

Exploring EFL Teachers' Attitudes toward the Use of Technology to Teach Pronunciation¹

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Abstract

Pronunciation has been historically excluded from the language skills and sub-skills taught in the language classroom (Isaacs, 2009). Several factors or limitations such as a lack of training and time, and not being an English native speaker, among others, contribute to teachers' feelings of insecurity when teaching this language sub-skill (Derwing & Munro, 2015). Nevertheless, nowadays, the use of technology opens new possibilities for English as a foreign language (EFL) teachers and students to benefit from online resources specifically designed to teach pronunciation while using animated, authentic, and appealing materials in their lessons (Hişmanoğlu, 2010). In this respect, the present study aimed at exploring EFL teachers' attitudes toward using technology to teach pronunciation, the online resources they mostly use for this purpose, and their opinion of the resources' benefits and limitations. Participants were ten EFL teachers from the School of Languages of a Mexican university. The research adopted a qualitative approach under a constructivist paradigm. The method for data collection consisted of a semi-structured interview analyzed using inductive analysis. The results revealed that teachers have a positive attitude towards using technology to teach pronunciation. Their awareness of the benefits technology offers to students facilitates the teaching of segmental and suprasegmental features. However, the study discovered that some teachers neglect pronunciation teaching with or without technology, and most of them only use the repetition drill technique in face-to-face classes. Besides, teachers' lack of experience in using pronunciation software and time constraints point to the need for teachers' professional development program that helps them develop technological skills and awakens their interest in this language area. Finally, among other factors, the study identified those factors that specifically affect the teaching of pronunciation with technology.

Resumen

La pronunciación ha sido históricamente excluida entre las habilidades y sub-habilidades del lenguaje enseñadas en el aula de idiomas (Isaacs, 2009). Varios factores o limitaciones tales como la falta de capacitación, falta de tiempo y el no ser hablante nativo del idioma inglés entre otros, contribuyen a un sentimiento de inseguridad en los maestros que les impide enseñar esta sub-habilidad del idioma (Derwing & Munro, 2015). No obstante, hoy en día la tecnología brinda nuevas oportunidades para que los maestros y estudiantes de inglés como lengua extranjera se beneficien de los recursos en línea diseñados específicamente para la enseñanza de la pronunciación y a la vez utilicen materiales animados, auténticos y atractivos en sus lecciones (Hişmanoğlu, 2010). En este sentido, el presente estudio tuvo como objetivo explorar las actitudes de los profesores de inglés como lengua extranjera hacia el uso de la tecnología para enseñar pronunciación, los recursos en línea que más utilizan para este propósito y su opinión sobre sus beneficios y limitaciones. Los participantes fueron 10 profesores de inglés de la Escuela de Idiomas de una universidad mexicana. La investigación adoptó un enfoque cualitativo bajo un paradigma constructivista. El instrumento de recolección de datos consistió en una entrevista semiestructurada analizada mediante análisis inductivo. Los resultados revelaron que, en general, los profesores tienen actitudes positivas hacia el uso de la tecnología para enseñar pronunciación. Su conocimiento de los beneficios que la tecnología ofrece a los estudiantes facilita la enseñanza de características segmentarias y suprasegmentales. Sin embargo, el estudio descubrió que algunos profesores descuidan la enseñanza de la pronunciación con o sin tecnología, y la mayoría de ellos solo usa la técnica de ejercicios de repetición en clases presenciales. Además, la falta de experiencia de los profesores en el uso de software de pronunciación y las limitaciones de tiempo indica la necesidad de un programa de desarrollo profesional docente para el desarrollo de habilidades tecnológicas y que despierte su interés en esta área del lenguaje. Finalmente, entre otros factores, el estudio identificó aquellos que inciden específicamente en la enseñanza de la pronunciación con tecnología.

Introduction

Defined as the way in which a language, a word, or sound is pronounced (Oxford University Press, 2021), pronunciation is considered as one of the most important sub-skills that EFL teachers teach to students (Fraser, 2000b). Pronunciation has become a controversial issue in the EFL/ESL field. On one hand, students need to improve their comprehension abilities, and on the other, when they speak, they need to be understood (Sadeghi and Mashhadi Heidar, 2016). Based on an in-depth investigation, Isaacs (2009) states that difficulties in pronunciation teaching increase because of the existing conflict between repetitive practice

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in language teaching and a communicative approach. Isaacs says that pronunciation teaching is challenging not only because of the complexity of finding the right balance between form and meaning, but also for the historical exclusion of pronunciation teaching from the teaching of English as a second/foreign language.

Harmer (2007) points out that most English language teachers focus on teaching grammar, vocabulary, listening, reading, and oral skills. They include more lesson activities that help students develop their oral abilities; however, most of them put little emphasis on openly teaching pronunciation and only do it when they detect phonological errors. Pennington (1996) suggests that to avoid and overcome students' intelligibility problems, i.e., "actual understanding" (Derwing, 2010, p.2), teachers should teach pronunciation from the early stages instead of centring around grammar rules and vocabulary. Pennington contends that neglecting pronunciation teaching would be the same as ignoring the basis for language acquisition. In the same way, Harmer (2007) asserts that pronunciation teaching helps students distinguish different sounds and develop their meanings that improve their speaking abilities. For example, getting students familiar with both the places of articulation in the mouth where sounds are produced and word stress, allows them to enhance their comprehension and intelligibility.

