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FRICATIVES AND AFFRICATES AS A SOURCE OF PRONUNCIATION ERRORS AMONG KOREAN-SPEAKING LEARNERS OF SPANISH AND PORTUGUESE: INSTRUCTORS' PERCEPTIONS AND APPROACHES[i]

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Abstract:
This study focuses on the acquisition of Spanish and Portuguese fricatives and affricates by Korean-speaking L2 learners. Spanish, Portuguese, and Korean have varying allophonic varieties of fricatives and affricates, but instructional strategies often do not differentiate them. The main focus of this study is on mispronunciations of fricatives and affricates. The data was gathered through interviews with language instructors teaching Spanish and Portuguese in South Korea. During the interviews, instructors shared their perceptions of the most problematic aspects of pronunciation for Korean learners and provided insights into their classroom pronunciation teaching approaches. Ultimately, the study interprets potential sources of these pronunciation difficulties and discusses the impact of mispronunciations on L2 learners' intelligibility.

Keywords: Spanish; Portuguese; Korean; pronunciation; teaching methods; affricates; fricatives

Resumen:
Este estudio se centra en la adquisición de fricativas y africadas en español y portugués por parte de estudiantes de L2 de habla coreana. El español, el portugués y el coreano tienen diversas variedades alofónicas de fricativas y africadas, pero las estrategias de instrucción a menudo no las diferencian. El enfoque principal de este estudio está en los problemas de pronunciación de las fricativas y las africadas. Los datos se recopilaron a través de entrevistas con instructores de idiomas que enseñan español y portugués en Corea del Sur. Durante las entrevistas, los instructores compartieron sus percepciones de los aspectos más problemáticos de la pronunciación para los estudiantes de coreano y brindaron información sobre los enfoques de

[i] FRICATIVAS Y AFRICADAS COMO FUENTE DE ERRORES DE PRONUNCIACIÓN ENTRE LOS ESTUDIANTES DE ESPAÑOL Y PORTUGUÉS DE HABLA COREANA: PERCEPCIONES Y ENFOQUES DE LOS INSTRUCTORES

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enseñanza de la pronunciación en el aula. En última instancia, el estudio interpreta las fuentes potenciales de estas dificultades de pronunciación y analiza el impacto de las malas pronunciaciones en la inteligibilidad de los estudiantes de L2.

Palabras clave: español; portugués; coreano; pronunciación; métodos de enseñanza; africadas; fricativas

1. Introduction

Over the last few decades, the study and instruction of second language (L2) pronunciation has frequently been characterized as a neglected area (Derwing 2010; Levis 2019; 2021; Tergujeff 2012). Nevertheless, it is currently experiencing rapid development as an interdisciplinary field. However, despite the significant increase in research attention towards L2 pronunciation, the focus remains predominantly on English, with considerably less research dedicated to other languages. This bias can be attributed to various historical events, which have established English as the most widely studied and spoken language worldwide, that is, as a *lingua franca*. Its widespread use has led to the acknowledgment of various "Englishes" or "World Englishes" due to its *de facto* or *de jure* official status of this language in numerous countries.

Issues related to intelligibility, comprehensibility, longitudinal acquisition, individual differences among learners, teacher cognitions, and functional load, among others, are primarily studied and theorized within the context of English. Consequently, academic literature, professional publications, and conferences are inundated with diverse approaches to research and pedagogy that mainly cater to English teachers, leaving researchers and educators interested in other L2s with no option but to apply findings from English to their specific situations. While there is an encouraging rise in L2 research concerning other languages like Chinese, Spanish, Swedish, and Japanese, the field of L2 pronunciation needs to embrace a more inclusive perspective by addressing unique questions that may not arise in the context of English, such as tone learning and its implications for intelligibility. In order for the field to progress further, we must broaden our research inquiries and explore questions beyond those typically associated with English.

