> <li>• Having control over their own equipment</li> <li>• No relying on school ICT resources</li> </ul>
	<b>Enhance language learning</b>	<ul style="list-style-type: none"> <li>• Allow learners to have access to authentic materials</li> <li>• Facilitates the practice of the four language skills</li> </ul>
<b>2. What are the main barriers for EFL teachers using ICTs at primary school level in Mexico?</b>	<b>Lack of resources</b>	<ul style="list-style-type: none"> <li>• Lack of access to internet</li> <li>• Insufficient or inexistent ICT equipment</li> <li>• Lack of time</li> <li>• Lack of technical support and appropriate training</li> <li>• Lack of economic support</li> </ul>
	<b>Emerging challenges when using their own ICT equipment</b>	<ul style="list-style-type: none"> <li>• Inappropriate school and classroom setting.</li> <li>• Waste of class time</li> <li>• Classroom management problems</li> </ul>
	<b>Teachers' demotivation and lack of interest</b>	<ul style="list-style-type: none"> <li>• External or school level barriers</li> <li>• Teachers' status in the schools and inappropriate working conditions</li> </ul>

### 7. Discussions of findings



The findings suggest four main drivers that encourage EFL teachers to use ICTS in their classrooms. The first one facilitates the learning/teaching process draws on the idea that ICTs are perceived by teachers as useful tools which allow them to create more meaningful learning opportunities and the shared belief that ICT use is more effective than traditional teaching practices and resources such as the use of textbooks. However, two participants in this study suggested that a mixture of traditional teaching practices and resources with the use of ICTs are effective as well, this perception is consistent with the observed by Izquierdo et al. (2017), as they reported that EFL teachers in Mexican secondary public schools use ICTs to complement the textbooks and provide learners with extra practice particularly listening. In the same way, Uluyol and Sahin (2016) found that primary school teachers in Turkey perceived ICTs as useful tools that facilitate their job and allow them to create more meaningful learning activities. In the same way, Sánchez-Mena and Martí-Parrenño (2017) reported that university professors in Spain perceived ICT use as a more effective and easier in comparison to traditional teaching practices.

The second driver was attention-motivation as teachers reported that ICT increases learner's motivation and attract their attention towards the learning materials. This finding broadly supports the work of Kalman (2013) and Izquierdo et al., (2017) who reported that one of the main reasons that Mexican teachers in secondary public schools use ICT is to increase their students' motivation and attract their attention towards the class content.

The third driver was teachers having access to their ICT equipment this result may be explained by the fact that teachers do not need to rely on the limited or inexistent school ICT resources and have control on their equipment, Gómez-Domínguez et al. (2019), Izquierdo et al. (2017) and Dominguez-Castillo et al. (2016) showed that is a common practice for Mexican EFL teachers in primary and secondary public schools to bring their own devices particularly laptops and speakers in order to overcome the lack of ICT resources in their schools.

The final driver was enhancing language learning as teachers reported that the main reasons to adopting ICTs are because it allows them to have access to a wide variety of ELT materials particularly authentic materials to provide learners with the practice of the four language skills, however, it was not of any surprise that teachers use ICTs primarily to provide learners with listening practice.

This study confirms that EFL teachers' use of ICT is mainly influenced by their internal factors such as their attitudes, beliefs, and perceptions (Ertmer, 1999; Jimoyiannis & Komis, 2007; Uluyol & Sahin, 2016). However, it is important to mention that facilitating conditions such as having their ICT equipment and performance expectancy such as enhancing students' language learning and increasing their motivation and attention play a vital role in their perceptions towards the adoption of ICT resources.

External barriers such as the lack of ICT resources and emerging challenges when using their ICT equipment because of the inadequate school infrastructure and facilities as well as internal factors such as teachers' demotivation and lack of interest were identified, however, it is important to mention that these internal factors are heavily influenced by external barriers like the lack of facilitating conditions and time as well as teachers' status in schools and their inappropriate working conditions that demotivated them to improve their teaching practice and growth professionally in their schools.