The fact that some language teachers are not teaching pronunciation may relate to different factors such as the lack of training to teach this language sub-skill, lack of time, and the uncertainty about whether non-native speakers of English should teach pronunciation or not, among others (Derwing & Munro, 2015). Regarding the last factor, the literature says that non-native English teachers can be neglecting the teaching of pronunciation because English is not their first language. Hence, they may feel insecure about their pronunciation and stop teaching aspects such as sounds and intonation in their classes (Gilakjani et al., 2019; Harmer, 2007).

Despite the variety of factors that may prevent teachers from teaching pronunciation, the use of new technologies can be of great help for EFL teachers and students since they provide them with access to the target language in different fields (Gilakjani et al., 2015). Computers and smartphones, for example, facilitate access to a variety of online resources. Many EFL teachers in colleges and universities throughout the world have begun to use such resources as they afford lots of activities specific to segmental (i.e., consonant and vowel phonemes of English) and suprasegmental features (i.e., pitch, loudness, tempo, and rhythm). As well, online resources allow teachers to include animated, authentic, and appealing materials in their lessons (Hişmanoğlu, 2010). Gilakjani and Sabouri (2014) highlight the benefits of using technology. They say that "...technology provides new possibilities for teaching pronunciation, creates a successful language environment for both teachers and learners, provides new opportunities for teachers and learners to engage in active communication that facilitates the process of teaching and learning English pronunciation" (p. 143). Hence, the great variety of online resources allow EFL teachers to improve the teaching and learning processes.

On the other hand, the successful utilization of technology in educational settings has not been without problems. It depends on many factors such as institutional funding, syllabus design, and access to electronic devices and software (Gilakjani & Sabouri, 2014). One of the most significant factors is the teachers' attitude towards technology as it influences their decisions on the selection and application of new technologies (Bindu, 2017; Kia Heirati & Ahmadi Alashti, 2015;). Huang and Liaw (2005) state that regardless of the learning possibilities technology offers, its effective implementation depends upon users' positive attitude toward it. In this sense, teachers are the leaders or gatekeepers who decide the use or role of technologies in the classroom. They are responsible for encouraging the adoption and use of technological innovations, which makes it essential to understand in-depth their attitudes toward the use of online resources to teach pronunciation (Chapelle, 2003).

Literature Review

Previous studies

The research literature shows evidence that a combination of positive attitudes, adequate electronic devices, and online resources enhances the teaching and learning of pronunciation; the following studies are cases in point.

Bellés-Calabera and Bellés-Fortuño (2017) explored EFL university students' use of an online tool called *Voki* (<https://www.voki.com>) to enhance their pronunciation. The study also examined if students had positive attitudes toward the use of information and communication technology (ICT) specifically, the use of *Voki*. They recorded themselves and practiced the pronunciation of diphthongs, minimal pairs, connected speech,

and listening skills. Findings revealed that using *Voki* resulted in a satisfactory experience for students who had a positive attitude towards this tool. Besides, their recordings showed a decrease in pronunciation errors.

In another study, Calvo (2017) analyzed English for Specific Purposes (ESP) students' opinions on the use of technology to improve pronunciation. Participating students from a university in Spain responded to three questionnaires after having tried out mobile apps, websites, tutorials, social networks, and blogs outside the classroom. The study found that these ESP students considered these resources are useful, engaging, and easy to use. They said they would prefer to use tools like these to practice pronunciation instead of the activities included in traditional textbooks and showed positive attitudes toward using technological tools for this purpose. Calvo concluded that a possible way to teach pronunciation in an integrated fashion is using ICT inside the classroom and outside it. As well, she suggested combining textbook activities and technological tools to add variety to the class and motivate students (Calvo, 2017).

Khoshsima et al. (2018) obtained similar results in their research on teachers' attitudes toward using the instant messaging software *Telegram* (<https://www.telegram.org>) to teach EFL. Participants were ten Iranian tutors in charge of designing and teaching the course. Findings revealed that tutors' attitudes toward online teaching using *Telegram* were positive. They reported feeling happy for having been able to interact with other tutors from different parts of the world and described *Telegram* as a golden opportunity for interaction and collaboration between tutors in online courses. Among the disadvantages of *Telegram* are that students get distracted with other messages; it is not possible to send videos to visual learners; internet connection problems and the different time zones make it difficult to have online discussions. Regarding the benefits, *Telegram* stimulates students' motivation and interests, and teaching naturally through conversations was considered crucial for learners who were more interested in practicing audio and pronunciation.

In a previous study about the *Telegram* application, Xodabande (2017) examined the possibility of teaching the correct pronunciation of some commonly mispronounced English words by foreign language learners. The study included thirty Iranian EFL students divided into an experimental and a control group who received different instruction over four weeks. The results demonstrated that participants' pronunciation in the experimental group improved significantly compared to the control group. A reason for this improvement might be the availability of *Telegram* for learners at any time and place.