In order to start bridging this gap, the current study proposes a first approach to the perception of Spanish and Portuguese instructors of the pronunciation problems that Korean-speaking learners of these languages face when trying to acquire them. These two languages were chosen because of their typological similarity, yet with important pronunciation differences, and because of the possibility of presenting their pronunciation issues among an underrepresented group of learners in the literature: Korean-speaking learners of Spanish and Portuguese. Importantly, the study focuses on a specific acoustic feature (fricatives and affricates), which is different in all three languages included in the study, as it will be reviewed, yet they present important problems for Korean learners. These specific phonemes have been chosen based on the results of the interviews conducted as part of the study, but also because it is one of the phonemic contrasts that has received the least attention in the literature.

While this is not the only parameter in which this group of learners shows pronunciation issues (see Solon, Linford, & Geeslin (2018) for a review on Korean-speaking learners of Spanish, and Fouser (1995) for a review on Korean-speaking learners of Portuguese), most of the previous studies on learners of Asian-languages have focused on other phonetic contrasts, such as the /l/ vs. /r/ contrast, non-existent among learners of most of the languages spoken in Asia. However, and while the liquid contrast is particularly interesting, the current study focuses on the pronunciation of fricatives and affricates in Spanish and Portuguese, not only because it has been understudied in the literature, but also because it could have clear implications for current models of speech perception and production.

In current models of L2 phonetic perception, such as Flege's SLM (1995) and Best's PAM (1995), the perceived similarity between sounds in one's native language (L1) and those in the L2 significantly affects the difficulty of distinguishing different non-native sounds. Additional listener-related factors, such as the age of acquiring the L2 and continued use of the L1, also play a significant role in determining one's proficiency in the L2 (e.g., Flege 2003; Flege, Bohn, & Jang 1997). These models differ in their basis for perceiving similarity. Best's PAM model relies on the similarity of articulatory gestures, while Flege's SLM model requires empirical measurement since it cannot be predicted in advance. In the way in which this study has been designed, the results will not be able to shed a light to help us disambiguate between the two models. However, and considering the specific differences between Spanish, Portuguese, and Korean fricatives and affricates (which will be outlined in the next section of this article), the preliminary results of the study will be able to shed some light on whether the allophonic properties in the L1 does or does not influence the production of L2 phonemic contrasts.

The article, then, continues with a review of the fricatives and affricates in the three languages (deemed to be problematic for this group of learners based on interviews conducted to language instructors of these languages in South Korea) and a review on how pronunciation is traditionally approached in the classroom (particularly in South Korea). The article continues with a summary of the interviews conducted with language instructors of these languages in South Korea, particularly focusing on their perception of pronunciation issues among Korean learners, and a review on how they address these problems in the classroom is presented, as examples on how pronunciation problem can be presented and practiced in the foreign language classroom.

2. Literature review

2.1 Spanish, Portuguese, and Korean Fricatives and Affricates

Dialectal variation in Spanish creates a huge variation in both the number of fricative and affricate phonemes, as well as their realisation worldwide. Spanish has only one voiced fricative /ʝ/ as in "*Yo*" [jo] (I), "*mayo*" [ma.jo] (May), although in the literature this specific phoneme has been described as either a fricative or an approximant and its actual pronunciation shows great dialectal variability (Hualde 2013). Peninsular Spanish (except for some Southern dialects) has four voiceless fricative phonemes; /f θ s x/ as in "*fuego*" [fwe.ɣo] (fire), "*zapato*" [θa.pa.to] or [sa.pa.to] (shoe), "*sopa*" [so.pa] (soup), and "*jabón*" [xa.βon] (soap). However, it is important to

point out that /θ/ is only present in certain dialects of Castilian Spanish, /θ/ and /s/ have undergone a merging process into the single phoneme /s/ in the rest of the dialects. [tʃ] is the only affricate in Spanish, and it appears in words such as "chocolate" [ʧo.ko.la.te], "hacha" [a.ʧa] (axe) (Hualde 2013). Table 1 presents the list of fricatives and affricates in Spanish, including the different allophones existing and the contexts in which they appear, based on the table that can be found in the "Teaching Spanish Pronunciation" online open course.

