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The Influence of English Teachers' Attitudes Towards Technology on Pedagogical Practices

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Resumen

La siguiente síntesis de investigación tuvo como objetivo analizar cómo las actitudes y creencias de los docentes de inglés influyen en la implementación de la tecnología en sus prácticas pedagógicas. Se eligieron quince estudios que examinaron las percepciones de los profesores de inglés y los factores que afectan dichas percepciones en la aplicación de la tecnología en el aula. Los criterios de inclusión para la selección de los estudios fueron los siguientes: los artículos debían ser empíricos, estar redactados en inglés y publicados a partir de 2010. Con base en el análisis, los resultados revelaron que es imperativo que los maestros de inglés mantengan actitudes positivas si se quiere lograr una implementación de tecnología apropiada en la clase; de igual manera, existen factores tanto internos como externos que necesitan ser considerados debido a que también juegan un papel importante en las creencias de los profesores. Por lo tanto, dado que el análisis de las creencias de los docentes de inglés hacia la tecnología y la importancia de capacitar a los docentes en el uso de dispositivos tecnológicos son fundamentales en la implementación de la tecnología en el aula, se sugiere realizar más investigaciones sobre estos temas.

Palabras clave: Tecnología. Creencias de los profesores. Implementación de la tecnología. Factores.

Abstract

This research synthesis intends to analyze how English teachers' attitudes influence the implementation of technology in pedagogical practices. Fifteen studies that examined English teachers' perceptions and the factors affecting them in the application of technology in class were chosen. The inclusion criteria to select the studies were the following: the articles had to be empirical, written in English, and published from 2010 and on. Based on the analysis, the outcomes revealed that it is imperative for teachers to hold positive attitudes if an appropriate technology implementation in class is to be pursued; furthermore, there are some internal and external factors that need to be considered because they also play an important role in teachers' beliefs. Since the analysis of English teachers' beliefs towards technology and the importance of training teachers about the use of technological devices are essential in the implementation of technology in the classroom, further research about these topics is suggested.

Keywords: Technology. Teachers' beliefs. Technological implementation. Factors.

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Acknowledgements

Dedication

To my respectful and beloved parents, Luis and Zoila, for their unconditional love and support through all my life and for inspiring me to be brave and patient. I cannot express how thankful I am for you; I love you more than myself.

To my dearest aunts, Leticia and Lilia, whose advice has helped me to not to give up easily and work hard in every circumstance to achieve my goals; I love you!

To my loved cousin, Eve, for believing in and taking care of me when I almost lost myself; I love you!

To my inner child for working hard and going beyond any possibilities. Please remember that you can do whatever you set your mind to and that you should not compare yourself to others. You are the best; I love you!

Introduction

Nowadays, the world and society have changed because of technological innovations which have improved people's lifestyle (Merillo & Domingo, 2019). Technology has been considered an important tool in different fields; one of these fields is education which has been incorporating digital devices as learning and teaching tools as part of teaching practices. Moreover, several studies have been conducted regarding the methods and strategies to adopt technology in class; however, there are few studies about how English educators perceive and use technology in class, which is a factor that can influence the implementation of digital devices. Consequently, this research synthesis intends to analyze how English teachers' beliefs influence the implementation of technology and to determine the factors and barriers that affect teachers' beliefs towards the adoption of digital devices in the classroom.

This synthesis contains five chapters. The first chapter involves the description of the study which includes the background, problem statement, rationale, research questions, and objectives.

The second chapter includes the theoretical framework that explains the essential theories, concepts, and terms that underlie this research synthesis.

The literature review is presented in the third chapter. It provides an overview of the existing literature and the debates that have been generated.

The fourth chapter contains the methodology of the study. This chapter describes in detail the inclusion and exclusion criteria that was used to select the studies.

The fifth chapter includes the analysis and interpretation of the outcomes of the selected studies which were classified into five different categories.

Finally, the sixth chapter presents the conclusions and recommendations derived from the analysis.

Chapter 1

1. Description of the Study

1.1 Background

The development of the world has improved because of technology; in fact, different fields of study and work have adopted new technological advances into their practices (Cárdenas-Claros & Oyanedel, 2015). One of these fields is education since some educators and students have taken advantage of innovative technological tools to improve learning processes (Liu et al., 2017). However, as García and Rey (2013) pointed out, although some teachers see technology as an authentic learning tool, they do not use it for their pedagogical practices.

In fact, English teachers' attitudes towards technology may affect its correct implementation in class (García & Rey, 2013). An attitude can be defined as "a mindset or a tendency to act in a particular way due to both an individual's experience and temperament" (Pickens, 2005 as cited in Nueva, 2019). For instance, since teachers put into practice what they believe, their beliefs play a crucial role in the implementation of technology as a pedagogical tool in class (Nueva, 2019). Moreover, based on the results of some studies, teachers' perceptions are influenced by several factors that can be external, such as the lack of equipment and support from the institution, the academic level of the courses, and students' knowledge about technology; and, internal such as age, confidence, pedagogical abilities, expertise, and feelings or attitudes towards technology (Badia et al., 2017; Cárdenas-Claros & Oyanedel, 2015; Nueva, 2019). Even though these factors may affect the decision of integrating technology in class, its implementation may benefit students to use it as an educational tool that can help them to construct their knowledge (García & Rey, 2013).

Technology may represent an important tool for education, and its application can benefit students and teachers. Besides, providing teachers with a new perspective of technology may help them to build a technological class in which technological devices can be taken as a learning tool. Consequently, it is necessary to research about English teachers' attitudes towards technology in order to determine the main factors that promote and hinder the use of technology as well as the limitations that can affect the correct implementation of technology in class.

1.2 Problem Statement

Technology as an educational tool represents an important advance for the teaching/learning process (Kondos, 2018); as García and Rey (2013) mentioned, the implementation of technology may help teachers to develop students' independent learning. Moreover, technological implementation may represent a benefit for teachers because it can increase the students' interest, save time, and simulate the real world (Baek et al., 2008). However, as Badia et al. (2017) mentioned, in order to implement technology correctly, teachers' predisposition need to be positive. Some teachers may be reluctant to embrace technology since there are some barriers that affect teachers' conceptions towards technology, such as lack of access to technological devices and lack of institutional support (Kalra, 2018). Therefore, teachers' perceptions towards technology play an important role in the implementation of it in their pedagogical practice because even though teachers are familiarized with technology tools, they have different points of view towards the use of it (García & Rey, 2013).

Furthermore, because of these different perspectives, in some cases the implementation of technology has been considered "unproductive" (Burston, 2014; Li & Walsh, 2010). Consequently, since there is a relationship between the adoption of technology into pedagogical

practices and teachers' perceptions (Shameem, 2016), teachers can build their conceptions based on the knowledge level and belief level about technology (Cárdenas-Claros & Oyanedel, 2015). In addition, as new technological devices emerge, teachers need to be prepared to manage and include technology in their classes (Shameem, 2016). As a result, technological implementation is a process in which teachers need to be prepared to use digital devices as an educational tool.