In another study, Alipanahi (2014) used technology-based instruction to facilitate the learning of stress patterns. Participants were fifty EFL students at an Iranian university. The investigation centered on both strong stressed and weak unstressed vowels. The experimental group used the CD-ROM tool for pronunciation input and dialogues, and the control group used the traditionally learned pronunciation activities. Results showed that participants who used computer-assisted pronunciation software obtained better outcomes than those who received traditional pronunciation instruction. Also, the results suggest an increase in their feelings of affection towards using technology to enhance their pronunciation.

Liu and Hung (2016) explored the efficiency of computer-assisted pronunciation instruction to enhance English pronunciation. Participants were 51 university students from Taiwan. None of them were in the major of English Language Teaching nor had studied or lived abroad when the study took place. Students had access to model speeches and corresponding pitch outlines of marked sentences to practice pronunciation of target sentences with computer-assisted pronunciation training software. The researchers monitored pronunciation quality using the online software called *MyET* (i.e., *My English Tutor*, <https://www.myet.com>). The outcomes showed a significant improvement in participants' pronunciation, as they compared their pitch outlines of the recordings before and after training.

Finally, Elimat and AbuSeileek (2014) investigated the use of automatic speech recognition (ASR) by third-grade students. The researchers created a pronunciation test to assess students' performance before and after using the software. Findings revealed that students enhanced their pronunciation significantly with the use of ASR working individually.

Teachers' attitudes toward the use of technology

According to Cantero (2003), oral comprehension and fluency are the most important goals of pronunciation, i.e., production and perception. However, in language learning through technology, it is especially important to know the teachers' attitudes toward the use of computer software to teach pronunciation due to the importance of their role in education (Gilakjani et al., 2019). Fishbein and Ajzen (1975), define attitude as

"... a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object" (p. 6). In the context of the present study, attitude is understood as the EFL teachers' positive or negative feelings toward the use of technology to enhance students' pronunciation.

Teachers' positive attitudes toward technology can be a strong motivator for students to use it. Currently, there are many online resources as applications and websites that increase students' engagement and participation and support a variety of learning styles (Kirsch et al., 2016; Peterson, 2017). However, teachers' use of a new tool or system can be influenced by their attitude towards it (Davis 1985; Park & Son, 2009). Hockly (2016) points out that, at the individual level, the EFL teachers and students' attitudes toward the use of new technologies may significantly affect other elements related to their use, which represents an important challenge to consider in language learning with technology. Similarly, Fageeh (2015) says that it is essential to investigate in-depth EFL teachers and students' attitudes toward technology since the challenges they may encounter when using a new technological tool may affect them on a personal level. He suggests taking emotional aspects into account to understand the learning context and improve the teaching and learning processes. Gilakjani et al. (2019) found that to promote positive attitudes toward the use of new technologies is essential to know what teachers think of them. He says that aspects like technology usefulness, teachers' self-confidence, training needs, and technology literacy, among others, need to be assessed to encourage teachers to use technology. Empirical research has discovered that the proper training in the use of online resources (e.g., *TED Talks*, sitcoms, TV news reports, and movies) fosters students' positive attitudes toward technology. This, in turn, increases their motivation in language, culture, and participation (Park & Jung, 2016).

On the other hand, negative attitudes toward new technologies can hinder their use. If institutions do not provide adequate facilities, technological equipment, and training; teachers can develop negative attitudes toward using new technology. Besides, there are limitations regarding what these technological tools can really do and how to use them (Yoshida, 2018). Teachers who feel unprepared to use technology may develop a lack of self-confidence and negative attitudes toward it (Abunowara, 2014). The results of the study carried out by Al-Seghayer (2016) on the use of computer-assisted reading (CAR), demonstrated that some factors such as teachers' negative attitude towards computers, insufficient training, and lack of resources and support delayed the use of CAR in language instruction. Similar assertions were made by Aydin (2013) on EFL teachers who had negative feelings toward using computers. Aydin's study found that teachers did not feel supported by the administration and technical department. Therefore, they never or rarely ever used online resources to teach English.

To sum up, these studies demonstrate that teachers' attitudes toward new technologies have positive or negative effects on their teaching; as well as on their students' attitudes toward adopting and using new technologies in the future (Boucheffa & Baghoussi, 2017).

The role of the teacher and the use of technology

The use of technology in education has proven to offer many advantages in the students' learning process since it increases their motivation, engagement, and collaboration (Eaton, 2010). Equally, the integration of technology in the classroom helps students develop self-confidence and provides learning opportunities at all levels. As for teachers, the use of technology has brought not only advantages but a new identity as co-users of technology (Costley, 2014).

The following categorization demonstrates that the use of technology has contributed to the transformation of the traditional role of the teacher from an information giver to a facilitator of learning in different ways (Ryba & Anderson, as cited in Gilakjani & Sabouri, 2014):

As a planner, the teacher makes certain that computers are truly included into the program, organizes the learning environment and urges students to work together. As a manager, the teacher makes certain that students have similar access to computer technology and they use suitable programs based on the students' ability and particular needs. As a facilitator, the teacher helps students to construct their own knowledge, helps them set their aims for learning and encourages them to examine carefully what they learn. As a guide, the teacher urges students for new learning and persuades students to take part in activities that raise their higher order thinking skills As a participant, the teacher cooperates with the students to do cognitive learning activities. These categories of teachers' roles imply that integrating computer technology into the classroom changes the teacher's traditional role from a giver of information to a facilitator of information (pp. 140)

