USING *NEARPOD* FOR PRONUNCIATION TRAINING IN ELEMENTARY SPANISH COURSES

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Introduction

Teaching pronunciation using computer and mobile-assisted technology has steadily increased over the past two decades (Olson 49; Kochem 21138; Tseng et al. 1245; Lan 1560). Furthering our understanding of the impact that teaching pronunciation using technology has on students is vital to continue developing tools to support student-oriented pronunciation goals, especially since prior research elucidates the role that pronunciation has in maintaining the flow of interactions in communication, increasing students' confidence, and even in the process of bi-/multilingual identity-construction (Jenkins 110; Chapelle 97; Foote and Trofimovich 78; Almusharraf 129). While several studies have investigated the efficacy of pronunciation training remotely or via distance (Engwall et al. 506; Rogerson-Revell 189), little is known about how students feel about using these tools to perform pronunciation drills. Since pronunciation instruction is slowly becoming a staple in second language curricula (Cihat 98), research evaluating students' attitudes and reactions to pronunciation activities has the potential to provide valuable insights into students' willingness to participate in pronunciation training and the overall efficacy of pronunciation interventions in the classroom which harness technological advances for teaching.

Thus, the current qualitative study examines the first impressions of 18 second-language learners of Spanish to an online pronunciation activity completed during class. The activity was created using *Nearpod*, an interactive classroom platform for teachers to facilitate teaching both in and out of the classroom. Furthermore, *Nearpod* has built-in features that permit the implementation of an array of multimedia tools (e.g., visual, verbal, recording software), which have been shown to enhance instruction and support student learning by taking into account their preferred method of learning (Jones 273). Having this type of flexibility for students has proven to be beneficial in other studies that use CAPT (computer-assisted pronunciation training) for teaching pronunciation (O'Brien 375).

Literature Review

Pronunciation Research

Most research surrounding pronunciation instruction to date has centered on whether or not training has any significant effect on L2 pronunciation and, if so, to what extent. A large number of studies on pronunciation have examined the promising results of both explicit instruction and output practice (Bjarkman 77; Elliott 530; Zapini 2019; Derwing, 217; Archibald 189; Kissling 724; Lord 560; Thomson 164; Lee et al. 350; Saito et al. 655). While such findings have been subject to some variation based on how pronunciation is evaluated (e.g., global versus specific constructs, subjective versus objective measures, controlled versus sponta-

neous knowledge), there is general consensus on the fact that explicit classroom instruction on L2 pronunciation can lead to improvements in this area and that there is great value in promoting activities which encourage students to engage in pronunciation and output practice actively.

Moreover, choosing what aspects of pronunciation to teach has also prompted much debate. There is a plethora of research investigating the relative importance of segmental (e.g., isolated sounds) and suprasegmental (e.g., stress and intonation) properties in L2 pronunciation (Anderson-Hsieh et al. 530; Derwing et al. 400). There is now a general consensus that both are important and should be implemented in the classroom in order to improve pronunciation (Derwing et al. 385; Tseng et al. 1226). Several studies have attempted to ascertain how various aspects of speech can impact listeners' ability to process certain utterances, which in turn may alter or hinder communication. As a result, researchers have turned their attention to other characterizations of speech, such as speaking rate, lexical stress, fluency, intonation, and prosody (Crowther et al. 163; Isaacs & Trofimovich 262; Kang et al. 520; Munro 430; Field 400; Rossiter 395). Additionally, various models and strategies have been suggested to comprehend better how to teach pronunciation to language learners effectively.

