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The Impact of the iPad on Mexican English Language Teachers' Cognition

El Impacto del iPad en la Cognición de los Profesores de Inglés en México

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Abstract

This article reports the results of a study that was part of a master's thesis. The research focused on a private primary school in Pachuca, Hidalgo, Mexico. It aimed to explore English language teachers' cognition, specifically into the teaching practice and emotional responses reported when implementing the use of the iPad in their lessons. Four female English language teachers were selected to be part of the project. A grounded theory method was selected to carry out the study, and two instruments were chosen to collect and triangulate the data obtained. Those instruments were guided teachers' narratives and individual interviews. Results show that teachers' practices and emotional responses evolve during the process of the iPad implementation by following four main stages: initial reactions, sense of realization, change, and adaptation. Furthermore, similar emotional reactions and teaching practices were found in the four participants.

Keywords: cognition, emotional responses, iPad, Mexican English teachers, technology, teaching practice

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Resumen

Este artículo informa sobre los resultados de un estudio que fue parte de una tesis de maestría. El contexto del estudio fue en una escuela primaria privada en Pachuca, Hidalgo, México. El estudio buscaba explorar la cognición de los profesores, específicamente en la práctica docente y las respuestas emocionales que los profesores de inglés en el nivel elemental informan a la hora de implementar el iPad en sus clases. Se seleccionaron cuatro profesoras de inglés para formar parte del proyecto. Se seleccionó el método de teoría fundamentada para llevar a cabo el estudio; se eligieron dos instrumentos para recolectar y triangular los datos obtenidos, dichos instrumentos son narrativas guiadas y entrevistas individuales con cada una de las profesoras. Los resultados muestran que las prácticas y las respuestas emocionales de las profesoras evolucionan durante el proceso de implementación del iPad siguiendo cuatro etapas principales: reacciones iniciales, sentido de realización, cambio y adaptación. Además, se encontraron reacciones emocionales y prácticas de enseñanza similares en las cuatro participantes.

Palabras clave: cognición, iPad. tecnología, profesores mexicanos de inglés

Introduction

The current study aims to explore teachers' cognition regarding the effects that the implementation of the iPad has had on elementary English language teachers' teaching practice as well as to explore their emotional responses to this innovation. According to Galván-Malagón and López-Pérez (2017), one of the biggest problems when trying to implement new technologies in education is the attitudes that teachers have toward them. In addition, one of the biggest obstacles found in this field is teachers' fear of expressing opinions about the new technologies or acknowledging how they really use them in the classroom. As Galván-Malagón and López-Pérez (2017) point out, several teachers do not report their truthful practices when using technology because, in many cases, acknowledging that they do not use them or possess the necessary training may be politically incorrect. As such, this situation could lead to a conflict between what teachers believe about new technologies and what they believe society demands (McGinty, 2002, as cited in Galván-Malagón & López-Pérez, 2017).

iPads have been widely adopted worldwide in the educational setting, making them one of the most popular devices implemented in schools (Zhang & Nouri, 2018). Mexico is not the exception. Private schools in the country are starting to utilize the iPad. The iPad is a tablet that combines smartphone features like a computer, providing access to information and applications. The useful gadget has a comfortable size and weight and opens the door to more than 65,000 educational apps (Lezama, 2014). Nevertheless, the new technologies implemented may not have a real impact on the teaching-learning process until there are significant changes among all the members of the educational organization, from a micro level (pedagogical) to a macro level (structure of the current educative system) (Galván-Malagón & López-Pérez, 2017).

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The study looks for defining what the culture of teaching was before teachers worked with iPads versus what the new culture of teaching might be after implementing its use in English language lessons. It provides insights into teachers' cognition, specifically into the teaching practices and emotional responses that English language teachers, all in elementary level, report when implementing the use of the iPad in their lessons. Teachers' cognition involves what teachers think, know, and believe (Borg, 2006); New concepts include the emotional dimension of teachers' lives (Borg, 2016). The insights of the study may be helpful to approach problems that have arisen, for instance, the study of the possible reasons for the lack of impact of ICT in improving educational results (Somekh, 2004), the self-efficiency of teachers' own computer skills (Paraskeva et al., 2008), or the emotions as an essential role when accepting the implementation of computers (Veen & Sleegers, 2006).

Electronic resources such as iPads may offer benefits when implemented in the educational context. They may change the way teachers develop their lessons. Considering the ubiquity of such tools in modern society, investigating how teachers respond to the implementation of iPads is an essential step in ensuring their optimal use. The study fits into this general area of innovation that various authors claim as essential (Galván-Malagón & López-Pérez, 2017; Lezama, 2014; McGinity, 2002). Other studies have been done in this area (as in Cai, 2012; Kayapinar et al., 2019; Öztürk, 2018; Zhang & Nouri, 2018) but never in a private school in central Mexico. The study may then contribute to previous work because it mainly focuses on the use of a specific tablet, the iPad.