According to Gilakjani and Sabouri (2017), the new role of teachers as technology users requires them to be instructed in the correct use of computers to teach pronunciation. To achieve this purpose, teachers

should take training courses to get familiar with computer devices, software, and applications to apply them successfully. Their voluntary participation in technology training will contribute to build their self-confidence, help them understand their new role in the learning process, and to teach students to use technology on their own. In the whole process, they say, teachers should be provided with enough computers, time, and technical support to optimize the quality of their teaching and enhance students' learning of pronunciation (Gilakjani & Sabouri, 2017). Nevertheless, in this regard, Derwing and Munro (2015) recommend caution. They underline the importance of the teacher's role over technology by saying that technology is only a tool and cannot replace teachers, nor is it better than or equally capable.

Derived from the above rationale, the purpose of this study is to explore EFL teachers' attitudes toward the use of technology to teach pronunciation at a Mexican university where its use is obligatory. Besides, the study seeks to establish the advantages and disadvantages of using new technologies to teach pronunciation based on teachers' opinions of the ones they use the most.

Research Questions

The study aims to respond to the following research questions:

1. What are the EFL teachers' attitudes toward using technology to teach pronunciation?
2. Which online resources are commonly used by EFL teachers to teach pronunciation, and what is their opinion about their benefits and limitations?

Method

Research approach

The present study adopted a qualitative approach under a constructivist paradigm. Qualitative research explores the meaning participants give to a problem under study. Social constructivists declare that people try to make sense of the world they live in according to their experiences. In this regard, qualitative researchers rely on and interpret the subjective meanings that participants give to a social or human issue (Creswell, 2014). The study explored EFL teachers' attitudes toward using technology to teach pronunciation in a Mexican tertiary context. To achieve this, the researchers used a case study method to collect and analyze information to answer the research questions.

Research context

The study took place at the University of Sun City (pseudonym), a public university located in northern Mexico. Although it has five campuses, only teachers from the Bell Hill Campus (pseudonym) were invited to participate in the study. The above occurred because this is the largest campus in the university and has more EFL teachers. Besides, since the researchers work on this campus, they thought it would be easier to contact teachers for interviews at this location.

The university uses the *Smrt English* course (<https://www.smrtenglish.com>) to teach English as a foreign language in all the majors. For this reason, all the classrooms have smart TVs, desktop computers, and internet connection. *Smrt* provides a form of blended learning with the teacher in the classroom and online content. It is like an electronic book, but instead of opening a textbook, students turn on a computer to enter its website. Students can access *Smrt* inside the classroom and outside it. *Smrt* offers courses from English I to English V. The courses have twelve units. Each unit has the following sections: a) the lesson objectives; b) grammar; c) listening; d) reading; e) the use of English; f) writing; g) speaking, and h) vocabulary. The sections are linked to exercises that teachers and students can share through *Google Drive*.

In addition, the *Resources* section of *Smrt* provides access to several online learning tools that teachers can use to teach pronunciation. Some of these tools are described below:

1. *TED Talks* (<https://www.ted.com/talks>) offer a series of online conferences. Students may improve their pronunciation as they can see speakers using their voices, rhythm, intonation, and body language to convey ideas.
2. Online dictionaries include audio pronunciation, interactive phonemic chart, videos, quizzes, images, and forums among others (*WordReference.com*, *Macmillan Dictionary*, *Visual Dictionary Online* and *Thesaurus*).⁵

⁵ <https://www.macmillandictionary.com>, <https://www.wordreference.com>, <http://visualdictionaryonline.com>, <https://www.thesaurus.com>

3. ELLLO (<https://ello.org/english/grammar/index.htm>) provides teachers and students with free listening lessons (audio conversations) for beginner and intermediate-advanced students.
4. World News (<https://edition.cnn.com>) gathers the online version of popular newspapers such as *The Guardian*, *The New York Times*, and *BBC* among others. Their news videos offer students the opportunity to listen to a variety of accents of the English language.
5. English Central (<https://es.englishcentral.com/browse/videos>) combines videos in English from the web with a system of vocabulary learning. English learners can record words or segments of videos and receive automated feedback on their pronunciation.
6. Duolingo (<https://www.duolingo.com>) offers different activities to learn English. Students can listen to the correct pronunciation of words the times they need and get familiar with their meaning in different contexts.
7. Spelling City (<https://www.spellingcity.com>) is a game-based website where students can learn English and gain phonological awareness since all activities combine sound and image.

Participants

The researchers recruited ten EFL teachers from the School of Languages that voluntarily took part in the study. This purposeful and convenient sample included one male and nine female teachers who could understand the purpose of the investigation and were accessible to the researchers (Creswell, 2014). The selection criteria were the following: Teachers should have an undergraduate degree in English Language Teaching and at least three years of experience teaching using the *Smrt* English course to guarantee they had knowledge of pronunciation teaching and were familiar with all the features of *Smrt*. Besides, to facilitate interview data presentation, the researchers used pseudonyms to name participants such as Teacher 1, Teacher 2, ... Teacher 10.

Initially, the researchers intended to carry out face-to-face interviews. However, due to the coronavirus (COVID 19) outbreak in December 2019, they had to conduct telephone interviews because all the teachers were required to remain at home.