The foremost barrier reported by the participants was lack of resources which contemplates the lack of access to the internet, insufficient or inexistent ICT equipment, lack of time, lack of technical support and appropriate training, as well as lack of economic support to acquire new equipment. Teachers in this study consider that the available resources at schools are insufficient, scarce, outdated and of difficult access because of the many administrative limitations that hinder them to make use of them. These results coincide with those of Domínguez-Castillo et al. (2016), Izquierdo et al. (2017), and Gómez-Domínguez et al. (2019), who reported that the

lack of resources, poor or inexistent internet connection, insufficient or obsolete computer equipment, and lack of technical and administrative support negatively affected the use of ICT by EFL teachers working in secondary and primary public schools in Mexico. Additionally, participants constantly reported that time constraints in and outside the classroom were perceived as a major barrier.

The second main barrier was the emerging challenges when teachers use their ICT equipment such as waste of class time, classroom management problems, and inappropriate school and classroom setting. Although many participants bring their equipment to the classrooms, the inadequate teaching conditions hinder them to take advantage of these resources. Similar results were found in this same context by Gómez-Dominguez et al. (2019) as teachers in their study reported that in their schools, there is not enough lighting, the projector screen is inadequate, the scope of the sound equipment is not according to the size of the classroom, and the limited class time were identified as inhibitory factors for ICT adoption. In the same way, Izquierdo et al. (2017) found that the inadequate school facilities and equipment was perceived by Mexican EFL teachers in secondary public schools as a hindrance that makes them waste class time as they need to move to different classrooms and install their equipment in every classroom and deal with emerging technical problems which support is inexistent. Additionally, these factors generate that teachers' loss class control because learners' get easily distracted this is consistent with the reported by Galvan-Malagón and López-Pérez (2017) who found that Secondary EFL teachers in Spain avoid using ICTs because makes them lose class control and authority when dealing with technical issues, particularly with large classes.

Finally, teachers' demotivation and lack of interest in the integration of ICT resources in their teaching are internal barriers heavily influenced by external barriers such as the lack of facilitating conditions, teachers' status in schools and discouraging working conditions these factors negatively affected teachers' interest to integrate ICTs and adopt new pedagogical approaches. These findings broadly support the work of other studies in this area linking EFL teachers' demotivation with their dissatisfaction with their working conditions, teaching materials and poor facilities (Aydin, 2012; Agustiani, 2016; Ueda, 2017). This finding is also consistent with the British Council (2015) and Mexicanos Primeros (2015) reports as they point out that EFL primary school teachers working conditions in Mexico have a negative effect on their motivation, as well as on their professional development and practice.

## 8. Conclusion and recommendations

This study suggests that the adoption of ICT is influenced by both internal and external factors. However, teachers' internal factors particularly their perceptions about the benefits, usability, and effectiveness of the use of ICTs in their practice are the most important as the adoption of ICTs in this context mainly relies on teachers and their ICT resources. However, it is important to mention that external factors such as having the appropriate facilitating conditions such as access to ICT resources, training, technical and pedagogical support from their school authorities as well as appropriate working conditions like work stability may act as an important fuel for the successful adoption of ICTs in schools. The study findings have important implications and recommendations for EFL teachers, policymakers, and educational authorities. Firstly, teachers' internal factors are key to the successful adoption of ICT is important for teachers to take the initiative to train themselves on the technical and pedagogical aspects of ICT use. Nowadays, there is a wide range of free Massive Open Online Courses (MOOCs) and many of these courses are targeted to EFL teachers about how to integrate ICTs in their teaching practice. Additionally, I recommend teachers to be involved actively into the educational community a develop strategies and projects in coordination with the school principals to acquire more equipment such as laptops and projectors as well as have a funding to overcome technical issues and give maintenance to the

school equipment, it is advisable to run fundraising campaigns and involve students' parents in this process.