The study also combines the teachers' practices and emotional responses. Prior research, for instance, the work of Öztürk (2018), studied Turkish Language Teachers' anxiety about tablet PC-assisted teaching. It was found that Turkish female teachers' anxiety level arises when teaching with a tablet PC. In addition, that work suggests that teachers should be provided with adequate training in using tablet PCs. Therefore, the study attempts to be significant for both novice teachers and in-service teachers, as well as higher administrations that regulate the English language teaching in Mexico, since, by exploring the culture of the classroom, awareness can arise on the need to have a better understanding of what happens in the local language classroom (Herrera, 2014).

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All in all, this study addresses the following research questions:

1. How has the implementation of iPads in an English as a Foreign Language Class influenced the teaching practice of teachers at the elementary level of a private elementary school in Pachuca, Hidalgo?

2. What changes have been provoked regarding teachers' emotional responses because of the implementation of iPads in the previously mentioned context?

3. How has the implementation of the iPad influenced English language teachers' cognition?

Method

Research Design

Creswell (2008) has highlighted the importance of using qualitative research to collect and analyze data with unique characteristics which rely on text and image data as well as diverse strategies of inquiry. Therefore, designing a qualitative study appropriate for this diverse situation, which is classroom culture and teachers' cognition, is primarily determined by the purpose of the study, the research questions, and the sources available. Due to the aim of the research project being to explore processes, activities, and events of classroom culture and teacher's cognition, a grounded theory approach (Creswell, 2008) to data collection and analysis was adopted. Two instruments were chosen to collect and triangulate the data: guided teachers' narratives and individual interviews.

Research Context and Participants

This study was developed with the help of four female English language teachers from a private primary school in Pachuca, Hidalgo, Mexico. They were between 30 and 50 years old. Each participant oversees one or two grades; however, all of them have taught from first to sixth grade due to the school policy, which changes English language teachers to other grades every year. Therefore, the participants possess experience with young and pre-adolescent learners. Moreover, each participant teaches two groups in one day with no more than 25 students each. The four participants were chosen due to their expertise in the use of the iPad, so that the culture of the classroom, which five experienced teachers had before and after the implementation of the iPad in their lessons, can be explored.

The school policy demands the incorporation of the iPad device in the English language lessons, in which the participants integrate it at least one day per week. The school provides each teacher with one personal iPad mini, and each student is also provided with one when teachers require them. Thus, students do not need to share the devices.

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Data Collection

The data collection procedure took place as a task for the four teachers. They were asked to write a guided narrative of no more than two pages about teachers' experience and process regarding their transition from not teaching with iPads to teaching with them (see appendix A). The following was the procedure:

- Write in a narrative way in no more than 2 pages about the next topic: *My process of transitioning from "not teaching with iPads" to "teaching with iPads" was …*

- In your narrative try to involve as many details as you can such as emotions, thoughts, beliefs, and knowledge.

Moreover, eight questions were given as a guide so that teachers' narratives can follow a pattern (see appendix A). Four reports were collected in total where they described how the process of transitioning from teaching without iPads to teaching with them was, including emotional aspects and their teaching practice. The narrative could be written in any format that the participants felt comfortable with. The narratives were then emailed so they can be saved and analyzed.

The second step in data collection was formulating individual interviews to get more in-depth information. First, preliminary questions were designed according to the purpose of the current study, and then new questions were formulated according to the data obtained in the teachers' narratives. Teachers were contacted to book their interview. Due to the pandemic situation, interviews were via zoom. Each participant was asked to expand and explain their answers that were previously reported in their narratives.

Data Analysis

As previously mentioned, the data collection and the data analysis procedure utilize a grounded theory approach. This study followed a standard format for the data analysis process in grounded theory provided by Creswell (1998, p. 57). The format follows four phases (as in Castineira et al. 2010, pp. 2-3). These include:

1. Open coding: The researcher forms initial categories of information about the phenomenon being studied by segmenting information (see Table 1 below).

2. Axial coding: The researcher assembles the data in new ways after open coding in which the researcher identifies central categories that influence the phenomenon, specifies actions or interactions that result from the central phenomenon, identifies the contexts that influence, and delineates the outcomes for the phenomenon.

3. Selective coding: The researcher identifies a 'storyline' and writes a story that integrates the categories in the axial coding model. This phase typically includes the presentation of conditional hypotheses (see Table 2 below).

4. Conditional matrix: Although rarely found in grounded theory studies, this phase consists of developing a visual portrayal that elucidates the social, historical, and economic conditions influencing the central phenomenon.

Table 1. Open coding: Initial Categories

Phase number	Category name
1	Initial preparation
2	Emotional aspects
3	Change
4	Conflict
5	Advantages

Table 2. Axial coding: Central Categories

Phase number	Category name
1	Initial reactions
2	Sense of realization
3	Changes
4	Adaptation

This analysis strategy was primarily chosen because teachers' guided-narrative data fit the systematic process described above. Moreover, this strategy might provide a more ethnographic, emic, and holistic view creating a whole picture of the event under study from the participants' point of view (Castineira et al., 2010).