Instruments

The instrument used to collect information was a semi-structured interview, which consisted of six open-ended questions. The researchers selected this instrument because it allowed following up ideas, examining the responses in-depth, and investigating participants' motives and feelings (Bell, 2008). The researchers created a six-question questionnaire to establish the EFL teachers' attitudes toward using technology to teach pronunciation, online resources mostly used, and their opinions regarding the benefits and limitations of using technology. Questions 1 to 3 provided information to respond to research question #1, and questions 4 to 6, collected data to respond to research question #2. Then, the interview questionnaire was sent to two EFL teachers to review its clarity. The teacher-reviewers recommended modifying question #3: *Do you feel happy with the technology equipment and online resources you have at hand to teach pronunciation?* They said that the question was too broad, as it could include any educational institution where teachers worked. Therefore, the phrase: "at the university?" was added to the question (see Appendix 1).

Data collection procedures

From the 1st to the 15th of April 2020, ten semi-structured interviews took place. They were conducted in English and lasted from 18 to 25 minutes. The process was the following: The researchers contacted EFL teachers by telephone to invite them to participate voluntarily in a telephone interview at a time that was convenient for them. Additionally, participants received a consent form via e-mail. At the beginning of the conversation, the researchers explained the purpose of the study and made it clear that all information provided would be confidential and used just for the aims of the study. They recorded the interviews using the *Automatic Call Recorder* application with the prior consent of participants. After the interviews finished, the researchers transcribed them word by word obtaining twenty-five pages of written material.

Data analysis

The procedures for data analysis involved a) the transcription of the data; b) reading and coding the information systematically; c) clustering together categories related to each other, and d) reducing them into general themes (Creswell, 2014). The researchers used inductive analysis to identify themes and patterns in teachers' responses to their attitudes toward using technology to teach pronunciation. They

transcribed the interviews verbatim, which allowed them to get to know the data thoroughly. The researchers used the color-coding technique to differentiate the types of statements. They started with open coding to extract 'meaning units' or categories from words or phrases uttered by the interviewees (Neuman, 2014). Then, they used axial coding to look for categories that relate and cluster them together as categories and subcategories (Neuman, 2014). Finally, the researchers condensed the resulting categories into general themes.

For example, the categories a) Technology facilitates listening to different accents of English language and b) Technology meets students' personalities and pace, were condensed into the general theme: Technology satisfies different learning styles by allowing access to authentic materials. A total of 22 categories and 95 subcategories were clustered together and merged, reducing their number to ten categories and 22 subcategories. Finally, categories were condensed into four general themes, namely a) The teaching of pronunciation is important for students to achieve intelligibility and comprehensibility; b) Teachers are aware of the benefits of using technology to teach pronunciation; c) Online resources and pronunciation techniques mostly used by EFL teachers, and d) Challenging experiences faced by teachers when using technology to teach pronunciation. These emerging themes were explained separately in the findings section, followed by relevant comments of the interviewees.

Findings

This section presents information relative to the four general themes that emerged from the data analysis. These themes and the comments of participant EFL teachers set the basis for a guided discussion to respond to the research questions (see Table 1).

Relevant general themes:

- 1) The teaching of pronunciation is important for students to achieve intelligibility and comprehensibility.
 - 2) Teachers are aware of the benefits of using technology to teach pronunciation.
 - 3) Online resources and pronunciation techniques mostly used by EFL teachers.
 - 4) Challenging experiences faced by teachers when using technology to teach pronunciation.
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Table 1: EFL teachers' attitudes toward the use of technology to teach pronunciation

The teaching of pronunciation is important for students to achieve intelligibility and comprehensibility

Findings revealed that EFL teachers have a positive attitude towards teaching pronunciation, either using online resources or traditional methods. Most teachers said that teaching pronunciation is essential to facilitate language learning, especially English, a language that sounds in a way and writes in another way. Moreover, teachers' comments made evident that, for them, intelligibility and comprehensibility are paramount. They stated that it was more important that students were understood when speaking and comprehend what others say than achieving a native-like pronunciation. For example, Teacher 5 said:

I try to teach the basics of pronunciation so they can have a fluent conversation, but I do not focus on getting the right accent. If the message is conveyed and they are understood, I feel proud of them. I don't expect perfect pronunciation. (T5)

Teachers said that teaching pronunciation is essential for students to hold conversations with native speakers and understand different accents. Some teachers pointed out that, at the word level, the teaching of pronunciation is fundamental because students commonly confuse the pronunciation of words such as *since* [/sɪns/] and *science* [/saɪ.əns/]. Likewise, teachers' comments agreed that dealing with shy students make pronunciation teaching even more challenging; since shy students tend to remain quiet to avoid making pronunciation mistakes. About this, Teacher 8 said:

Our students, perhaps it is a cultural thing, feel embarrassed when repeating words or sentences to practice pronunciation. Other students, well, if they don't pronounce like native speakers, they don't want to speak at all. I think that the teaching of pronunciation is paramount. (T8)