In my experience, as a student I could see that some English teachers do not like using technology in their classes, and some of them have told me that they had bad experiences with it, which have made them built bad conceptions towards technology. Since technological implementation is inevitable because of technological advance, determining the main factors that influence teachers' decisions can make teachers be willing to use technology in their classes and get all the benefits that it brings.

1.3 Rationale

Technological advances have converted our world into a "digitalized world" (Haidari et al., 2019); likewise, "classroom technology resources have increased and improved in the past decade, giving teachers increased flexibility to allow students to use technology as tools to extend their cognitive skills" (Wang et al., 2014). As Nueva (2019) mentioned, even though technology has been implemented in education, teachers see technology as a tool to get information rather than a tool that is part of the learning process, and they may not apply technological pedagogy in their practices (García & Rey, 2013). As Furkan (2020) pointed out, English teachers do not use technology because they see technology just as an external helper instead of an authentic educational tool.

As Akay (2018) stated, in order to increase students' learning, it is important to provide teachers with a clear view about the use of technology as a tool in class; nevertheless, as the same author claimed, providing teacher training or professional development in the technological area does not mean that they are going to change their conceptions towards technology right away, since technological implementation does not only depend on perceptions, but also on some factors that have an influence on the instructors' decisions and perceptions about technology (Kondos, 2018), such as the lack of technological devices, teachers' limited knowledge, preparation, and experience with technology (Cárdenas-Claros & Oyanedel 2015; Nueva, 2019).

The purpose of this research proposal is to determine how English teachers' perceptions influence the correct application of technological devices in class. As some teachers use technology just to find information and activities for classes, determining the factors that affect teachers' conceptions towards technology may help them to have a better conception of technology and implement it in a correct way.

1.4 Research Questions

Based on the previous studies, the following questions have been formulated:

- How do English teachers' attitudes and perspectives towards technology influence the implementation of technology in a class?
- What are the most influential factors that affect teachers' attitudes towards technology?

1.5 Objectives

General objective:

- To analyze how teachers' attitudes influence the implementation of technology in a class.

Specific aims:

- To determine the most influential factors that affect English teachers' perceptions towards the implementation of technology.
- To find out how some technological challenges or barriers influence English teachers' beliefs concerning the implementation of technology.

Chapter 2

2. Theoretical Framework

This chapter focuses on the impact of technology on education, the relationship between technology and education, how technological classes work, and the main roles of teachers and students in a technological class because these topics are fundamental to understand the influence of teachers' beliefs towards the implementation of technology in class.

2.1 Technology and Education

Technology has evolved quickly and brought some changes in the educational field. According to Furkan (2020), technology should be seen as a tool that can provide students with real and authentic learning (Lam & Lawrence, 2002). As Raja and Nagasubramani (2018) claimed, the role of technology in education is "four-fold" which refers to technology as part of the curriculum, as an educational tool, as a means of aiding instructors, and as a tool to enhance learning (p.34).

Furthermore, Mulder (2017) mentioned that as new technologies are constantly developing, teachers need to be aware of the positive and negative impact that technology can bring to class in order to apply technology effectively. Consequently, some researchers have focused their studies on the impact that the use of modern technological tools has had on education variable, such as the improvement of students' learning and interactivity (active, collaborative, and cooperative learning), the enablement of digital materials (creative learning), the contribution to communicative competences, the management of class time, and the integration of theory and practice through technological devices (integrative learning) (Badia et al., 2017; Dinc, 2019; Furkan, 2020; Merillo & Domingo, 2019; Raja & Nagasubramani, 2018;

Shameem, 2016). Additionally, the New Medium Consortium (2005) as cited in Merillo and Domingo (2019) found that technology can contribute to some specific educational areas, such as extended learning, which focuses on learning throw technological tools or social media; ubiquitous wireless, which relates to the students' flexibility in learning through technological devices; intelligent searching, which describes the students' ability to research and organize the information; and educational gaming, which sees technological games as a learning tool. However, Raja & Nagasubramani (2018) stated that there are some negative impacts that technology brings to education; for example, the declining of writing skills, increasing incidents of cheating, and lack of focus on activities. Besides, technology may also represent some disadvantages: students can become addicted to technological devices, students can find unreliable information, students' creativity and imagination can decrease, technological devices imply high costs, and teachers and students may not afford technological tools (Furkan, 2020; Raja & Nagasubramani, 2018).

Even though technology can be seen as a tool that bring some negative impacts and disadvantages, there are more positive impacts and advantages which influence education in a direct way (Kozma & Vota, 2013). Consequently, technology should be considered as an important tool in education, and educational instructors need to be prepared to see it as a real tool for improving their teaching practices (Nueva, 2019), especially because technological devices are increasing and the implementation of technology in education is inevitable (Kalra, 2018; Merillo & Domingo, 2019).

2.2 Technological Classes

Nowadays, technology is an essential part of teachers' pedagogical practices (Hutchison & Reinking, 2011). A class that implements technology as a learning tool is known as a technological class, and it includes "both instructional technologies, which focus on technologies that teachers employ to provide instruction, and learning technologies, which focus on technologies learners use to accomplish specific learning objectives" (Shameem, 2016, p. 16). Moreover, technology integration, which is the use of new technology to make students' learning more meaningful, is key for successful technological classes (Dinc, 2019; Ding et. al, 2019; García & Rey, 2013). As some researchers pointed out, technological classes depend on the effective technology integration in teaching (Ding et. al, 2019; Nueva, 2019); consequently, practicing the use of new technology represents a relevant learning experience for students and teachers (Davies & West, 2014).

Additionally, the application of technology in class involves pedagogical implications (Kalra, 2018; Merillo & Domingo, 2019); therefore, "to effectively integrate technology for teaching and learning, teachers must develop a variety of different knowledge bases" (Mulder, 2017, p. 6). In 2006, Mishra and Koehler developed the "TPACK (technological knowledge, pedagogical, and content knowledge) framework" which states that teachers need to deal with three main aspects: (1) technological knowledge, which is related to the use of technology in class; (2) pedagogical knowledge, which involves the knowledge of teaching methods; and (3) content knowledge, which is related to the knowledge of the subject matter taught by the teacher (Mishra & Koehler, 2006). By combining these 3 main fundamental knowledges, teachers will be able to apply technology in an adequate manner (Sarıçoban, Tosuncuoğlu & Kırmızı, 2019).

Nevertheless, as Hong (2010) mentioned, it is crucial to consider some factors that may affect the implementation of technology in class: institutional factors, educational contexts, and personal characteristics of teachers. Institutional factors involve the lack of formal professional development and the lack of training opportunities; educational contexts refer to 3 main aspects: limited administrative support, lack of available equipment, and lack of time (Hong, 2010). Finally, in terms of personal characteristics of the teachers, there are 4 crucial aspects: pedagogical abilities and practices, personal characteristics, teachers' perceptions and expectations, and teachers' roles and identity (Hong, 2010). However, as some researchers pointed out, the key factor in the implementation process is teachers' perceptions and beliefs towards technology application (Dinc, 2019; Ding et al., 2019; Furkan, 2020; Kondos, 2018).