Results

Initial Reactions

During the data analysis, initial reactions were categorized as the first coding that the four participants reported. Those reactions are presented in Table 3, which is divided into two categories: beliefs and quotes.

Table 3. Teachers' beliefs at initial reactions step

Beliefs	Quote
Technological devices in daily life	"I think that technological devices are the most used in our daily life" (narrative, participant A).

Beliefs	Quote
Myself towards the use of technology	"I thought I was not as good in technology as I supposed to be" (narrative, participant B).
Myself towards students	"I know the kids would know how to use the iPads" (narrative, participant c). "I could not know less than my students or allow them to know more than me, because that would cause me low morale" (narrative, participant D).

Table 3 shows the teachers' most common beliefs reported in the guided narratives during the first stage. The third question explored by the guided narrative was about the level of difficulty that the teachers perceived when integrating the iPad into their lessons for the first time. The first belief that arose was about using technological devices in daily life, which according to participant A, is widely used in most people's activities. Such a belief might suggest that they use mobile devices daily in their personal life activities, and that they likely incorporate those gadgets in their teaching. Currently, many people are attached to these tools, and more institutions offer courses on how to include technological devices in education, which is why not only young but also more experienced teachers are familiar with technological items.

The fourth question analyzed how the participants felt at the beginning of this process. Therefore, the second belief found at this stage in the guided narratives was about how they perceived themselves toward the use of technology. Participant B claimed that their abilities regarding the use of technology could have been better. This may be perceived as a need for more experience in this specific field of technology in education. Participant B's notion may propose that experienced teachers do not consider themselves technological literates. This might be due to the lack of courses focused on using technology in previous and not updated curriculums of university programs.

The last belief was about how the participants felt themselves towards their students at the beginning of this stage which was analyzed by the fourth question of the guided narratives. Participants D and C mentioned that they believed they knew that their students would be better at using iPads than them and that fact might cause them authority issues inside of the classroom. People tend to believe that children and teenagers are better at using technological devices just because they are young and use them all the time. Participants D and C prove this belief when claiming the aforementioned. Although such an affirmation may be true, most adolescents and kids cannot use iPads or tablets for academic purposes.

The following table illustrates the most common emotions that the participants reported in the first stage of this process. It is divided into emotions, classification of the emotion (positive or negative), and the emoji representation for more visual analysis.

Table 3.1. Participants' emotions in initial reactions

Emotion	Classification
Fear (narrative, participant A)	Negative
Overthinking (interview, participant C)	Negative
Depressed (interview, Participant D)	Negative
Peace (interview, participant B)	Positive

Table 3.1 shows the participants' emotions in their initial reactions. The fourth question of the guided narrative explored how participants felt at the beginning of implementing the iPad in their classes. During the interview, these ideas were explored more in-depth. Participants A, C, and D shared similar emotions when reporting only negative ones. For instance, participant A confirms that the teachers think about everything that could go wrong when trying new strategies, such as new tools. Therefore, all those thoughts made them feel anxious towards the situation. As an example, participant D reported feeling obsolete, gray, and depressed. She expressed the following in their narrative:

> "I felt that as a teacher I would not shine anymore and that if I was light, now, due to my lack of use of technology, I was a dull, dull star, and I became depressed."

Participant C claimed the following in the narrative, and then it was reaffirmed during the interview:

> "My biggest fear was that they would use the iPad for not so good uses."

The beliefs and feelings might be because the participants needed to be exposed to previous training where they could get used to these kinds of technologies. These ideas also suggest that novice teachers must be prepared to face the integration of new tools so that the stated negative emotions would not have a significant impact on teachers' professional and personal lives. Most participants reported what Mertala (2019) claims in her study that teachers share similar hopes and anxieties towards integrating technology in the classroom. Furthermore, Hembre and Warth (2019) claim that the integration of the iPad might be perceived by teachers as an overwhelming task because pedagogy changes very slowly; in addition, they remark that "new tools do not enter into a vacuum; rather, they interact with

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the teachers, the pupils, and the classroom environment" (p. 206). Those issues might be arising since most schools around the world and Mexico are demanding the integration of technology in a hasty way, which leads teachers not to listen to the students' technological demands and decide not to incorporate technology in their lessons. That decision may come from the fact that, in the past, technology was not compulsory and little innovations regarding technology were integrated in teachers' lessons. Therefore, current teachers tend to believe that they are less capable than their students when it comes to using technology which provokes negative emotions towards educational and technological innovations (Marek & Wu, 2019).

Sense of Realization

A sense of realization was set as the second coding of the storyline of this evolution. The sense of realization refers to becoming fully aware of something as a fact. In this section, the teachers noticed the advantages and disadvantages of using the iPad in their classes. Table 4 demonstrates the teachers' cognition regarding such a step, while Table 4.1 shows evidence of the four participants regarding their emotional status in this step.