This study as well raises implications for policymakers and educational authorities as they should develop strong ICT policies with a long-term plan and vision based on current educational research especially the ones carried out in the Mexican context. It is important that those ICT policies should put the pedagogic rationale first over the social and economic rationales as the main goal of education is not just train future workers if not build future citizens who are active participants into the knowledgeable and democratic society and the appropriate use of ICT can have the potential to achieve all these goals (Jimoyiannis & Komis, 2007; Oyaid, 2009). In the same way, educational authorities should provide schools with the necessary facilitating conditions such as ICT equipment, educational software that fits with the school curricula and improve the school facilities and infrastructure. To achieve these goals, it is necessary that educational authorities in coordination with school principals should develop strategies to monitor and evaluate the school infrastructure as well as the ICT equipment and its use with a pedagogical objective in mind. Furthermore, the incorporation of technical and pedagogical advisors and the development of personalized teachers' training based on the school realities, learners' needs, and available resources will facilitate the successful adoption of ICTs not just in the field of EFL if not in the whole educational system.

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The authors declare no competing interests.

#### References

- Agustiani, M. (2016). Teachers' demotivation in English language teaching: Causes and solutions. *Proceedings of the 2<sup>nd</sup> SULE-IC*, 673-681.
- Al-Senaid, S., Lin, L., & Poirot, J. (2009). Barriers to adopting technology for teaching and learning in Oman. *Computers and Education*, 53(3), 575-590.
- Andrade-Pulido, J. (2014). Creencias sobre el uso de las tecnologías de la información y la comunicación de los docentes de educación primaria. *Actualidades Investigativas en Educación*, 14(2), 1-29. Retrieved 14 May 2022, from <http://www.redalyc.org/pdf/447/44731371017.pdf>.
- Aydin, S. (2012). Factors causing demotivation in EFL teaching process: a case study. *The Qualitative Report*, 17(101), 1-13.
- Barbara´n, C. (2014). *The factors influencing teachers' decision to integrate current technology educational tools in urban elementary public schools* (Doctoral dissertation). Retrieved 6 January 2022, from ProQuest Dissertations and Theses database (No. 3641304).
- Bennett, R., Hamill, A., & Pickford, T. (2007). *Progression in primary ICT*. London: David Fulton.
- Borg, S. (2006). *Teacher cognition and language education: Research and practice*. London: Continuum.
- British Council. (2015). *English in Mexico: An examination of policy, perceptions and influencing factors*. Mexico: British Council Mexico.
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education*. New York: Routledge.