Theoretical Models, Teaching Strategies, and Principals for Pronunciation Training

Over the past three decades, researchers have investigated how explicit language teaching approaches could be applied to pronunciation research in SLA. Much of the related scholarship has been conducted using models such as the Perceptual Assimilation Model (Best 175), the Native Language Magnet Model (Kuhl 262), the Speech Learning Model (Flege 235), the Ontogeny-Phylogeny Model (Major 92), and more recently The Cognitive Theory of Multimedia Learning (CTML), which states that humans build new knowledge by first choosing relevant verbal and visual cues, organizing them in working memory, and then integrating them with already-known information (Mayer 200). All of these models elucidate various aspects of the nature of pronunciation training and the mechanisms underlying phonological acquisition in the L2. Furthermore, these models often account for fundamental SLA work regarding language processing and learning by reporting on the learners' need for explicit 'nudges' throughout their language learning experience in order to notice the gaps in their L2 knowledge, preventing them from employing strategies that only work in their L1 (Ellis 19; Blake 115). However, these models can present limitations and have also been criticized for having a narrow scope regarding L2 pronunciation development (Fraser 360). Some of these models have been the foundation for developing pedagogical strategies to teach pronunciation. For instance, Bill VanPatten's psycholinguistic theory of *Input Processing* discusses the role of attention in second language acquisition (60). He argues that second language learners cannot attend to both forms and meaning simultaneously and that L2 learners' primary objective during the early years of L2 development is to decode meaning from the input. Learners can only notice and process overt grammatical elements that carry semantic weight initially. Once L2 learners are able to integrate a higher number of syntactic elements, have a better sense of meaning to form mapping, and can process words with a certain level of automaticity, they are finally capable of paying attention to other fine-grain differences between their L1 and L2 such as pronunciation differences (VanPatten 60). The author argues that raising awareness exercises is needed to stimulate L2 learners' attention to decrease the opacity of form-meaning connections. Years later, VanPatten developed a pedagogical strategy known as Processing Instruction (755) in which the goal "is to alter processing strategies that learners take to the task of comprehension and to make better form-meaning connections than they would if left to their own devices" (60). This pedagogical approach has proven to be a highly effective teaching strategy for the development of grammatical knowledge (Cadierno 180; Cheng 156; Farley 80; VanPatten and Cadierno 230; VanPatten and Oikkenon 495; Sanz and VanPatten 270) and most recently has been adapted to teaching pronunciation in the classrooms (Gonzáles-Bueno 65; Counselman 46).

Nowadays, current research on pronunciation teaching has shifted away from models that are mainly concerned with explaining how a learner's L1 influences speech acquisition in an L2 to more holis-

tic approaches. Traditional models of pronunciation theory have often failed to address their overall utility and potential pedagogical implications. Likewise, these models have tended to uphold unrealistic standards for L2 learners and instructors alike. For instance, teachers with accented speech are sometimes perceived as less qualified or intelligent, even though language variation is one of the most notable characteristics of human language (Butler 731). Such restrictions have propelled new ways of thinking about pronunciation research in recent years.

Consequently, more contemporary frameworks have bloomed to address these gaps in the literature. For example, frameworks inspired by cognitive grammar have focused on providing insight into how L2 learners conceptualize pronunciation instead of only discussing "issues" of rule/sound transfer from their L1s (Langacker 7). Notably, this framework can be adapted to pedagogy, as it provides insight for developing innovative ways of targeting and thinking about acquiring phonological systems. The Willingness to Communicate Framework (WTC) (MacIntyre et al. 545) and MacIntyre (570)also reflect this notion. WTC offers a comprehensive explanation for why individuals choose to engage in communicative acts in the first place, as well as characterizations of various communicative contexts with other speakers. Even though it was not explicitly intended for pronunciation training, it has been used to further our understanding of language use and motivation rather than reporting on issues of L1 transfer (Thomsom, 2014). Further, John Levis' (370) definition of the *Intelligibility Principle*, in opposition to the *Nativeness Principle*, also captures the new direction pronunciation instruction has taken. Levis argues that pronunciation research and instruction should primarily be concerned with helping learners attain their own pronunciation goals rather than teaching them to sound "native-like" in the target language. (Levis 277; Thomsom 327). Adopting this framework for instruction and research purposes is crucial because it embraces the heterogeneity in L2 varieties. It allows for new ways of thinking about communication and the role of 'being understood' and 'feeling comfortable' with one's own bi-/multilingualism in real-life interactions. Additionally, adopting such a framework propels teachers to assess pronunciation regarding general goals and intelligibility and discourages the reproduction of dangerous linguistics ideologies in the language classroom where monolingualism and the idealized monolingual speaker are seen as the "norm" (Hall and Cook 307; Ortega 25). Additionally, future research should seek to problematize what it means to "teach" or "correct" pronunciation to beginner language learners and raise concerns about the ideological underpinnings of this practice, particularly when dominant standard and raciolinguistic ideologies remain prevalent and unquestioned in language classrooms and curricula (Quan 447). While this research did not directly address the ideological component of pronunciation training, I argue that pronunciation instruction and corrective techniques in language classrooms also require a critical approach. By adopting a critical lens, both instructors and students can engage in reflective practices, allowing them to challenge any implicit biases and dominant ideologies that perpetuate racial inequities and linguistic discrimination both in and out of the classroom.