In brief, technological integration and pedagogical practices are related with the teachers' use of technology to reinforce teaching and learning (Dinc, 2019; Nueva, 2019). Moreover, as technology education has also gone through innovations (Grabe & Grabe, 2006), it is important to consider the most important factors that affect the effective application of technology in order to implement technology in class successfully.

2.3 Teachers' Beliefs, Perceptions, Attitudes, and Roles

As technology has the potential to reinforce educational practices, teachers need to be aware of the importance of their beliefs and the role that they are going to assume in technological classes (Badia et al., 2017) because "it has been established that the teacher is the main influencer in the type and quality of the learning opportunities students experience" (Sawyer, 2017, p. 32). There are two types of barriers that influence directly the use of technology: external barriers (institutional and technical skills) and internal barriers (attitudes

and teachers' role in a technological class.) (Ertmer, 1999 as cited in Karamifar et al., 2019).

This section focuses on internal barriers.

First, it is necessary to provide the definitions of the terms *attitudes, beliefs, and perceptions* because sometimes they are used interchangeably and may cause confusion. An attitude can be defined as "a mindset or a tendency" to behave in a particular way due to an experience (Pickens, 2005 as cited in Nueva, 2019). On the other hand, according to Fishbein and Ajzen (1975), beliefs are the ideas that have an influence on peoples' attitudes and affect the intentions to perform certain actions. Perceptions relate to the use of "senses to develop thoughts or beliefs about an object or action" (Hamlyn, 1957).

2.3.1   Teachers' Attitudes and Perceptions

Teachers' attitudes can be defined as the ideas and behavior about a particular situation or topic that were created based on their personal experiences, school experiences, and background knowledge (Levin & Wadmany, 2008; Merillo & Domingo, 2019). In fact, teachers' perceptions are "personal constructions about particular phenomena that reside in the minds of individuals" (Sternberg et al., 1981 as cited in Cárdenas-Claros & Oyanedel, 2015). In other words, as some researchers pointed out, an important element that affects the application of technology directly is the teacher's attitudes and perceptions towards the ease of technology adoption (Ames, 2017; Canals & Al-Rawashdeh, 2018; Cárdenas-Claros & Oyanedel, 2015; Dinc, 2019; Ding et al., 2019; Fabry & Higgs, 1997; Merillo & Domingo, 2019; Hashemi, 2013; Mollaei & Riasati, 2013; Raja & Nagasubramani, 2018; Shameem, 2016).

As a result, personal characteristics, such as level of education, age, gender, educational experience with technology for educational purpose are important factors that affect teachers'

attitudes (Ames, 2017; Merillo & Domingo, 2019; Miranda & Russell, 2011; Schiller, 2003). In fact, some studies claimed that teachers' age, gender, and teaching experience had a crucial effect on teachers' perceptions (Blankenship, 2008 as cited in Merillo & Domingo, 2019; Kusano et al., 2013). However, in terms of teachers' gender, age and teaching experience, Gorder (2008) conducted a study on teachers' perceptions of instructional technology integration in the classroom and revealed that there are no significant differences in technology use and integration based on gender, age, and teaching experience. Additionally, according to Rogers (1995), teachers can fall into four categories depending on their attitudes: innovators, early adopters, early majority, and late majority (as cited in Fabry & Higgs, 1997). Innovators are the ones who try to find new ideas in order to use and manage technology in class, early adopters use technology in a successful way, early majority refers to the users that analyze the different options before using technology, and late majority refers to users that do not use technology, and if they do, it is because they are under pressure (Rogers, 1995 as cited in Fabry & Higgs, 1997). However, Fabry and Higgs (1997) stated that only 16 percent of teachers fall into the innovator and early adopter users.

Besides, Prensky (2001) mentioned that understanding the difference between digital-natives (which are the ones who use technology easily and naturally) and digital-immigrants (which do not like the use of technology) is crucial in the implementation of technology because based on this difference, teachers can decide to build positive or negative attitudes towards the implementation of technology (Hashemi, 2013). Moreover, Badia et al. (2017) mentioned that teachers' beliefs can be positive (which refers to the positive perception of technology's use in class) and negative (which is related to the aversion of the use of technological devices). Gardner et al. (1993) claimed that positive attitudes can be related to their technological and personal

experiences; whereas, Lillard (1985) argued that teachers with low technological skills are more likely to develop negative attitudes (as cited in Shameem, 2016). However, García and Rey (2013) found that even though teachers may have positive attitudes, they are not enough to make teachers integrate technology in class. In other words, "positive attitudes do not suffice if other barriers, such as lack of administrative support or preparation time to implement technology exists" (Vodanovich & Protrowski, 2005).

In summary, since teachers put into practice what they believe, teachers' attitudes play a crucial role in the implementation of technology in class (Albirini, 2006; Atkins & Vasu, 2000). However, attitudes do not fully influence teachers' decisions of technology utilization in the classroom (Ruggiero & Mong, 2015).

2.3.2 The Role of Teachers and Students in a Technological Class

In pedagogical practices, the teachers' role is crucial to develop students' creativity and thinking skills when using technology (Merillo & Domingo, 2019). Besides, the adequate use of technology in the classroom depends on the role of the teacher (Mollaei & Riasati, 2013). Bancheri (2006) mentioned that these days, teachers are not only in charge of transmitting information through books but also of providing students with suitable technological instruments to acquire knowledge (as cited in Mollaei & Riasati, 2013). Moreover, since technology is adapting to education, there is a need to change the role of teachers from teacher-centered to student-centered (Mahini et al., 2012).

Therefore, teachers who focus their classes on a student-center approach are more likely to integrate and adapt technology in their teaching practices (Fabry & Higgs, 1997; Deng et al., 2014 as cited in Ding et al., 2019). In the student-center approach, teachers focus on students'

independent learning in which the teacher allows learners to use materials and sources to be active in class (Prosser & Trigwell, 1999 as cited in Mollaei & Riasati, 2013). The instructor should focus on students' needs and abilities to create a dynamic class by taking advantage of technological devices (Mahini et al., 2012); similarly, Hashemi (2013) mentioned that the main role of the teacher is to act as a facilitator or resource person who uses a variety of teaching methods. Consequently, in a student-centered class, instructors are in charge of providing appropriate resources and guidelines (so that learners can build knowledge) and allowing students to work through technological resources (Dhanda, 2015).

According to Prosser and Trigwell (1999), teachers who see learning as the accumulation of information use the teacher-centered approach (as cited in Mollaei & Riasati, 2013) because traditional or conservative educators assume that technology will interfere with their teaching methods (Woodrow, 1987 as cited in Hashemi, 2013). As teacher-centered instructors think that they will lose their status in class, they are likely to refuse the use of technology (Marcinkiewicz, 1994 as cited in Fabry, & Higgs, 1997).