On the other hand, despite teachers' positive opinions about the teaching of pronunciation, the data analysis found two teachers who believe that pronunciation at the early levels is not very important. They affirmed that pronunciation teaching is crucial in levels four and five (i.e., the higher levels) and openly declared that they do not teach pronunciation in the first and second levels. Teacher 6 went further and said that many English teachers in Mexico do not focus on teaching pronunciation because of their lack of confidence in this language sub-skill. Teacher 6 said:

Many English teachers in Mexico, well, in my experience, we learned the language as a foreign language, not as a second language, and honestly speaking, we don't know the correct pronunciation of some words or sounds. (T6)

Teachers are aware of the benefits of using technology to teach pronunciation

Most teachers' comments demonstrated that they are aware of the possibilities offered by technology to improve pronunciation. They said that, nowadays, many online resources allow students to practice the suprasegmental features of the language such as stress, intonation, rhythm, and prominence, among others, to achieve intelligibility. Moreover, teachers affirmed that technology fosters autonomous learning. Hence, in their free time, students can practice saying the words and sounds aloud without feeling pressured or judged by teachers and peers around. Teacher 10 said:

Technology allows students to get familiar with different accents of English and cultures. For example, if students are visual or auditory, there are applications they can use to develop correct pronunciation. Students can work at their own pace, listen, and repeat as many times as they need without the presence of the teacher or classmates. (T10)

Teachers declared that online resources such as *Spelling City*, *TED Talks*, *Duolingo*, online dictionaries, the vocabulary section of *Smrt*, audio recordings, *YouTube* songs, movies, and sitcoms, among others, can meet students' learning styles and help them improve their pronunciation.

Conversely, the study found that some teachers delay teaching pronunciation in the first and second levels since they consider it unnecessary. Instead, they prefer to focus on other language skills and sub-skills for students to improve their English in general. Interestingly, one teacher said that teaching pronunciation is essential, but it is more effective without using technology. These findings suggest that there are still teachers who are not only neglecting teaching pronunciation but refusing to use technology for this purpose.

Online resources and pronunciation techniques mostly used by EFL teachers

Table 2 presents the online resources and pronunciation techniques most used by EFL teachers at the university. As can be seen, teachers apply pronunciation techniques according to the English level they are teaching. At the beginner level, different resources linked to *Smrt* such as *Duolingo*, *Spelling City*, online dictionaries, among others they take from the internet, are usually employed to teach articulation and word stress through repetition/imitation activities. Also, results revealed that some teachers use instant messaging software (e.g., *WhatsApp*) to listen to students' pronunciation and provide feedback.

Online resources	Pronunciation technique	Level
- Dictionaries - <i>Spelling City</i> - <i>Duolingo</i> - Vocabulary section of <i>Smrt</i>	- Listen and repeat: Students relate image, sound, spelling, and repetition of vocabulary words.	Beginner level
- <i>Voices of America</i>	Sound articulation and repetition.	Beginner level
- <i>WhatsApp</i>	Students record vocabulary words using their smartphones and send their voice notes to the teacher.	Beginner level
- Videos from the Cafe section of <i>Smrt</i> - <i>TED Talks</i>	- Asking and answering questions: Teachers correct students' pronunciation errors by correctly repeating the word or words they mispronounced when responding to questions related to the videos.	Intermediate and advanced levels
- <i>ELLLO</i>	- Repetition of dialogues: Students learn intonation and word stress through repetition and imitation.	Intermediate and advanced levels
- <i>YouTube</i> songs	To focus students' attention on vocabulary words, grammar points, and missing words.	Intermediate and advanced levels
- Movies - Sitcoms - <i>YouTube</i> videos	Students listen and read subtitles to fully understand the plot.	All levels
Resources linked to <i>Smrt</i> reported as never used		
- World News: <i>CNN</i> , <i>The New York Times</i> , <i>The Guardian</i> . - <i>English Central</i> .		

Table 2: Online resources and pronunciation techniques mostly used by EFL teachers

At intermediate and advanced levels, the data showed that teachers use online resources linked to *Smrt* as videos of the Cafe Section, *TED Talks*, and *ELLLO*. Pronunciation techniques involve more challenging activities at these levels. For instance, to watch a video and respond orally to comprehension questions.

Also, the resources not linked to *Smrt* as songs and videos from *YouTube*, movies, and sitcoms are used at all levels to improve pronunciation and listening comprehension. Regarding error correction, teachers reported it occurs either immediately or after the student finishes speaking. Pronunciation techniques are mainly applied for students to practice intonation, stress, sound discrimination, and develop listening, reading, and grammar. However, repetition and imitation techniques stood out as the most employed by teachers at all levels.

On the other hand, findings revealed that teachers never use some online resources linked to *Smrt*, namely *CNN*, *The New York Times*, *The Guardian*, and *English Central*. Nevertheless, the teachers interviewed did not provide information about why they do not use these resources.

Challenging experiences faced by EFL teachers when using technology to teach pronunciation

The study discovered different factors that challenge the teaching of pronunciation with technology. These factors or limitations are described as follows:

a) Limitations related to technology

Teachers said that one of the limitations of teaching pronunciation with technology is that some students do not have access to the internet and computing devices at home. Hence, they cannot practice pronunciation or do any online activities off-campus. They also reported that the internet failures during class prevent students from developing all the language skills and sub-skills through technology.