Language Learning and the Use of Technology in the Classroom

Lastly, the increasing use of speech technology is particularly noticeable in the area of foreign language education, which has led to the development of new disciplines, such as Computer-assisted language learning (CALL). CALL's contribution to linguistic research and its advantages have revolutionized the world of language teaching. Within this domain, subgenres have emerged in order to address pronunciation instruction. Areas of study known as Computer-assisted Pronunciation Training (CAPT) and Mobile-assisted Language Learning (MALL) offer a viable alternative to traditional ways of teaching pronunciation that is often too restrictive to incorporate pronunciation training (O'Brien 375; Tseng et al. 1245). These restrictions include constraints of classroom time, a lack of materials and tools to assess pronunciation practice, and a lack of teacher training (Derwin 390; Kochem 1140). The use of CAPT and MALL in and outside the classroom fulfills a number of pedagogical goals. It is reported that its appeal relies on the autonomy it provides students regarding their own learning (O'Brien 377).

Using technology to teach pronunciation has a cascade of positive effects. Among its strengths, CAPT and MALL allow students to work at their own pace, track their progress, and access several additional materials such as visualizations, recordings, and animations, and they provide students with customized feedback and eliminate stress related to the fact that the learner is being listened to or judged by their classmates (Neri et al. 442; Chun 8; Tanner 65; O' Brien, 380). In addition, there is now a plethora of evidence demonstrating that L2 pronunciation teaching and learning through the use of CALL and gamified pronunciation training results in higher pronunciation gains (Barcomb and Cardoso 140; Tseng et al. 1246). In particular, Nearpod falls under the umbrella of gamified tools for learning called multi-featured Student Response Systems (SRS) (Tornwall, Lu and Xied 104342). These technological tools combine the assessment features of popular software like Kahoot! and Quizlet with the collaborative and synchronous interaction of software like Padlet, Jamboard, and Google Workspace to create a cohesive virtual environment for learning purposes. A study by Tornwall, Lu, and Xied reveals that Student Response Systems (SRS) were once called "clickers" and were replaced by Bring-Your-Own-Device (BYOD) systems in various educational settings (104342). These tools have created new ways of learning, reviewing, and retaining information in classrooms. Furthermore, research on this topic has shown that SRS tools foster positive classroom dynamics and enhance student participation and engagement (Sheng et al. 25). For instance, a study done by McClean and Crowe demonstrated that *Nearpod* served as a viable tool to enhance interaction and collaboration in lectures delivered to pharmacy and bioscience students (5). Similar findings have been reported by studies done on the implementation of *Kahoot!* in which researchers concluded that these interactive tools can be fun and effective for reviewing course content and gauging student knowledge (Dell et al. 383). While SRSs show promise in improving learning gains, more empirical evidence is required to confirm their effects on student learning experiences and academic outcomes. To date, a significant emphasis has been placed on understanding SRS's effectiveness in various educational contexts. Nevertheless, its efficacy for language learning remains limited. In addition, little is known about how students feel about using these technological tools in the classroom, especially those aimed at practicing pronunciation.

The present qualitative study evaluates the responses of 18-second language learners of Spanish to an open-ended question about the utility and overall experience of completing an in-class pronunciation activity using *Nearpod*.