Table 4. Teachers' beliefs at the sense of realization step

Beliefs	Quote
Need to take action	"I need to design; I need to know how to use the device in an appropriate way" (interview, participant A).
The advantages	"You realize that your methodologies, your strategies can get much better if you have these technological devices because is a tool for you as a teacher" (narrative, participant A). "What I have realized that my students become more autonomous because they use this technology more than I do. I learn from them and I'm trying to implementing what they teach me" (narrative, participant B).
Not difficult	"At first I thought that using technology required great and deep knowledge, but I realized that by clicking, and clicking, I would advance" (narrative, participant D).

Table 4 shows the three most common beliefs found with quotes from the participants' guided narratives and interviews. The participants reported the need to act, the advantages that they found, and the realization that using the iPads was easier than what they used to believe. The first question of the narrative explored whether the teachers have received training before the implementation of the technological devices. This information was

supported by questions 1 and 2 of the interview. Participant A claims that to be prepared for this challenge, it was needed to do something about it. Moreover, it might be perceived that the participants wanted to be ready by learning how to use such an electronic tool so they could design a proper class.

In this stage, the participants realized the advantages that the implementation of the iPad brought to their classes. Question 7 of the guided narrative (see Appendix A) analyzed those beliefs. On the one hand, participant B considers that these specific gadgets improve their teaching style by modifying the methodologies and strategies used. That opinion might suggest that technological devices help teachers to give more dynamic, varied, and exciting classes. Guan et al. (2018) and Gönen (2019) state that the integration of digital devices makes a class more exciting and fun. It creates a motivating learning atmosphere, fosters active participation, and helps teachers create more individualized learning for the different students' needs and interests. On the other hand, participant C puts herself into a more autonomous class due to iPads integration which may propose that technological devices open the door for teachers to orient students into a more self-study culture where they are responsible for their own learning. Cai (2012) states that implementing one-on-one technologies, such as the iPad, might foster student-centered pedagogies. Participant D reported that, at the beginning, thinking about using technology in the class was something impossible, and it was very likely that implementing technology would require specific skills. However, that participant noticed that it was all the contrary, that by being patient and practicing, implementing technological devices was not as complex as they thought. That idea encourages the belief that teachers must be surrounded by the new tools or devices that they will use; in this way, they feel comfortable when it is the time to use them in their lessons.

Table 4.1. Teachers' emotions in the realization stage

Emotion	Classification
Stress (narrative, participant D)	Negative
Happiness (narrative, participant A)	Positive
Disappointment (narrative, participant C)	Negative
Sadness (narrative, participant A)	Negative

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Table 4.1 illustrates the most common emotions that the teachers reported during the stage of realization. Question 6 of the narrative examines the participants' most common problems in this process. Participants A and C highlighted the common issues that make teachers wonder if it is worth or not to adopt the iPad in their classes. Both participants

claimed that the students' use of the iPad was not appropriately utilized. Participant C stated that students were found on web pages that were not appropriate for their age and used to enter video games webpages. Due to all these factors, participants A and C expressed feeling stressed, disappointed, and sad. These two participants restricted the use of the iPad in their classes as a punishment for their students. As a result, both felt unconfident to use the iPad again. Nevertheless, the teachers reported started feeling confident one more time because their students asked for the devices, and they knew that if they were correctly implemented, iPads would be a tremendous help. Afterward, the participants must transform their classroom management to supervise their students' activities during iPads time. Participant C reported the following in the interview:

"I knew the iPad was a good resource and the kids were asking for them. so, I was like, yeah it is technology, I think they learn better in this way. The attitude of my students helped, and I am trying to be more aware of these things. Some conditions were made to use the iPad."

Participants A and C expressed negative feelings toward the issues that arose during their teaching practice. They affirm that implementing new technologies with young students could be problematic when they are not well regulated. Participants A and C said in their narrative:

"For every perfect situation may be an issue."

"Some bad experiences that I had is that they visited sites that were not protected for children."

These opinions suggest that the use of technologies in the classroom should be considered a serious matter and that strategies to regulate their usage and monitor students should be applied so that this type of problem can be avoided or reduced.

On the other hand, participants B and D reported feeling happy in this stage. Both participants found the benefits of using the iPad in their classroom, and they took advantage of it. They suggest that using technological tools should be an enriching and enjoyable experience if they are implemented correctly. Moreover, participants agree that potential problems can be avoided if they monitor what their students are doing on their devices. These opinions may recommend that students should be watched all the time when working with tools that can give them access to many places.

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Changes

This section addresses the changes that the teachers experienced regarding their traditional teaching practice and the transition to using the iPad in their classes. Furthermore, the emotional responses are pointed out so that a clear idea can be perceived of how teachers react to specific changes. Table 5 represents the teachers' cognition in this stage, and table 5.1 shows the evidence of those changes and emotions in each participant.