Most teachers agreed that technology can cause distractions. For example, teacher four said, *'When I post a link, students move to a different one, and then to another ... they start to navigate!'* Besides, they commented that the dialogues in some software are too fast (e.g., *ELLLO*) or the audio volume is low (e.g., *Smrt*), making it difficult for students to understand.

b) Limitations related to the *Smrt* English course

Teachers critiqued the *Smrt* English course for not having a section to teach pronunciation. They declared that *Smrt* mainly focuses on activities where students answer in writing, such as fill-in-the-blanks or respond-to-questions. If they want to teach pronunciation using technology, they must search for specific software on the internet and is very time-consuming.

c) Limitations related to teachers

Chapelle (2003) states that language teachers are responsible for choosing didactic materials and online resources for the language classroom to facilitate students' learning. However, the study discovered that some teachers block the teaching of pronunciation with technology by themselves. This topic emerged from the opinions given by some teachers. Teacher 9 affirmed that teaching pronunciation at the lower levels is not important. She said:

I'm teaching level two and, because of the level that I'm teaching, pronunciation is not very important. However, when I'm teaching in higher levels, level six for example, I think pronunciation is very important. At this level, pronunciation is not something that I focus on. (T9)

Most teachers said that they do not prepare activities specifically to teach pronunciation because they do not have time to do it. They said that students would acquire the correct pronunciation little by little. Furthermore, teachers complained that using online resources (e.g., internet applications) to teach pronunciation or other language skills implies explaining their use to students beforehand, which is difficult and time-consuming since they are not experts in using the software. However, if they want their students to use an application, they must act as experts. Teacher 6 went further and said:

Teaching pronunciation has been one of the hardest skills for me to teach. I can say it is the most difficult one. Honestly, I don't think technology is the best way to teach pronunciation... students need to see how the teacher pronounces the words. As Mexican teachers who have learned English as a foreign language, we lack an appropriate pronunciation of many words. (T6)

The commentaries above show that besides the limitations of technology and the *Smrt* English course, a challenge to overcome is changing EFL teachers' perceptions toward new technologies. The results demonstrated that three out of ten teachers regard it as unnecessary and ineffective to use technology to teach pronunciation which the researchers of this study consider is a very high rate.

Discussion and Conclusion

This section presents the interpretation of the findings considering the literature review and answers the research questions. Question number one asks about EFL teachers' attitudes toward using technology to teach pronunciation. The study established that, in general, EFL teachers have positive attitudes toward using technology to teach pronunciation; which can be very useful since their attitude is essential to select and apply technological innovations in the classroom and encourage students to use them (Bindu, 2017; Chapelle, 2003; Huang & Liaw, 2005; Kia Heirati & Ahmadi Alashti, 2015). Teachers consider production as important as perception (Cantero, 2003; Sadeghi et al., 2016) and combine new technologies and traditional methods to help students develop these language abilities. These findings agree with the results obtained in other studies, where EFL teachers showed positive attitudes toward online resources they applied to improve students' pronunciation (e.g., Alipanahi, 2014; Bellés-Calabera & Bellés-Fortuño 2017; Calvo Benzies, 2017; Khoshsima et al., 2018; Park & Jung, 2016).

In line with Pennington (1996) and Harmer (2007), teachers emphasize that intelligibility and comprehensibility are essential for students to communicate with English-native speakers and be understood. There is a common belief among teachers that one of the main advantages technology offers is access to authentic materials for students to get familiar with different English accents. This belief matches Hişmanoğlu's (2010) declarations as most teachers believe that technology can enhance students' learning of segmental and suprasegmental features of the target language. The wide variety of resources available on the internet to this end can meet their learning styles. For example, a shy-auditory student who tends to remain quiet in front of his or her peers can practice individual sounds, intonation, rhythm, stress, and connected speech, among other aspects of pronunciation, when using interactive software. Therefore, teachers' awareness of the affordances of technology may encourage students to become independent learners who can develop and improve their pronunciation autonomously by studying at their own pace and time within a stress-free environment.

On the other hand, the study determined that some teachers are neglecting the teaching of pronunciation for several reasons (Harmer, 2007; Pennington, 1996). Firstly, some teachers think that teaching pronunciation to beginner students is not as important as it is at higher levels. This idea is opposed to Pennington's (1996) suggestions about teachers should teach pronunciation from the early stages instead of centering around grammar rules and vocabulary. Secondly, some others do not focus on pronunciation because they do not know the correct pronunciation of certain words or sounds. As can be seen, Derwing and Munro's (2015) assertion regarding the uncertainty of whether non-native speakers should teach pronunciation prevails among teachers. Thirdly, some teachers take the learning of pronunciation for granted since it is easy to expect that students acquire pronunciation while learning other skills (Harmer, 2007). These results contradict the Communicative Language Teaching (CLT) approach that aims to foster oral abilities (Richards & Rodgers, 2001) since the principles of CLT are the basis of the online course *Smrt* used at the university to teach English. Furthermore, the findings revealed that the historical exclusion of pronunciation from English language teaching (Isaacs, 2009) continues to some extent in the current times.