Methods and Procedures

Participants and materials

Eighteen (n=18) college students enrolled in an introductory Spanish course at the University of California, Davis, were asked to complete an in-class pronunciation task called *"A Pronunciar"* using an online interactive classroom tool called *Nearpod*. This activity was a one-time intervention that lasted 25-30 minutes for most students on average. The activity was carried out during class time, and the instructor was present in case students had questions or needed help troubleshooting the *Nearpod* application.

Participants and materials

During this part of the activity, students listened and paid close attention to prerecorded audios (made by their instructor) of words and phrases containing pre-selected target phonemes. The sounds selected for pronunciation training were the Spanish mid-vowel /o/ and low-vowel /a/ (e.g., *hombre* vs. *hambre*) (see Figure 1). The audios were paired with two other visual stimuli embedded in each *Nearpod* slide. The visual stimuli consisted of the written text of the target word and a picture, allowing students to map the labels more quickly to the words and gain semantic information. Additionally, the target phonemes were highlighted in red to make L2 learners pay close attention to them. Using an explicit approach to teaching pronunciation, this focused activity was designed to raise students' awareness about phonemic differences between minimal pairs in Spanish and think about sound transferring effects

from English to Spanish. Students were allowed and encouraged to listen to the target words/sounds as often as they liked.

After practicing independently, they were asked to record themselves producing the target sounds in longer phrases.

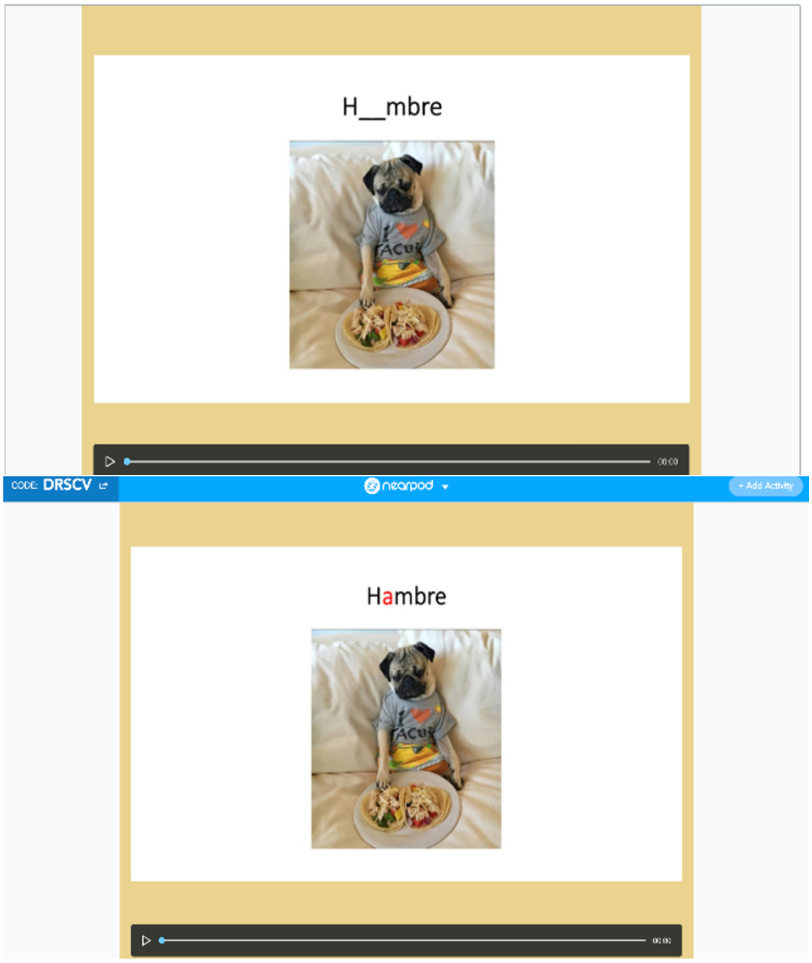

Fig. 1. Sample exercises for pronunciation drills

Self-evaluation phase

This section was created to allow students to reflect upon their performance and their own pronunciation goals. The first multiple-choice question asked students to see if they noticed a difference between the target phonemes (e.g., do you notice a difference between the vowels "a" and "o"?) and the second one to rate their pronunciation based on their own pronunciation goals (see figures 3 and 4). In addition, students had the option to ask for feedback from their instructor if desired.