Table 5. Teachers' beliefs in the stage of changes

Beliefs	Quote
A different vision	"I think it is a different vision of how you can teach something, any topic. It could be math, science, grammar, any topic. It is amazing how a device can transform your class". (Narrative, participant A).
Changing the dynamic	"I think that you are able to change the dynamic of your lessons, it is not always the traditional form, you can implement something else". (Narrative, participant C). "You realized that your teaching, your methodology has changed". (Narrative, participant B)
Change is a must	"If the world has changed, one must change along with it, otherwise, one would be out of reality". (Narrative, participant D).

Three central beliefs reported by the teachers in their narratives during the stage of change are shown in Table 5. Question number 5 of the narrative explored if the teachers got used to using the iPad and how that process was. Participants B and C claimed that, in this process, they could modify their teaching practice making it more up to date. Furthermore, participant A complements these ideas because she mentioned that now she sees her classes differently with a more astounding vision. Participant D affirms that transforming the traditional way of thinking is required in every teacher's mind since times are constantly changing. If teachers are not open to improving their teaching practices, they likely become rusty and unemployed.

Table 5.1 shows participants' emotions regarding the stage of changes analyzed by question 5 of the narrative by asking them if participants got used to this device and how that process was.

Table 5.1. Teachers' emotions in the changes stage

Emotion	Classification
Amazed (narrative, participant A)	Positive
Fascinated (narrative, participant B)	Positive
Confident (narrative, participant C)	Positive
Strong (narrative, participant D)	Positive

Table 5.1 demonstrates that all participants claimed that, by using the iPad, their vision, dynamism, and teaching had changed. All of them agreed that they needed to change to improve their teaching practices. The teachers reflect what Abassi (2020) suggests, the use of technology in the classroom influences teachers' dynamic of delivering a class, and it has a direct effect on students. Learners will receive almost unlimited resources and tools which enhance cooperative learning (ibid). Additionally, Cai (2012) claims that the use of technology might provoke a shift in teachers' pedagogies, making them more student-centered rather than teacher-directed so that students can master the English language as soon as possible.

Stage number three, "changes", addresses positive emotions in all the participants. Those emotions include feeling amazed, fascinated, confident, strong, and highly technological. Participant D moved from feeling depressed to highly technological because she realized that the changes implemented in their class had been well-received by the students. The participants claim that receiving training from the school was a critical factor that let them feel more secure about their technological practices. Participant D mentioned the following:

"They started training me for my job. The coordinator of the technology department was very patient, and I asked many questions because she had to train me well to be able to answer all the questions of my students. I could not know less than them or allow them to know more than me, because that would cause me low morale, so I strived to learn and learn well to always be the one who knows the most and thus raise my image as a teacher."

Participant C stated in the interview:

"I was happy and excited because something new was going to happen. I like learning a lot, so I took all the training and tried to implement it right away."

Participant A stated the next in the narrative:

"It was after using the iPad with my own knowledge and after taking the course that I felt more secure of what I was doing in my classes with the iPad. I learnt many things."

These participants' emotions and ideas might suggest that teachers can modify their state of mind when they have more experience using technological devices. They become more confident and happier with the integration of those devices. Furthermore, based on the participants' ideas stated above, training teachers in the technological field might provide them with not only sufficient knowledge to properly implement the resources but also with sufficient confidence to face the transitioning process.

Adaptation

The aim of this section is to present the last point of the storyline which is the adaptation process. This last coding refers to the process of adaptation that the participants underwent while the implementation of the iPad in their classes. Table 6 provides the teachers' beliefs,

and table 6.1 includes the emotional response, the evidence as participants' quotes, and their emoji interpretation.

Table 6. Teachers' beliefs in the adaptation process

Beliefs	Quote
Knowing the benefits	"I really know that these kinds of devices in a class can be wonderful so if you study or learn a little bit more about this, you can create a teaching and learning experience that is very interesting for your students." (Narrative, participant A) "It's an interesting and marvelous process that helps you improve the dynamic of your lesson and also that can help you to make it more attractive to students and also to adjust yourself to younger generations." (Narrative, participant B)
Autonomous learning	"With the class with technology, they study on their own devices by themselves. For me it represents autonomous learning." (Narrative, participant C)
You don't exist	"You don't exist if you cannot work with technology, as a person and as a professional." (Narrative, participant D)

Table 6.1 demonstrates that all the teachers expressed positive emotions and are more than happy to use the iPad in their classes. Happiness, fascination, and comfort are some of the emotions that teachers reported.