- Creswell, J. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (Third edition). Los Angeles: SAGE Publications.
- Creswell, J. (2019). *Qualitative inquiry and research design: Choosing among five approaches* (4<sup>th</sup> ed. International Student edition). Los Angeles: SAGE Publications.
- Denscombe, M. (2014). *The good research guide: For small scale research projects* (Fifth edition). Maidenhead: Open University Press.
- Denzin, N. K., & Lincoln, Y. S. (Eds.) (2011). *Handbook of qualitative research*. Thousands Oaks, CA: Sage.
- Díaz-Barriga, F. (2014). *Las políticas TIC en los sistemas educativos de América Latina: Caso México*. Buenos Aires, ARG: Fondo de las Naciones Unidas para la Infancia.
- Domínguez, J., Cisneros, E., Suaste, M., & Vázquez, C. (2016). Factores que impiden la integración de las TIC en las escuelas de educación básica: Una mirada desde la percepción de los profesores de ciencias y matemáticas. *Revista Científica Electrónica de Educación y Comunicación en la Sociedad del Conocimiento*, 2(16), 408-443. Retrieved from <http://eticanet.org/revista/index.php/eticanet/article/view/119>.
- Doňnyei, Z. (2007). *Research methods in applied linguistics: Quantitative qualitative, and mixed methodologies*. Oxford: Oxford University Press.
- Ertmer, P. (1999). Addressing first and second order barriers to change: Strategies for technology integration. *Educational Technology Research and Development*, 47(4), 47-61. <https://doi.org/10.1007/BF02299597>
- Galvan-Malagón, C., & Lopez-Perez, M. (2017). ICT in the English classroom. Qualitative analysis of the attitudes of teachers of english towards its implementation in secondary schools. *Procedia-Social and Behavioral Sciences*, 237, 268-273.
- Goómez-Domínguez, C. E., Ramiírez-Romero, J. L., Martíñez-González, O., & Chuc-Pinón, I. (2019). El Uso de las TIC en la Enseñanza del Inglés en las Primarias Públicas. *Revista de Estudios y Experiencias en Educación*, 18(36), 1-22.
- Izquierdo, J., De la Cruz-Villegas, V., Aquino-Zúñiga, S., Sandoval-Caraveo, M., & García Martínez, V. (2017). La enseñanza de lenguas extranjeras y el empleo de las TIC en las escuelas secundarias públicas. *Revista Científica de Educomunicación*, 25(50), 33-41. <https://doi.org/10.3916/C50-2017-03>
- Jimoyiannis, A., & Komis V. (2007). Examining teachers' beliefs about ICT in education: Implications of a teacher preparation programme. *Teacher Development*, 11(2), 149-173.
- Jimoyiannis, A. (2008). Factors determining teachers' beliefs and perceptions of ICT in education. In A. Cartelli & M. Palma (Eds.), *Encyclopedia of Information Communication Technology* (pp. 321-334). Hershey, PA: IGI Global.
- Kalman, J. (2013). Beyond common explanations: Incorporating digital technology and culture into classrooms in Mexico. *Digital Culture & Education*, 5(2), 98-118.
- King, E., & Boyatt, R. (2014). Exploring factors that influence adoption of e-learning within higher education. *British Journal of Educational Technology [online]*, 46(6), 1272-1280.
- Kopcha, T. (2012). Teachers' perceptions of the barriers to technology integration and practices with technology under situated professional development, *Computers & Education*, 59(4), 1109-1121.
- Medina-Romo, A. I., Mortis-Lozoya, S. V., & Pablos-Collante, D. E. (2017). Las TIC en aulas de escuelas primarias públicas del sur de Sonora. Congreso Nacional de Investigación Educativa-COMIE.
- Mexicanos Primero (2015). *Sorry. Learning English in Mexico* [Online]. [Accessed 5 April 2021]. Available from: <https://www.mexicanosprimero.org/wp-content/uploads/2022/07/sorry.pdf>.