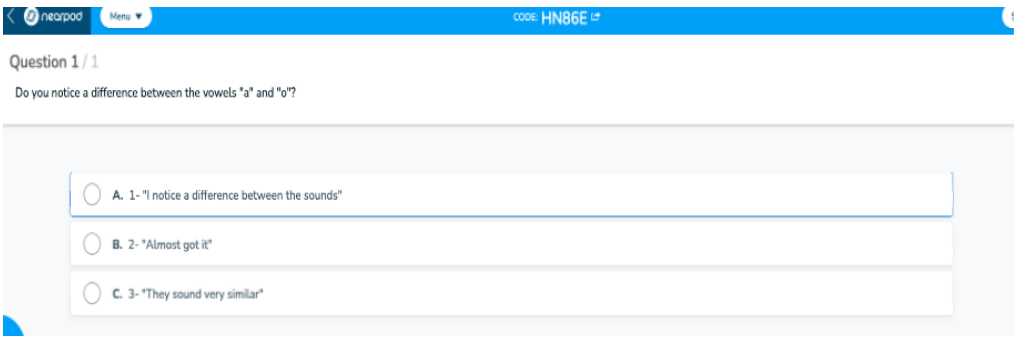

Fig. 2. Sample question from the *Nearpod* activity to raise phonological awareness

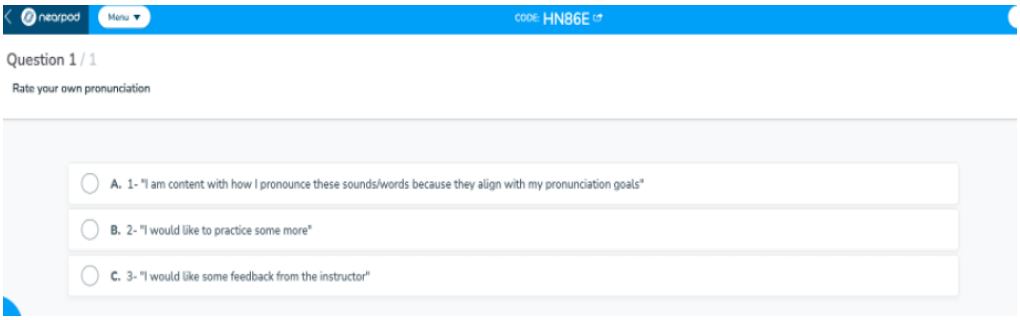

Fig. 3. Sample question from the *Nearpod* activity to self-assess pronunciation

Self-evaluation phase

Lastly, students were asked to complete a short questionnaire with the following open-ended question:

- *How was your overall experience practicing pronunciation in class?*

Data analysis

The data was analyzed using MAXQDA 2020 and following Braun and Clarke's (2006) guidelines for using thematic analysis (78). A thematic analysis was deemed appropriate for this qualitative study, given the paucity of work written on student views regarding in-class pronunciation training and the study's exploratory nature. Using the 6-phase thematic analysis guidelines, student responses were first thoroughly read, and notes were written down about initial ideas for potential codes. Second, a preliminary coding system was developed based on word frequency in student responses. For example, the word "helpful" was found in a large majority of student responses. This information formed themes and made patterns come to light. Third, during this part of the process, codes were collated into potential themes. Next, another researcher refined and reviewed the selected themes to ensure reliability.

Themes	Raw counts
Overall effectiveness and utility for raising phonological awareness	12
Apprehension towards in-class pronunciation practice	3
Impractical at improving pronunciation	3

Table 1. Overall themes and raw counts from student responses to the exit questionnaire

In the end, three major themes were identified (see Table 1.). The following table shows students' attitudes and impressions towards the implementation of *Nearpod* for pronunciation training.