On the other hand, Dhanda (2015) stated that students prefer to work with technology because of the advantages they perceive. Since, in a student-centered approach, learners are active and learn through searching and exploring, technology will help them to acquire information in a shorter time; in addition, students can educate themselves by collecting and analyzing information through technological devices (Mahini et al., 2012). Therefore, the students' role in a technological class is to decide how they are going to build, generate, manipulate information, and evaluate their learning (Dhanda, 2015).

As technology is being integrated into pedagogical practices, "teachers are asked to move away from relying on a teacher-centered classroom to a student-centered classroom" (Fabry, Higgs, 1997, p. 388). Consequently, the role of the teacher is the deciding factor in the successful implementation of technology in pedagogical practices (Clarke & Zagarell, 2012).

Chapter 3

3. Literature Review

This chapter analyzes some studies on English teachers' beliefs towards technology and the factors that affect those beliefs in order to understand the debates that have taken place in this area of study. It has been divided into the following sections: technology integration in the classroom, teachers' beliefs towards technology integration, and the factors that affect teachers' beliefs.

3.1 Technology Integration in the Classroom

The integration of technology in education has grown in the recent decade. Teachers are aware that technology is here to stay; therefore, they need to be prepared to integrate technology in their classes (Kondos, 2018). However, some teachers have admitted that since digital devices are expensive and not accessible for everyone, they cannot integrate technology in class (Merç, 2015). Consequently, some instructors use their laptops and PowerPoint Presentations as digital tools to reinforce content by memorization and repetition (Ding et al., 2019). Since in some cases students do not show an increase in their performance, some teachers have asserted that teaching with technology does not provide an opportunity to guide students to independent learning (Dinc, 2019).

Dinc (2019) carried out a qualitative study with seventy-six pre-service teachers who had taken a course related to technology integration during their Elementary Teacher Education program. The study focuses on the teachers' use of technology and the barriers that affect this implementation. The outcomes show that teachers use technology to teach concepts and rules and to motivate students to participate in class. Moreover, the results indicate that teachers use

PowerPoint as a digital tool since they can add different kind of elements, such as images, graphic organizers, and videos to teach in an innovative way. The participants said that PowerPoint saves money and time because teachers do not have the necessity to elaborate activities and print copies to support the content. As a result, the teacher participants see technology integration as an advantage because it has helped them to improve their teaching performance. However, the researcher concluded that teachers do not establish a difference between teaching with or without technology since students do not report an increase in their learning and understanding when using technological devices.

Likewise, Ding et al. (2019) interviewed twelve EFL teachers in a qualitative case study, whose main focus was to find out how EFL teachers implement technology in their practices. The instruments of the study were a semi-structured interview, a teaching artifact, and a belief inventory. The researchers determined three types of use of technology based on beliefs: skill-based practices, rule-based practices, and function-based practices. Skilled-based practices involve the teachers' use of technology to support the repeating drill and pronunciation of a language. The researchers found that teachers usually use PowerPoint presentations as a technological tool to help students to visualize and memorize words. Regarding rule-based practices, which are related with teachers' use of digital devices to support grammar explanation and practice, the outcomes show that teachers use PowerPoint as a digital device to present the grammatical rules of the English language. Function-based practices are related with the use of technology devices to help teachers to provide students context-rich language activities in order to motivate students. The results demonstrate that teachers use laptops and projectors to show YouTube videos to engage students to participate and communicate in an active way. The researchers concluded that teachers use laptops and Power Point presentations for classes as an

external helper to reinforce learners' knowledge by repetition and memorization of information. Consequently, they mentioned that to integrate technology in an appropriate way, teachers need to see digital devices as realistic learning materials since technology involves teaching innovation and incorporation of different learning styles and teaching methods.

Nevertheless, Merç (2015) conducted a mixed method study which focused on pre-service English teachers' use of technology in classes during their practicum at Anadolu University English Language Teaching Program in Turkey. The researcher selected eighty-six university English student teachers (sixty-two female and twenty-four male). The instruments used to collect the data were questionnaires and semi-structured interviews. The outcomes of the first question, which is related to the usefulness of technology in class, show that thirty-four percent of the participants think that technology is in some way necessary, and sixty-six percent mentioned that technology is very necessary for their classes. Also, forty-four percent of the participants mentioned that the digital devices that are available at practicum schools are insufficient for a successful integration in pedagogical classes. The second question focused on how often pre-service teachers use technology in their practicum and the results show that fourteen percent never use digital devices, and eighty-four percent use technological tools in classroom sometimes or frequently. Moreover, some of the participants said that the institution does not have internet access and digital tools or computers. As a result, pre-service teacher participants mentioned that they just use their own laptops as technological tools to show pictures, check answers, and watch videos in order to improve and reinforce students' understanding of the content. Another finding is that the teachers think that the lack of educational digital devices has a negative impact on the implementation of technology because not all the teachers and students have access to a technological device. The researcher concluded

that pre-service teachers are not taking advantage of technology because as digital devices are not accessible for everyone, they do not find particular educational reasons to integrate technology in class.

Teachers integrate technological tools such as laptops and projectors to motivate and engage students; however, some teachers do not evidence a learning increase due to some external barriers: lack of technological devices and poor internet access. Consequently, to adapt and apply technology in class, teachers need to analyze its positive and negative impacts to promote a digital environment based on different teaching approaches.

3.2 Teachers' Attitudes Towards Technology Implementation Practices

A factor that has a direct influence on the integration of technology in class is teachers' beliefs; therefore, there is a relationship between teachers' attitudes and their pedagogical practices (Naima, 2017). Attitudes and teaching practices are correlated because as teachers think that technology helps them to save time and motivate students, they try to use digital devices in class (Özer, 2018). Similarly, some teachers believe that technology improves students' learning performance; nevertheless, some teachers have claimed that to ensure better education, teachers need to have positive attitudes and manage technological equipment in a balanced way (Mollaei & Riasati, 2013). However, these positive attitudes do not mean that teachers know how to use and integrate digital devices in class (García & Rey, 2013) or that teachers are prepared to deal with some barriers or problems that technological implementation brings (Mundy et al., 2018). Consequently, teachers need to be prepared to integrate technology and change their teacher-centered classes into student-centered ones to provide meaningful learning (Kondos, 2018).

Özer (2018) conducted a quantitative study to investigate the relationship between teachers' attitudes and technology integration in class. The researchers selected one hundred seventy-four (one hundred thirty-one female and forty-three male) EFL pre-service teachers. The results indicate that teachers' beliefs, technology integration, and teaching methods are related. In fact, the researcher found out that pre-service teachers have positive attitudes towards computer use in classroom because they think it is a tool that saves time to access information, and it does not require much effort. Also, almost all the participants mentioned that they use their own laptops in class mostly to send e-mails, prepare presentations, find material for their classes, and organize information. Since teacher participants use technology in a limited and simple way in order to prepare materials for classes, they build positive attitudes towards the use of digital devices. The researcher concluded that there is a relationship between teachers' positive beliefs with their practices.