- Mills, J., & Birks, M. (2014). *Qualitative methodology: A practical guide*. London: SAGE.
- Morales, C., González, Y., Soto, C., Campos, A., García, G., Alvarado, G., & Espinoza, G. (2002). Disponibilidad y uso de la tecnología en la educación básica. *Unidad de Investigación y Modelos Educativos ILCE*. Retrieved 26 April 2020, from [http://investigacion.ilce.edu.mx/panel\\_control/doc/c36.disponibilidad.pdf](http://investigacion.ilce.edu.mx/panel_control/doc/c36.disponibilidad.pdf).
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, California: Sage.
- Oyaid, A. A. (2009). *Education policy in Saudi Arabia and its relation to secondary school teachers' ICT use, perceptions, and views of the future of ICT in education* [Doctoral dissertation, University of Exeter]. ResearchGate Open. [https://www.researchgate.net/profile/Afnan-Oyaid-2/publication/288490297\\_Education\\_Policy\\_in\\_Saudi\\_Arabia\\_and\\_its\\_Relation\\_to\\_Secondary\\_School\\_Teachers'\\_ICT\\_Use\\_Perceptions\\_and\\_Views\\_of\\_the\\_Future\\_of\\_ICT\\_in\\_Education/links/56815df408ae051f9aec4701/Education-Policy-in-Saudi-Arabia-and-its-Relation-to-Secondary-School-Teachers-ICT-Use-Perceptions-and-Views-of-the-Future-of-ICT-in-Education.pdf](https://www.researchgate.net/profile/Afnan-Oyaid-2/publication/288490297_Education_Policy_in_Saudi_Arabia_and_its_Relation_to_Secondary_School_Teachers'_ICT_Use_Perceptions_and_Views_of_the_Future_of_ICT_in_Education/links/56815df408ae051f9aec4701/Education-Policy-in-Saudi-Arabia-and-its-Relation-to-Secondary-School-Teachers-ICT-Use-Perceptions-and-Views-of-the-Future-of-ICT-in-Education.pdf).
- Ramírez-Romero, J. L., & Sayer, P. (2016). The teaching of English in public primary schools in Mexico: More heat than light? *Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas*, 24(84), 1-22. ISSN: 1068-2341. Retrieved 25 January 2022, from: <https://www.redalyc.org/articulo.oa?id=275043450125>.
- Sánchez-Mena, A., & Martí-Parrenño, J. (2017). Drivers and barriers to adopting gamification: Teachers' perspectives. *Electronic Journal of e-Learning*, 15(5), 434-443.
- Santiago-Ramírez, M., Jiménez-Williams, A., & Pesqueira-Bustamante, N. (2013). Uso de computadoras XO en escuelas primarias rurales del Estado de Sonora. Reporte de monitoreo. *XII Congreso Nacional de Investigación Educativa*. <http://www.creson.edu.mx/docs/publicaciones/Ponencia-12109.pdf>.
- Secretaría de Educación Pública (SEP) (2009). Libro blanco: Programa Habilidades Digitales para Todos. Retrieved 26 May 2019, from <https://sep.gob.mx/work/models/sep1/Resource/2959/5/images/LB%20HDT.pdf>.
- Secretaría de Educación Pública (SEP) (2011). Programa Nacional de Inglés en Educación Básica Segunda Lengua: Inglés. Fundamentos curriculares. Mexico: SEP.
- Secretaría de Educación Pública (SEP) (2014). Lineamientos de Operación para el Programa U077: Inclusión y alfabetización digital. México, DF. Retrieved 28 January 2020, from [https://coleccion.siaeducacion.org/sites/default/files/files/lineamientos\\_de\\_operacion\\_para\\_el\\_programa\\_u077\\_inclusion\\_y\\_alfabetizacion\\_digital.pdf](https://coleccion.siaeducacion.org/sites/default/files/files/lineamientos_de_operacion_para_el_programa_u077_inclusion_y_alfabetizacion_digital.pdf).
- Sipilä, K. (2013). Educational use of information and communications technology: Teacher's perspective. *Technology, Pedagogy and Education*, 23(2), 1-17. <https://doi.org/10.1080/1475939X.2013.813407>
- Steel, J., & Hudson, A. (2001). Educational technology in learning and teaching: The perceptions and experiences of teaching staff. *Innovations in Education and Teaching International*, 38(2), 103-111.
- Ueda, M. (2017). Coping with teacher demotivation toward directed motivational currents. *Journal of Literature and Art Studies*, 7(5), 555-567.
- Uluyol, Ç., & Şahin, S. (2016). ICT integration analysis in elementary school system. *British Journal of Educational Technology*, 47, 65-75. <https://doi.org/10.1111/bjet.12220>
- van Manen, M. (2007). Phenomenology of practice. *Phenomenology & Practice*, 1(1). <https://doi.org/10.29173/pandpr19803>
- van Manen, M. (2017). Phenomenology in its original sense. *Qualitative Health Research*, 27(6), 810-825. <https://doi.org/10.1177/1049732317699381>

- Venkatesh, V. et al. (2003). User acceptance of information technology: Towards a unified view. *MIS Quarterly*, 27(3), 425-478.
- Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157-178.
- Walker, A., & White, G. (2013). *Technology enhanced language learning: Connecting theory and practice*. Oxford: Oxford University Press.