Findings

Theme 1: Overall Effectiveness and Utility for Raising Phonological Awareness

Most students in this study report that the activity improved their pronunciation and would like to see this type of activity implemented in future Spanish classes. They use words like "helpful" and "useful" to describe their overall experience.

> *(1) "I liked the example sentences given, and I found this very helpful. This is definitely something that would be helpful in the future or even in Spanish 1 classes."*

> *(2) "I found the activity to be useful. I would have loved to have started out learning Spanish especially focusing on the pronunciation, which I think benefits both listening and speaking."*

> *(3) "This activity was extremely helpful. I would encourage this activity for future classes."*

Additionally, students reported on the task's capacity to raise phonological awareness in Spanish and noticed subtle differences in how vowels are produced. Their awareness seems to increase because of the various focused and controlled questions throughout the activity.

> *(4) "The difference between the pronunciation of "a" and "o" is something I don't think I've played much attention to so this activity was helpful in getting me to better distinguish the two."*

> *(5) "I liked the exercise. It made me really aware of how to make the pronunciation different. I never really thought about it before, but after practicing I feel confident. The last section where we were asked to describe the difference had me thinking about it the most. Describing the difference between "o" and "a" was a good exercise. In English, he o and a sound can be interchangeable. I carried this over into Spanish and didn't realize. Now I feel confident that I can tell someone I am hungry "hambre" vs I am a "hombre."*

> *(6) "This exercise made me a lot more conscientious of properly pronouncing the "a" and "o" in Spanish. I feel this helpful. However, there are still many other sounds in Spanish that are much more difficult."*

While some students focused on describing their experiences completing the task, others explicitly commented on the *Nearpod*'s utility and interface. As some students report, one of the app's strengths is its ability to use pictures and sounds to be integrated into the task of practicing pronunciation. However, some students commented on the app's limited capacity for audio recording.

> *(7) "Overall, I liked this study and focusing on the sounds because now I am more likely to pay attention to them. I liked the pictures, and I like how the sentences contained the same sound to reinforce it. I would like a different recording app (or screen on nearpod) to display the sentence we are saying because I personally struggle with remembering the whole sentence when I'm focusing on the sounds. I think this would be a good study to do in a computer lab (I participated in a study at the SSH where they had tons of computers and headphones) instead of at home, if you continue it. I would also like it for consonants, even though I would fail at rolling r's."*

> *(8) "I thought the nearpod exercise was helpful. You don't usually just sit down and think about the difference in pronunciation. I think it will help improve my pronunciation."*

> *(9) "I've done Spanish homework in high school where we had to record ourselves talking in Spanish so this experience wasn't unfamiliar to me. I wouldn't mind doing this type of activity since it makes me more conscious about how I pronounce words."*

Theme 2: Apprehension towards In-class Pronunciation Practice

Although many participants felt that they benefited from this activity and the use of technology in the classroom, others believed that the in-class setting could have been more optimal and had reservations about practicing pronunciation surrounded by other students. These results suggest that it is necessary to carefully evaluate the differences between practicing pronunciation at home versus in a classroom setting.

> *(10) "I did enjoy the pronunciation practice, maybe not around everyone but I think it could be very useful to help get comfortable when saying certain words. I am not sure if the second one is the right sentence, I couldn't remember what the actual sentence was and it wouldn't let me see it! But I do think this could be a great exercise."*

> *(11) "I thought it was fun and helpful but I knew people were apprehensive to be the first one to record so in the future maybe doing this activity in class isn't the best setting. Always a fan of pronunciation help though."*

> *(12) "Overall, I thought that the experience was cool, it was different from what I've done in Spanish classes in the past. I think that it was a little awkward and people were doing their best to say it more quietly. I think that if we were able to do this at home, results would have been better and people would have said the phrases with more confidence."*

Theme 3: Impractical at improving pronunciation

A portion of the learners who participated in the activity reported that they found neither the assigned task nor the *Nearpod* app to be helpful. The reason for this was two-fold. Firstly, they felt that the task assigned to them was too simplistic and did not provide any significant learning outcomes. Secondly, they experienced technical issues with the *Nearpod* interface that interrupted their engagement with the activity. These technical issues created difficulties for them in navigating through the app and completing task efficiently. Despite these shortcomings, students regard this article as "engaging" and somewhat enjoyable.