Similarly, Mollaei and Riasati (2013) carried out a mixed method study to determine the influence that teachers' attitudes have on technology implementation. The investigators selected forty EFL teachers who were working at an English language institute and had four to ten years of experience. The results show that teachers see computers and technology as tools that have changed teaching because most of the teacher participants reported that they use their laptops to help students to acquire academic knowledge and to improve students' interest in learning. The teachers mentioned that technology assists them to activate learning, increase students' interaction and language skills, and motivate students to work alone. The researchers concluded that the teachers have positive attitudes towards technology because they described the effectiveness of technology in their classes and believed that using their computers is an efficient way to encourage students to learn a foreign language. Moreover, the researchers added that the

teacher participants think that the responsibility of the effective application of technology depends on teachers and that their attitudes are crucial elements to introduce new technological materials and methods to the class.

On the other hand, Kondos (2018) conducted an explanatory study to investigate the effects of technology in an English class. The researcher used a semi-structured interview to collect data from six EFL university teachers who had ten years of experience. The results show that the teachers think that technology brings some negative effects. For instance, since the teachers have big groups of students, they cannot manage the class and make sure that all the students are using the technological devices for learning. Also, for some teachers, technology can be useless since they assume that students use technology just for entertainment but not for learning because when students are asked to do an online exercise, they do not finish it. In addition, since digital applications involve having a student-center classroom, teachers who have a teacher-center approach are more likely to be reluctant towards the use and integration of technology in their pedagogical practices.

Mustafina (2016) used a mixed method study to explore teachers' attitudes toward technology integration in class and to analyze the relationship between teachers' attitudes and their students' academic motivation. The participants were twenty-nine teachers (of different subjects with different background knowledge towards technology implementation) and thirty-nine students from 5 schools. The instruments that were used in this study were a survey, an interview, and a focus group interview. The researchers found out that most of the teachers show positive attitudes towards technology since they think that the implementation of technology provides some benefits for education. The outcomes reveal that technology offers some

advantages, such as saving time and facilitating the organization of materials and visuals. However, the participants mentioned that they build negative attitudes since they do not know how to solve technical problems. The researchers concluded that teachers' attitudes are not expressed in their practices because they do not use technology as a teaching-learning tool in class since they do not have sufficient knowledge to manage some technical problems.

Similarly, in a study developed by Mundy et al. (2012), one thousand eighty teachers of different subjects from twenty-one school districts participated. The researchers used a survey to collect the data on teachers' attitudes towards technology use in class. The participants indicated that they have positive attitudes towards digital devices because they consider technology as an important tool which improves students' learning. However, the results reveal that since teachers use technology to support and reinforce content, teachers do not use technology for student's learning achievement. The researchers concluded that teachers' beliefs and perceptions towards technology do not necessarily match the teaching practice, and that teachers not only need to learn how to integrate technology but also how to use technological devices in class.

García and Rey (2013) conducted a qualitative study to examine teachers' beliefs towards the implementation of technology in an EFL class. To collect the data, an observation scheme and a survey were used, and twenty-nine EFL teachers were selected to participate in the study. To select the participants, the researchers used two criteria: frequency and the level of difficulty of technology use. The researchers found out that teachers believe that technology is fundamental to success in the teaching-learning process. In addition, the participants mentioned that technology helps students to memorize and reinforce content. The teachers claimed that the use of computers as a teaching-learning tool offers some opportunities to students, such as

exchanging information with others and improving their learning potential. However, the investigators pointed out that there is a difference between what teachers believe and what teachers do in class. Based on the findings, the researchers concluded that teachers think that by implementing technology, students' learning will increase, but when they are asked to apply technology in class, they do not use it to teach.

Likewise, Naima (2017) carried out a quantitative study to examine the EFL teachers' beliefs towards the use and integration of technology. To collect the data, the researcher selected ten English teachers from Chadli Bendjedid University, who had to complete a questionnaire. As teacher participants are young, they are acquainted with the use of technology. The researcher mentioned that teacher participants have positive beliefs towards the use of technological devices in class due to fact that they think technology provides authentic education. Additionally, the findings show that the teachers prefer to use computers and projectors as digital tools in their classes, but institutions do not provide enough devices to use in class. However, the researcher did not find a relationship between teachers' attitudes and the adoption of digital devices in class because teachers mentioned that they use computers and projectors just to reinforce information.

Attitudes differ from teacher to teacher, and based on some characteristics and experiences, teachers build some positive or negative beliefs; therefore, it is crucial to take into account teachers' attitudes if successful implementation of digital devices in classrooms is to be achieved.

3.3 Factors that Affect Teachers' Attitudes Towards Technology

As teachers' attitudes are crucial in the implementation of technology, it is important to understand that many factors can affect these attitudes. Findings reveal that the main factors that

affect instructors' attitudes are experience, lack of training and knowledge, gender, and institutional support (Akturk et al., 2015; Cárdenas-Claros & Oyanedel, 2015; Hashemi, 2013; Kalra, 2018; Perrotta, 2012)

Hashemi (2013) carried out a quantitative study to investigate the factors that affect teachers' perceptions towards the adoption of technology in class in India. The researcher selected two hundred seventeen English teachers who were working at secondary and senior schools. The instrument used to collect the data was a questionnaire. The results show that three factors affect teachers' attitudes: perceived usefulness, technology knowledge, and language teaching and learning support. Perceived usefulness is related to teachers' feelings and experience. The outcomes indicate that even though teachers have positive attitudes towards technology, they do not use digital devices because they have had bad experiences with technology. Regarding technology knowledge, which is related to attitudes about digital devices' use and knowledge, the findings reveal that teachers' ability to use technology affects directly teachers' attitudes towards technological implementation. Lastly, language teaching and learning support involves training and teachers' professional development. The results show that teachers' lack of training about the use of technology affects teachers' decision-making and attitudes towards digital devices. The researchers concluded that since teachers' attitudes are affected by their background experiences and feelings, the most important factor that affects teachers' attitudes is the perceived usefulness of technology.

Moreover, Cárdenas-Claros and Oyanedel (2015) conducted a qualitative and explanatory study to examine the influence of teachers' attitudes towards the use of technology in class in Chile. The participants were nine (eight female and one male) experienced university English

teachers. The researchers used a semi-structured interview in which the participants were asked to describe their attitudes towards technology integration and the use of digital devices in class. The findings reveal that attitudes are related to three main factors that impede the implementation and use of digital devices: access to equipment and tools, lack of training, and the effectiveness of the use of technology. Access to equipment and tools is related to the lack of digital tools to implement in class. The results show that as teachers do not have enough technological devices to teach, they use their own computers just to reinforce the content. As a result, teachers build negative attitudes towards technology implementation. Lack of training is related to teachers' technological preparation. The participants reported that as they did not received training for the implementation of technology, they do not know how to use or integrate technology in class. The effectiveness of the use of technology is related to the effort and time that teachers use to prepare the class. The outcomes indicate that even though teachers invest considerable amount of time to use computers and digital devices in class, they do not see results in students' learning. The researchers concluded that teaching experience and teachers' knowledge about the technological implementation are the key elements that affect teachers' attitudes.