Table 6.1. Teachers' emotions in the adaptation process

Emotion	Classification
Happiness (narrative, participant A)	Positive
Comfort (narrative, participant B)	Positive
Fascination (narrative, participant C)	Positive
Flowing (narrative, participant D)	Positive

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Table 6.1 shows that, in this last point, the four teachers adapted positively to using the iPad in their lessons. Moreover, they reported only positive characteristics when using the iPad for educational purposes. They agreed that using those devices makes students more

interested in their lessons because, currently, students and teachers have a highly technological lifestyle. The four participants moved from an old to a new culture of teaching in which textbooks, tests, the amount of knowledge, competencies, values, and teacher-centered approaches were no longer prioritized (Posch, 1994). Instead, by using new technology, the teachers reconsidered their beliefs, values, and habits in developing and performing their lessons, which shows that they modify their current teaching culture (Geer et al., 2015).

Furthermore, the four participants have found that working with iPads is a fantastic process because they have learned and redesigned everything that they used to believe. Previous research has shown that those reactions are seen in other contexts. For instance, Soleimani et al. (2014) showed that teachers react positively to integrating new technologies, in this case, mobile-assisted language learning (MALL). Moreover, Lawrence (2016) and Alzaidiyeen (2017) demonstrated the positive acceptance of the iPad by both students and teachers in the language classroom. Finally, Auquilla and Urgilés (2017) state that "it is evident that the use of the Apple's iPad device and educational apps may have a crucial role in today's classroom instruction because they both can greatly enrich the teaching-learning process in English language lessons" (p. 714). Therefore, the reactions of the teachers were not surprising due to the previous findings in non-Mexican contexts. However, the current results demonstrate that this group of participants was able to appropriately adapt and change their teaching practices just as well as European or Asian teachers.

Discussion and Conclusions

The current study demonstrated that teachers' cognition is correlated to events that they deal with in their everyday practice and that such practice will eventually influence the way teachers perceive learning and act in their classrooms. Borg (2006) claims that teachers' cognition is worthy of being studied because "understanding teachers requires an understanding of teachers' mental lives rather than an exclusive focus on observable behaviors" (p. 6). As a result, teachers' practices might be better understood. Borg (2006) claims that a study about teachers' behavior may be incomplete if teachers' cognition was not considered. Secondly, he states that "research linking intentions and behavior can inform teacher education and the implementation of educational innovation" (pp. 10-11). The links would be the ones to give better connections between teacher cognition, research, and education which would emerge strongly later.

Teachers' cognition in the current study appears to be highly influenced by previous events in their professional and personal life. The resulting cognition is not static, it is, as Borg (2006) claims, "a cycle shape" where cognition is a crucial factor in shaping classroom events and vice versa. Furthermore, teachers' cognition was also influenced by knowing students' abilities and classroom behavior, which impacted teachers' judgments and decisions.

A preliminary finding from this study was the storyline drawn which considers the stages that the teachers got through when implementing the iPad in their classes. That storyline might be considered a theory about how English language teachers might live processes when higher administrators implement new technologies to be integrated into the language classroom. That theory is not new, it might fit in "theories of change." Fullan (2006) claims that "if teachers are going to help students to develop the skills and competencies of knowledge-creation, teachers need experience themselves in building professional knowledge" (p. 4). Additionally, Fullan (2006) suggest that these theories should be flexible so that teachers can do new things in the setting in which they work. The current theory found four stages that teachers face during their process of doing something new, they were: initial reactions, sense of realization, change, and adaptation. In the four stages, teachers reported how their classes and their emotional state were evolving. In the initial reactions, there was a tendency for negative emotions, whereas, in the cognition part, most teachers claimed to think that their students could not know more than they do about technology.

In the second stage, "sense of realization", it was found that teachers believed that the use of the iPad was becoming more and more beneficial for their classes and that their students asked them to use it more frequently. The emotional part was divided into positive and negative feelings. The positive part reported feeling happy, while the negative part reported stress and disappointment due to issues that both teachers faced regarding students entering to not allowed websites. In the third stage, "changes," teachers stated to have a different vision of their culture of teaching and that they realized that their teaching and methodology had changed. This stage was filled with only positive emotions, for instance, fascination, amusement, and confidence were the most reported. In the fourth and final stage, "adaptation," teachers showed a complete adaptation to the new technology; they reported only positive characteristics when using the iPad for educational purposes by stating that those devices diversify and dynamize their teaching practices besides to be appealing to younger generations. Teachers expressed strong positive emotions in this stage which make them want to keep working with such a device.

The results of the present study have confirmed that the correct implementation of the iPad in an English language classroom is a factor that must be recognized as necessary not only in the second language teaching field but also in all the educational sector that attempts to integrate new technologies in their curriculum. According to Abassi (2020), the use of technology in the language classroom has a direct influence on learners regarding the facilitation of almost unlimited resources and tools which enhance cooperative learning. Those resources involve developing language skills through experimentation and helping students raise awareness about what can be considered formal or informal language. Likewise, Cai (2012) states that implementing technology in education might turn the pedagogical strategies from teacher-directed to a more student-centered pedagogy by

focusing on "fostering linguistic sensitivity and improving listening comprehension and ability of expression so as to enable students to master English as soon as possible" (p. 843). Furthermore, the purpose of creating a pedagogy based on technology is that language acquisition is not only about grammar and invalid exercises, but on the constant practice of the students (Cai, 2012).