> *(13) "I felt that I was able to pronounce these sounds before this activity, so for that reason I did not find it that helpful. However, the concept of the activity was good, and I feel like it would have been more beneficial to me with more difficult sounds. The formatting of the activity was clear and user friendly and I do not think any changes need to be made there."*

> *(14) "It was pretty engaging and fun. It was a bit unhelpful when the recording prompt came up but the sentence we were suppose to record was not on screen."*

> *(15) "I liked the activity but think it would be more effective if it was just an in class activity where we conversed with each other."*

Discussion & Implications

Central to this study was addressing the gap in current research concerning students' views surrounding pronunciation training via technological tools. In our study, we found that students generally see both the pronunciation task and the use of *Nearpod*'s app as beneficial, and they perceive technology as a viable tool for pronunciation training. Our findings align with current SRS research, showing that technological tools like *Nearpod* can potentially improve student engagement, motivation, and learning outcomes (Romero 199). Moreover, as some students pointed out, the most useful aspect of this task and the *Nearpod* is their capacity to draw students' attention and make them more consciously aware of subtle phonological differences in the target language.

Research has repeatably shown that this type of explicit, formed-focused training results in pronunciation gains for L2 learners. Another essential remark of this study is that it sheds light on how students feel about practicing pronunciation in the classroom. Some students reported feeling "awkward," "apprehensive," and "confident" toward completing the task during class time. A potential explanation for such resistance could be that some students feel self-conscious about performing live pronunciation drills in front of others. This information is particularly salient for instructors, given that such negative emotions or mental states may cause or exacerbate pronunciation anxiety in some students, a well-documented phenomenon in the SLA literature (Szyszka 978). Future studies need to delve deeper into the affective side of pronunciation training in the language classroom. Finally, some students found this activity to be engaging despite encountering technical issues while using technology.

Furthermore, exploring students' reactions to newer and more technologically sound ways of learning pronunciation is advantageous for several reasons. First, it provides valuable insight into the global utility of an in-class pronunciation task, which has become more prominent in the language classroom in recent years. Second, it informs us about students' willingness to participate in these activities, their levels of engagement, and even their emotional states, as demonstrated by some student accounts in this study (e.g., *"...after practicing, I feel confident"*). Third, it provides blueprints for instructors looking to implement pedagogies that harness technology for language learning. Further, qualitative research of this nature has been used to interpret social factors present in the process of second language learning and how they relate to pronunciation, such as the construction of identity with L2, language attitudes towards linguistic variation, and motivation for accent choices (Taguchi et al. 85; Park 585; Rindal 248; Bucholtz and Hall 612).

Limitations

Although this study offers detailed insights into the use of technology for pronunciation instruction, it has some limitations. Firstly, the activity students carried out in this study was not intended to measure language gains. Therefore, it is uncertain whether the activity or the technology itself contributed to the students' perceived improvement in pronunciation. Second, this study evaluated only segmental features (e.g., minimal pair drills). However, suprasegmental pronunciation aspects are equally important and should also be considered in future investigations. Third, as I briefly argue, pronunciation training should actively engage students in discussions related to language and raciolinguistic ideologies. By doing so, we can encourage students to become more cognizant of the ways in which language intersects race and power, how it is used to perpetuate racial stereotypes and biases, and how these attitudes negatively impact various identities and communities. Instructors can achieve this goal by incorporating critical approaches such as translanguaging and Critical Language Awareness (CLA) into their curricula, which seek to interrogate hierarchical structures, deconstruct ideologies, and equip students to enact change (Quan 449). Lastly, due to the low number of participants and the exploratory nature of this study, we are unable to draw any generalizations about how other participants or classes may react to pronunciation training using technological tools.

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