Akturk et al. (2015) conducted a qualitative study that was aimed to determine the factors that affect pre-service teachers' attitudes towards technology. The researchers selected a group of three hundred twenty-nine pre-service teachers in Turkey who filled out a questionnaire. The findings reveal that pre-service teachers' attitudes are related to gender, age, access to digital devices, and experience with technology. For instance, young teachers are more likely to develop positive attitudes towards technology in class. Regarding access to digital devices and participants' experience with technology, the results show that there is a relationship between

both factors since institutions do not have enough digital devices, teachers do not have an opportunity to use digital devices in class. As a result, pre-service teachers do not have experience to apply technology in class. The outcomes show that gender is a crucial element that affects teachers' attitudes because male teachers are more confident toward the use of technology than female teachers. The researchers concluded that teachers' attitudes are positive; however, gender, age, use, and teachers' experience affect these attitudes directly.

Nevertheless, Perrotta (2012) found out contradictory results with a quantitative study which was carried out in the United Kingdom. Six hundred eighty-three teachers of different subjects from 24 secondary schools participated in an online questionnaire. The study aimed to explore the relationship between teachers' attitudes of technology and the factors that affect these attitudes. The findings reveal that the teachers who had attended technology courses report positive attitudes towards technology. However, the researcher claimed that there is a small difference between teachers who had taken a technology course and those who did not because even though both of them know how to use technology in class, they report some problems about technological integration. The outcomes show that institutional support is the most important factor that affect teachers' attitudes. The participants mentioned that they are not able to use and apply technology in class since institutions do not support them in terms of training about technology use and integration in class. The researcher concluded that teachers' age and experience do not have a clear influence on technology implementation, but institutional support plays an important role in teachers' attitudes.

Additionally, Kalra (2018) conducted a qualitative study with six EFL university teachers in Thailand to investigate EFL teachers' attitudes towards technology and the factors that affect

these attitudes. To collect data, a semi-structured interview and a questionnaire were used. The researcher divided the teacher participants into two groups: novice and experienced teachers. The results show that novice teachers who have one or three years of experience see technology as an educational tool which makes the teaching-learning process easier. Consequently, teachers build positive ideas about the application of technology. On the other hand, experienced teachers who had eight to sixteen years of experience are more likely to build negative attitudes since they do not understand how to use some technological programs and devices. Thus, based on their experiences, teachers reject the idea of using technology in pedagogical classes. The researcher concluded that experience is one of the most important factors that affect teachers' attitudes.

Several factors may affect teachers' attitudes towards technology; consequently, it is crucial to analyze these factors deeply in order to incorporate digital devices in pedagogical practices.

Chapter 4

4. Methodology

According to Norris and Ortega, a research synthesis is "the systematic secondary review of accumulated primary research studies" (2006, p. 4). Therefore, in order to gather the primary research studies about teachers' beliefs towards technology implementation, relevant online databases such as Google Scholar, Ebsco, ProQuest, Eric, SRR, and Taylor & Francis were used. The key terms used for the researching process were a) technology, b) implementation, c) beliefs, d) perceptions, e) English, and f) digital devices. The articles were selected in a digital form.

Moreover, the following criteria was taken into consideration to select the research studies. First, the articles needed to be peer-reviewed and written in English. Second, the purpose of the articles had to focus on English teachers' beliefs towards technology and on the factors and challenges that affect teachers' perceptions on technology implementation. The design of the study was not restricted; as a result, for this research synthesis, qualitative, quantitative, and mixed methods were considered. Additionally, the participants must be English teachers or pre-service English teachers. Lastly, the research papers needed to be empirical and had to be published since 2010 because it is crucial to have updated information to obtain accurate results.

The journals that were considered to develop this proposal were *Arab World English Journal; British Journal of Educational Technology; Contemporary Educational Technology; HOW; International Journal of Applied Linguistics and English Literature; International Journal of Language Learning of Language Learning and Applied Linguistic World; International Journal of Research in Education and Science; Journal of Digital Learning in*

Teacher Education; Journal of Language and Linguistic Studies; SAGE Journals; Technology,

Pedagogy, and Education; The Turkish Online Journal of Educational Technology; and World

Academy of Science, Engineering, and Technology.

In the end, 15 articles were selected for the research synthesis.

Chapter 5

5. Data Analysis

To answer the research questions and achieve the goals of this research synthesis (see section 1.4), this chapter analyzes 15 research articles, which were organized according to the following categories: design of the study, purpose, participants, and location.

5.1 Design of the Study

Table 1

Design of the Study

Author/Year	Method	N	%
Cárdenas-Claros & Oyanedel (2015); Dinc (2019); Ding et al. (2018); Kondos (2018); García & Rey (2013)	Qualitative	5	33
Akturk et al. (2015); Hashemi (2013); Naima (2017); Mundy et al. (2012); Özer (2018); Perrotta (2012)	Quantitative	6	40

Kalra (2018); Merç (2015); Mollaei & Riasati (2013); Mustafina (2016)	Mixed-methods	4	27
	Total		100

Table 1 shows the 15 studies classified into 3 main subcategories: qualitative (5 studies), quantitative (6 studies), and mixed-methods (4 studies).

The qualitative articles obtained and validated teachers' answers by using the following instruments: interviews, surveys, class observations, open-ended questionnaires, and belief inventories. Some of these articles (Cárdenas-Claros & Oyanedel, 2015; Dinc, 2019; Ding et al., 2018; Kondos, 2018) focused on analyzing teachers' beliefs and the effects or barriers of technology on pedagogical classes. The researchers agreed that teachers are aware of the importance of technology in education because they believe that technology is an important tool that provide students with the opportunity to access information easily and that the implementation of technology not only helps students to learn English but also other core subjects. Moreover, Ding et. al (2019) claimed that the role of the teachers as facilitators and moderators who adapt their teaching method to the different students' learning styles is crucial in order to make students use digital devices to learn in an independent way (Cárdenas-Claros & Oyanedel, 2015; Ding et al., 2018). Consequently, in order to have meaningful learning, students need to participate and work in an active way instead of just listening and receiving information from the teacher. However, García and Rey (2013) concluded that even though teachers' beliefs and experiences play an important role in the implementation of digital devices, some teachers

are reluctant to use technology because they do not want to lose their status and control over the classroom.

On the other hand, the researchers who opted to use a quantitative method used the following instruments: questionaries, semi-structured interviews, and surveys to gather information. The studies focus on how teachers' perceptions or beliefs affect the implementation of technology in class and the factors that influence teaching performance. Likewise, the researchers agreed that integrating technology in pedagogical practices is considered a key element to improve teaching methods and education since technology provides a new learning perspective through digital content and activities. Similarly, the researchers found out that in order to have a successful integration of digital devices, teachers must take into consideration that their beliefs and perspectives are crucial elements to provide an adequate technological and educational environment. Nevertheless, Naima (2017) found that since there are other factors that have a direct influence on digital implementation, there is not a direct relationship between teachers' attitudes and the real adoption of technology in class. Consequently, this researcher mentioned that by analyzing the internal factors such as age, gender, confidence, and thoughts and external factors such as lack of digital equipment, support, and access to digital devices, teachers will know how they can integrate and adapt their pedagogical methods with the different digital devices.