Clearly, increased knowledge of new technologies, in this case, the iPad, provides teachers with uncertainty at the beginning, but as the process evolves, a sense of confidence and high self-esteem is achieved. These characteristics benefit not only teachers but also students and the entire school. Saglam and Sert (2012) demonstrate positive teachers' attitude towards the role of educational technology for enriching language instruction. Teachers also believe that their students maintain a positive attitude towards using technology in learning. On the other hand, challenges are acknowledged by teachers who claim the lack and need of training for both teachers and students. Finally, Saglam and Sert (2012) concluded that the use of technology in ELT encourages students to construct their own knowledge and helps create a motivational environment by 1) exposing them to lifelong learning skills and strategies and 2) providing materials for different students with different learning styles. These characteristics might benefit not only teachers but also students and therefore the entire school. Prior experience and knowledge of how to properly implement the iPad in the classroom can assist a teacher in becoming more effective, resilient, and happy as a person and educator.

Teachers could adapt and create materials that ensure that the second language is learned and enjoyed by the students. Teachers should be constantly trained in these fields due to the speed that technology changes so that they can be updated regarding the use of applications or websites, besides the use of the hardware and software of the iPad, which is also constantly changing and updating. Results from different studies (Guan et al., 2018; Gönen, 2019) have revealed that the integration of computer media in English language teaching makes classroom more interesting and fun as well as it creates a motivating learning atmosphere, foster active participation, and help teachers create more individualized learning for the different students' needs and interests. Furthermore, students' language skills might be improved when developing ideas in English thanks to the wide range of materials that are provided by the addition of ICT in the English language teaching classroom.

Furthermore, it is suggested that teachers' mental health regarding their negative emotions can be considered to help them smooth the impact of the changes and therefore ease the process of adaptation. Galván-Malagón and López-Pérez (2017) claim that "one of the principal obstacles for the production of normalization of ICT in English teaching is teachers' attitudes towards them" and that in many cases this is due to "teachers fear of expressing opinions about ICT or admitting that they do not possess the necessary training to integrate them in their teaching practice" (p. 269).

The results have provided further evidence confirming that the implementation of the iPad changes and modifies teachers' traditional practices and that negative emotions might be overcome when gaining experience and knowledge about all the usages that the device can have. Walsh and Farren (2018) provide significant insights and reinforce theory discussed above about the positive attitudes and cognition that teachers report of the use of the iPad in education. Therefore, it can be considered that a new culture of teaching was created when iPads were introduced, adopted, and applied in every lesson. Therefore, it can be suggested that not only teachers' traditional practices were modified but also their perception of the use of technologies in the classroom was transformed into a more positive and effective one. Those practices allow teachers train more autonomous students. Identifying more factors that can make teachers reject the use of such a device, as well as why teachers might want to stop using it, will help to have a better understanding of how teachers perceive the use of the iPad or other types of tablets.

References

Abbasi, I. (2020). The influence of technology on English language and literature. *English Language Teaching*, 13(7), 1-7.

Alzaidiyeen, N. J. (2017). English as a foreign language students' attitude towards the utilization of iPad in Language learning. *Malaysian Online Journal of Educational Technology,* 5 (8), 16-24.

Auquilla, D. P., & Urgilés, G. E. (2017). The use of iPad and applications for English language education. *Theory and Practice in Language Studies*, 7(9), 709-715. http://dx.doi.org/10.17507/tpls.0709.01

Borg, S. (2006). *Teacher cognition and language education research and practice*. Bloomsbury Publishing.

Cai, H. (2012). E-learning and English Teaching. *IERI Procedia*, 2, 841-846.

Castineira, T., Preciado, P. & Witten, M. (2010). A significant moment in a teacher's life: Different ways to approach qualitative research. *Memorias de la Expopresencia 2010 de la Facultad de Lenguas en Eventos Nacionales e Internacionales.* BUAP: Puebla, Mexico.

Creswell, J. W. (1998). *Qualitative inquiry and research design. Choosing among five*

traditions. Thousand Oaks: Sage.

Creswell, J.W. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches (3rd ed.).* Sage.

Fullan, M. (2006). Change theory: A force for school improvement. *Center for Strategic Education,* 157, 3-14.

Galván-Malagón, C. & López-Pérez, 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.

Geer, R., White, B., Zeegers, Y., Au, W., & Barnes, A. (2015). Emerging pedagogies for the use of iPads in schools. *British Journal of Educational Technology, 48*(2), 490-498.

Gönen, S. İ. K. (2019). A qualitative study on a situated experience of technology integration: reflections from preservice teachers and students. *Computer Assisted Language Learning,* 1- 27. https://doi.org/10.1080/09588221.2018.1552974

Guan, N., Song, J., & Li, D. (2018). On the advantages of computer multimedia aided English teaching. *Procedia computer science, 131*, 727-732.