An emerging theme in this study is the predominant underlying belief among teachers that teaching pronunciation without using technology is more effective. Although only one teacher made this asseveration, the study identified that many teachers are not using technology to teach pronunciation as the great majority reported using the repetition-drill technique during face-to-face classes. This finding coincides with Davis (1985), who says that individuals' positive attitudes toward technology do not guarantee that they will use it. Moreover, the study unveiled the existence of personal and technological factors that may prevent the use of technology to teach pronunciation, and perhaps, affect teachers' positive attitudes toward its use in general.

As for research question number 2: *Which online resources are mostly used by EFL teachers to teach pronunciation, and what is their opinion about their benefits and limitations?* The results showed that the use of online resources ranges from those focused on the teaching of the correct pronunciation at the word level, such as dictionaries, Spelling City, and the vocabulary section of *Smrt*, among others, to more sophisticated resources that demand more listening and speaking skills on students, namely YouTube videos, *TED Talks*, movies, and sitcoms among others. Likewise, pronunciation techniques vary according to the level, from repetition, imitation, and sound articulation in beginner levels to more complex activities that involve responding orally to questions made by the teacher after watching a movie or a video in the intermediate and advanced levels. Conversely, there are online resources that teachers never use as CNN, *The New York Times*, *The Guardian*, and *English Central*. Even though the teachers did not provide

information about why they do not use these resources, the researchers infer that it can be because they demand higher linguistic competences from both teachers and students.

An unexpected finding is that teachers use the repetition-drill technique in all the levels, meaning that they cumulatively apply pronunciation techniques, which suggests that they teach pronunciation eclectically. In this respect, Brown (2002) says that eclectic teachers find the right solution by choosing what works best in the classroom according to the context. As results demonstrated, teachers continue to apply the same pronunciation techniques from beginner to advanced levels.

Teachers' declarations demonstrated their awareness of the benefits offered by technology to teach pronunciation. Some comments that stood out during the interviews are a) the opportunity to use of authentic materials; b) students can practice during self-study hours as much as they need; c) the potential of technology to meet different learning styles, and d) the use of new technologies promotes autonomous learning, among others. On the other hand, some factors or limitations make English teaching challenging for teachers as internet failures, students' lack of internet access, lack of computing devices at home, and distractions caused by navigating the internet during class. These factors, which hinder language learning and may affect teachers and students' attitudes toward the use of technology, mirror those found in other empirical studies (e. g., Gilakjani & Sabouri, 2014; Park & Son, 2009). Furthermore, the study unveiled factors that specifically affect pronunciation teaching. There are limitations related to the software itself like too-fast conversations and audios with volume extremely low.

In addition, the fact that *Smrt* does not have a section dedicated to the teaching of pronunciation serves as a wake-up call for its designers to consider including one in its units. Until then, it will be possible to say that English is being taught in an integrated way in the university (Oxford, 2001). Besides, the comments made by some teachers about their lack of experience in using software to teach pronunciation; point to a need for a training program in the use of online resources to teach this language sub-skill.

To conclude, in general, although teaching EFL with technology is mandatory for teachers, they have positive attitudes toward using it to teach pronunciation. This attitude is evident as they combine new technologies and traditional methods for students to develop intelligibility and comprehensibility. Teachers are aware of the benefits technology offers to students as they facilitate teaching segmental and suprasegmental features and encourage their use. Also, they are conscious that learning technologies allow students to become independent learners capable of making decisions about their own pronunciation learning in their self-study time.

Conversely, some teachers neglect to teach pronunciation because they believe that it is not crucial in the lower levels. Others take it for granted, and some others simply do not know the correct pronunciation of certain words or sounds because they are not English native speakers. Moreover, the lack of experience in using software to teach pronunciation and time constraints point to the need for a teachers' professional development program that aids them to develop technological skills and awakens their interest in this area of language. The factors or limitations discovered that make English teaching challenging such as internet failures, lack of internet access, lack of computing devices at home, and distractions caused by navigating the internet during class, must be solved together by the university, teachers, and students since the difficulties they face affect them mutually.

The results demonstrated that teachers teach pronunciation eclectically. However, the study established that repetition and imitation are the techniques mainly used in the classroom, suggesting that using technology to teach pronunciation is still much needed. The researchers recommend the creation of a section specifically designed to teach pronunciation in the course. A limitation of this study is that is based on teachers' perceptions toward technology to teach pronunciation. Therefore, further investigation is necessary to measure students' outcomes after using specific technologies to develop and improve this language sub-skill. Another limitation is that this is a case study, and its findings cannot be generalized. However, its results can be of great help for other universities where the use of technology in language learning is obligatory. Besides, the study allows having a better understanding of EFL teachers' attitudes toward technology to teach pronunciation in a tertiary context, which online resources and pronunciation techniques they commonly use, and in what levels.

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Appendix 1

Interview guide

1. As an EFL teacher how important it is for you to teach pronunciation?
2. What is your opinion about using technology to teach pronunciation?
3. Do you feel happy with the technology equipment and online resources you have at hand to teach pronunciation at the university?
4. Do you use any of the online resources provided by Smrt such as the Vocabulary section, online dictionaries, *World News*, *TED Talks*, *World News*, *ELLLO*, *Café*, *Duolingo*, and *Spelling City* to teach pronunciation?
5. Do you use any other online resource from the internet to teach pronunciation?
6. Could you describe your experience of using technology to teach pronunciation in terms of their benefits and limitations?

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