As it can be seen in Table 1, there were four studies that used the mixed-method design. The instruments used for these researches were questionnaires, semi-structured interviews, and surveys. The researchers determined that educators believe that technology is an important tool to make the teaching-learning process easier. Additionally, the researchers claimed that to

encourage independent learning, teachers need to be tutors since digital devices can provide students with unreliable information which cannot be beneficial in the educational process (Kalra, 2018; Mollaei & Riasati, 2013). Some researchers highlight that teachers' enthusiasm for technology and the integration of digital devices are related (Merç, 2015; Mollaei & Riasati, 2013; Mustafina, 2016). In contrast, Kalra (2018) found that teachers do not consider their perceptions as the main factor that influence their decision to adopt technology since teachers' beliefs can be influenced by external factors.

5.2 **Purpose of the Study**

Table 2

Purpose of the Study

Author/Year	Purpose of the Study	N	%
Akturk et al. (2015); Cárdenas-Claros & Oyanedel (2015); Dinc (2019); Ding et al. (2018); García & Rey (2013); Naima (2017); Mollaei & Riasati (2013); Mundy et al. (2012); Mustafina (2016)	Teachers' attitudes	9	60
Hashemi (2013); Kalra (2018); Özer (2018); Perrotta (2012)	Factors that affect teachers' beliefs	4	27

Kondos (2018); Merç (2015)	Teachers' use of technology	2	13
	Total		100

Table 2 shows the 15 studies classified according to their purpose. As it can be seen, three main sub-categories were identified: teachers' beliefs (9 studies), factors that affect teachers' beliefs (4 studies), and the teachers' usage of technology in class (2 studies).

The articles which have focused on teachers' beliefs agreed that teachers' attitudes are a crucial element that influences the ease of technological implementation (Akturk et al., 2015; Cárdenas-Claros & Oyanedel, 2015; García & Rey, 2013; Naima, 2017; Mollaei & Riasati, 2013). Similarly, the studies show that teachers consider technology as an educational tool which can improve students' performance and encourage students' motivation and interest for the class. Likewise, the studies suggest that there is a relationship between what teachers believe and what they do in class. Thus, if teachers possess positive ideas about the integration of digital devices, they will try to incorporate technology into their teaching methods. The researchers pointed out that the teaching method influences teachers' beliefs since teachers who tend to use a teacher-centered approach to teach are more likely to not use technology as a learning-teaching tool. In contrast, the teachers who instruct with a learner-centered approach use more technology in class.

In terms of factors that affect teachers' beliefs, some researchers pointed out that there are some external and internal factors that teachers take into account when applying technology in a class (Hashemi, 2013; Kalra, 2018; Özer, 2018). As the authors mentioned, the external

factors involve aspects related to educational institution support. In contrast, the internal factors are related to teachers' feelings, thoughts, and perceptions. Hashemi (2013) affirmed that internal factors such as lack of motivation, teachers' knowledge, and teachers' ability to use technology are important factors that influence teachers' decisions since teachers believe that if they do not have the motivation and technical knowledge, they would not be able to adopt technology into their practices. Moreover, according to Kalra (2018), experience is an important internal element that influences teachers' beliefs since the data analysis of this study revealed that novice teachers are more positive regarding the use of technology in class and that these positive attitudes are reflected in teachers' performance. Likewise, experienced teachers mentioned that as they do not see technology as a useful tool for learning, they only use PowerPoint as an external helper to reinforce content. In contrast, novice teachers mentioned that digital devices are easier to use and manage because they find technology as a good educational tool to make students learn through videos, audios, online exercises, etc. On the other hand, Perrotta (2012) mentioned that teachers' background knowledge, experience, gender, or age do not affect teachers' perceptions towards technology. In fact, the researcher pointed out that the most important factors are administrative support from the institutions and training, which the author mentioned is related to teaching techniques and practices.

As it can be seen in Table 2, only 2 studies focused their analysis on the teachers' use of technology. The researchers determined that even though teachers find technology as a useful tool for teaching and learning, they do not use it at its maximum potential (Kondos, 2018; Merç, 2015). The teachers mentioned that they do not fully use technology in class since students concentrate on the digital device and other technological apps rather than on the information or content (Kondos, 2018). Furthermore, Merç (2015) reported that teachers are aware of the

usefulness of using technology in class; however, the researcher mentioned that the lack of digital equipment and technical support affects the correct usage of technology in class. In fact, the researchers agreed that some teachers are enthusiastic about the use of digital devices; nevertheless, they found out that teachers do not use technology for a specific teaching reason (Kondos, 2018; Merç, 2015).

5.3 Participants

Table 3

Participants

Author/ Year	Participants	N	%
Cárdenas-Claros & Oyanedel (2015); Ding et al. (2018); García & Rey (2013); Hashemi (2013); Kalra (2018); Kondos (2018); Naima (2017); Mollaei & Riasati (2013); Mundy et al. (2012); Mustafina (2016); Perrotta (2012)	In-service English Teachers	11	73
Akturk et al. (2015); Dinc (2019); Merç (2015); Özer (2018)	Pre-service English teachers	4	27
	Total		100

Table 3 indicates the categorization of the studies according to the type of participants: in-service English teachers (11) and pre-service English teachers (4).

As it can be seen, most of the researchers selected in-service English teachers as participants. The studies point out that experience is an important factor that affect the implementation of technology in class (Cárdenas-Claros & Oyanedel, 2015; Ding et al., 2018; García & Rey, 2013; Hashemi, 2013; Kalra, 2018; Kondos, 2018; Naima, 2017; Mollaei & Riasati, 2013; Mundy et al., 2012; Mustafina, 2016). Additionally, the researchers highlighted that their participants who had from 2 to 27 years of experience are familiar with the use of technology; however, they do not look for new methods or activities in order to use technology for educational purposes (García & Rey, 2013). According to the same authors, if teachers do not know how to use technology in education, the effectiveness of digital devices for teaching and learning will not be adequate.

However, Perrotta (2012) mentioned that experience is not a crucial element that affects teachers' beliefs. The researcher claimed that socio-economic conditions and school-level circumstances are the factors that influence teachers' performance and attitudes, and as a result, teachers' experience is being affected. Moreover, the researcher mentioned that the teachers who only use technology to prepare the class and do not see digital devices as an educational tool will not experience academic digital power. For example, if the school does not provide enough digital devices for students and teachers, they will not be able to use technology at its maximum; therefore, their perceptions will be affected.

On the other hand, four studies selected pre-service teachers who already had English teaching experiences. The researchers agree that most of the participants have positive attitudes

towards technology, and the results point out that these attitudes are linked to their age (Akturk et al., 2015; Dinc 2019; Merç, 2015; Özer, 2018). This can be seen in the study carried out by Akturk et al. (2015) which analyzed the relationship between teachers' age and attitudes, and the results reveal that teacher candidates are familiarized with the use of technology because of their youth. Likewise, some researchers have highlighted that the student teachers' assimilation and familiarity with the use of digital devices in education is due to their participation in technological courses and classes at university (Dinc 2019; Özer, 2018). Nevertheless, Perrotta (2012) claimed that even though teacher students use technology in their daily lives for personal purposes, they do not know how to give digital devices an appropriate use in an educational context. Consequently, the researcher concluded that age is not directly related with teachers' attitudes towards technology since pre-service teachers use technology to prepare materials and information for students.