Hembre, O. J., & Warth, L. L. (2019). Assembling iPads and Mobility in Two Classroom Settings. *Technology, Knowledge, and Learning, 23*(1), 197-211.

Herrera, G. E. (2014). A multimodal exploration of classroom culture: A critical discourse analysis. [Master 's thesis, Benemérita Universidad Autónoma de Puebla]. Repositorio Institucional de Acceso Abierto BUAP. https://hdl.handle.net/20.500.12371/5773

Kayapinar, U., Erik, S. & Kose, N. (2019). The effect of tablet use on students' success in English as a foreign language (EFL) grammar classroom. *Educational Research and Reviews,* 14(5), 178-189.

Lawrence, B. A. M. (2016). IPad acceptance by English learners in Saudi Arabia. *Canadian Center of Science and Education*, 9(12), 34-46.

Lezama, P. A. (2014). *El uso del iPad como una herramienta que favorece el aprendizaje de los alumnos de quinto de primaria en Educación Privada en México.* [Tesis de Maestría, Tecnológico de Monterrey]. Repositorio Institucional del Tecnológico de Monterrey. http://hdl.handle.net/11285/626528

Marek M. W., & Wu, W. C. V. (2019). Creating a technology-rich English language learning environment. In X. Gao (Ed.), *Second handbook of English language teaching* (pp. 757-777). Springer, Cham, 1-2. https://doi.org/10.1007/978-3-319-58542-0_39-1

McGinity, M. (2002). Reading behind the words: sociolinguistics aspects of attitude

questionnaires. Sociolinguistics (Unpublished paper). Symposium 14. University of

Gant.

Mertala, P. (2019). Teachers' beliefs about technology integration in early childhood education: A meta-ethnographical synthesis of qualitative research. *Computers in Human Behavior.* 101, 334-349.

Öztürk, E. (2018). A study of primary school teachers' and Turkish language teachers' anxiety about tablet PC assisted teaching. *International Education Studies,* 11(6), 66-72.

Paraskeva, F., Bouta, H., & Papagianni, A. (2008). Individual characteristics and computer self-efficacy in secondary education teachers to integrate technology in educational practice. *Computers and Education*, 50, 1084-109.

Posch, P. (1994). Changes in the Culture of Teaching and Learning and Implications for Action Research. *Educational Action Research, 2(*2), 153-161. https://www.doi.org/10.1080/0965079940020202

Saglam, A. L. G., & Sert, S. (2012). Perceptions of In-Service Teachers Regarding Technology Integrated English Language Teaching. *Online Submission, 3*(3), 1-14.

Soleimani, E., Ismail, K., & Mustaffa, R. (2014). The acceptance of mobile assisted language learning (MALL) among post graduate ESL students in UKM. *Procedia Social and Behavioral Sciences*. 118, 457-462. https://www.doi.org/10.1016/j.sbspro.2014.02.062

Somekh, B. (2004). Taking the sociological imagination to school: an analysis of the (lack of) impact of information and communication technologies on education systems. *Technology, Pedagogy and Education*, 13(2),163-179.

Veen, K. & Sleegers, P. (2006). How does it feel? Teachers' emotions in a context of change. *Journal of Curriculum Studies*, 38 (1), 85-11.

Walsh, V., & Farren, M. (2016). *Teacher Attitudes Regarding Barriers to Meaningfully Implementing iPads in a Primary School Setting.* Computers in the Schools. https://www.doi.org/10.1080/0738056 9.2018.1462674

Zhang, L. & Nouri, J. (2018). A systematic review of learning and teaching with tablets. *14th International Conference Mobile Learning,* 79-88.

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Appendix A.
Instructions to write the guided narrative

- Write in a narrative way in no more than 2 pages about the next topic: *My process of transitioning from "not teaching with iPads" to "teaching with iPads" was …*

- In your narrative try to involve as many details as you can such as emotions, thoughts, beliefs, and knowledge.

- An example of the narrative is provided for you. This is only an example, feel free to modify the structure so that you don't limit your creative process.

- Write your narrative after the example in Times New Roman format 12.

Try that your narrative answers most or all the next questions:

You can answer the questions either systematically or not.

1. Did you prepare yourself somehow to integrate the iPad in your class?

2. Do you consider the way you teach English to be the same from not using iPads to using them in your class?

3. How did you find the process of implementing the iPads in your lessons?

4. How did you feel at the beginning and during this process?

5. Did you get used to it? How was that process?

6. Did you face problems when implementing the use of iPads? If yes, what kind of problems? How does this make you feel?

7. Did your common teaching strategies, techniques, and/or pedagogies come into conflict when trying to implement the iPad in your lessons? If yes, how did you overcome this situation? If not, why do you think this might happened?

8. Did you find advantages and/or disadvantages regarding the use of the iPad? How does this make you feel?