On the contrary, Dinc (2019) mentions that student teachers have different attitudes towards technology in class since they believe that the digital implementation do not only depends on their perceptions. Indeed, the participants mentioned that the lack of digital devices, training, and knowledge about the use of technology are the factors that negatively affect the application of digital devices in class.

Similarly, Kalra (2018) conducted a study in which the researcher compared novice and expert teachers. The results show that experience is not a direct factor on teachers' beliefs and the implementation of technology. The experienced teachers who have worked from 8 – 16 years use technology in class; however, they only use digital devices to find materials and prepare lessons at home. Likewise, novice teachers who have taught for 1 or 3 years use technology for

simple activities and prepare classes as the experienced teachers do. Consequently, the researcher

concluded that experience does not influence teachers' beliefs about technological devices in

class.

5.4 Location

Table 4

Location

Author/Year	Location	N	%
Dinc (2019); Mundy et al. (2012)	North America	2	13
Cárdenas-Claro & Oyanedel (2015); García & Rey (2013)	South America	2	13
Perrotta (2012)	Europe	1	7
Akturk et al. (2015); Ding et al. (2018); Hashemi (2013); Kalra (2018); Kondos (2018); Naima (2017); Merç (2015); Mollaei & Riasati (2013); Mustafina (2016); Özer (2018)	Asia	10	67
Total			100

Table 4 shows the classification of the articles based on the continents in which they were

conducted: North America (2), South America (2), Europe (1), and Asia (10).

As it can be seen in table 4, 10 studies out of 15 were carried out in Asia. Consequently, the data analyzed in this research synthesis is based in its majority on the reality of Asian countries. Moreover, it is important to mention that 7 studies out of 15 which were carried out in different continents emphasized on the analysis of teachers' attitudes towards technology (Akturk et al., 2015; Cárdenas-Claro & Oyanedel 2015; Dinc, 2019; Ding et al., 2018; Mundy et al., 2012; García & Rey, 2013; Mollaei & Riasati, 2013; Mustafina, 2016). On the other hand, 5 studies out of 15 not only focus their studies on teachers' attitudes but also on other internal and external factors that can affect teachers' attitudes and the implementation of technology in pedagogical classes. Based on the analysis of the 15 studies, it can be said that it is crucial to conduct more research over the world since technology is developing fast, and for education, adopting digital devices in pedagogical practices can represent an improvement in the quality of the educational process.

Chapter 6

6. Conclusions and Recommendations

6.1 Conclusions

This research synthesis intended to analyze how English teachers' attitudes influence the implementation of technology in pedagogical classes as well as the factors that affect those attitudes. Based on the analysis of 15 research articles, English teachers' attitudes and the factors and barriers that affect those beliefs towards technological implementation were determined.

Regarding the first research question, it can be stated that English teachers' attitudes influence the implementation of technology. According to Naima (2017), as these beliefs play an important role and have a direct influence on the integration of technology, teachers should have a positive predisposition. In fact, the studies show that the teachers who hold positive attitudes towards technology are aware of the beneficial impact that digital devices bring to the learning process. Moreover, the usage of digital devices, teaching methods, and technology-based activities can vary depending on how teachers evaluate the purpose and the impact that technological devices can have on the students' learning performance. Since teachers need to be the facilitators who adapt and change their pedagogical methods in order to engage students to learn by integrating technology-based materials and activating cooperative and collaborative learning through the new technological tools, teachers' positive attitudes can make them assume this role. On the contrary, if teachers' predisposition is negative, teachers will not embrace technology as an educational tool since their beliefs influence the activities that they perform in the classroom (García & Rey, 2013; Naima, 2017; Mollaei & Riasati, 2013; Mundy et al., 2012;

Mustafina, 2016). Therefore, to have a successful integration of technology, it is imperative for teachers to hold positive beliefs towards technology.

Regarding the second research question which was aimed to determine the factors that can influence English teachers' attitudes, the studies show that there are two essential factors: internal and external (Hashemi, 2013; Kalra, 2018; Özer, 2018; Perrotta, 2012). Internal factors such as feelings, motivation, knowledge, confidence, experience, gender, and age affect teachers' attitudes directly since they can contribute to teachers' decision-making in the adoption of digital devices in class (Akturk et al., 2015; Cárdenas-Claros & Oyanedel, 2015; Hashemi, 2013). Likewise, external factors such as lack of training, institutional support, and access to equipment and tools play an important role in teachers' perceptions because if educators are not provided with the technological training, devices, and technical support to implement digital devices in class, they would be unable to adopt technology in pedagogical practices (Cárdenas-Claros & Oyanedel, 2015; Perrotta, 2012). In fact, training is crucial for teachers since it offers a new perspective to the educational use of technology (Özer,2018; García & Rey, 2013). On the other hand, teachers' experience does not seem to influence attitudes since novice and experienced teachers do not demonstrate a considerable change in the use of technology in class (Kalra, 2018; Perrotta, 2012). For this reason, researchers agreed that the familiarity and use of digital devices affect teachers' decisions towards the use of technological tools.

Technology is advancing every day and education is developing new methods and techniques to adapt technology in the educational process. Thus, teachers need to be prepared to bring technology to classes in order to enhance and improve the quality of education. Furthermore, building positive attitudes towards technology is important; however, it is not

enough to be positive since to implement digital devices, it is essential to know how to adapt technology to education and how to use these devices properly. Consequently, creating a great impact on students' performance and skills based on technological activities and methods may be the key to have meaningful education.

6.2 Recommendations

Based on the analysis that has been done in this research synthesis, there are 3 main recommendations that can be stated.

First of all, as the majority of the studies were carried out in Asia, it is recommended to conduct more studies in South America in order to reach more accurate conclusions in our context.

Secondly, as lack of knowledge is an influential factor on teachers' attitudes, providing teacher training courses about the usage of technology in class is paramount since researchers have mentioned that teachers need to have previous technological training in order to know how to adapt technology in class, and thus, support instruction in the educational process.

In addition, there are a lot of studies that focus on how technology can be used in class, but there are few studies that base their analysis on English teachers' perceptions. Consequently, conducting more research about English teachers' beliefs towards technology may help educational authorities and educators realize the importance of fostering teachers' positive attitudes towards technology which can increase the effectiveness of the use of digital devices in the classroom. Furthermore, one beneficial impact of researching about teachers' beliefs is that it

can provide teachers a new perspective of their roles in class to guide students to autonomous

education.

By taking these aspects into consideration, future research about English teachers'

attitudes and their influence on technology implementation will bring a positive impact on

education because it can provide new educational methods and technological perspectives which

allow students and teachers to work together by using technological resources as tools.

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