Table 1: Distribution of fricatives and affricates in Spanish

Phoneme	Allophone	Articulation	Context
/f/	[f]	voiceless labiodental fricative	
/θ/	[θ]	voiceless dental fricative	Central and Northern Castilian Spanish
		partially voiced	Only before voiced consonants (*haz̲me*)
/s/	[s]	voiceless alveolar fricative	
	[z]	voiced alveolar fricative	Only before voiced consonants
/x/	[x]	voiceless velar fricative	
	[χ]	voiceless uvular fricative	Northern Castilian Spanish, especially before back vowel (***jo̲****ven*)
	[h]	voiceless glottal fricative	Mostly in areas of America and Southern Spain
/ʝ/	[ʝ] or [j]	voiced palatal fricative	
	[ʄ] or [ʤ]	voiced palatal affricate	In word-initial and after a nasal or a lateral

In the case of Portuguese, dialectal variation also plays an important role and the number of fricatives and affricates is slightly larger than that in Spanish. Contrary to Spanish, in Portuguese there are four voiceless fricatives /f/, /s/, /ʃ/, and /ʁ/ and three voiced fricatives /v/, /z/, and /ʒ/. The following are some examples of these phonemes: "*faca*" [fa.kɐ] (knife), "*vaca*" [va.kɐ] (cow), "*caço*" [ka.su] (hung), "*caso*" [ka.zu] (case), "*rixa*" [ʁi.ʃɐ] (brawl), "*rija*" [ʁi.ʒɐ] (hard). In several regions of Brazil, the alveolar sibilants /s/ and /z/ exhibit complementary distribution at the end of syllables, based on whether the following consonant is voiceless or voiced. However, in most of Portugal and parts of Brazil, these sounds become the voiceless postalveolar fricative /ʃ/ before a voiceless consonant or at the end of an utterance, while the voiced postalveolar fricative /ʒ/ is used before a voiced consonant. Finally, the phoneme /ʁ/ exhibits distinct dialectal variations in Portugal, Africa, and Brazil. In Portugal and Africa, the predominant articulation of this phoneme is the alveolar trill [r], while in Brazil both the voiceless uvular fricative [χ] or the voiceless glottal fricative [h] are equally distributed. Portuguese has undergone a historical deaffrication process, leading to the occurrence of affricate phonemes, /tʃ/ and /dʒ/, mainly in loanwords. In Portugal, there is a tendency among speakers to replace them with fricatives. However, in the majority of Brazilian dialects, "d" and "t" are pronounced as [dʒ] and [tʃ] before

[i] (Mateus, & d'Andrade 2000). Table 2 presents the list of fricatives in Portuguese, including the different allophones existing and the contexts in which they appear, based on the description provided by Mateus and d'Andrade (2000).

Table 2: Distribution of fricatives and affricates in Portuguese

Phoneme	Allophone	Articulation	Context
/f/	[f]	voiceless labiodental fricative	
/v/	[v]	voiced labiodental fricative	
/s/	[s]	voiceless alveolar fricative	
	[ʃ]	voiceless postalveolar fricative	Before a voiceless consonant or at the end of utterance in Portugal and part of Brazil.
/z/	[z]	voiced alveolar fricative	
	[ʒ]	voiced postalveolar fricative	Before a voiced in Portugal and part of Brazil.
/ʃ/	[ʃ]	voiceless postalveolar fricative	
/ʒ/	[ʒ]	voiced postalveolar fricative	
/ʁ/	[χ]	voiceless uvular fricative	In different regions of Brazil
	[h]	voiceless glottal fricative	In different regions of Brazil
	[r]	voiced alveolar trill	In Portugal
	[tʃ]	voiceless palatal affricate	Loanwords When "t" is pronounced before [i] in Brazil
	[dʒ]	voiced palatal affricate	Loanwords When "d" is pronounced before [i] in Brazil

In comparison, Korean shows the most limited inventory of fricatives and affricates of the three languages. In Korean, there are three fricatives, the voiceless alveolar plain /s/, the voiceless alveolar tense /s͈/, and the voiceless glottal /h/. There are also three affricates, all of them voiceless palatal sounds (plain /tɕ/, aspirated /tɕʰ/, and tense /t͈ɕ/). With real examples, these are the sounds of interest in Korean: /tɕ/ 자다 [tɕa.da] 'to sleep', /t͈ɕ/ 짜다 [t͈ɕa.da] 'to squeeze' or 'to be salty', /tɕʰ/ 차다 [tɕʰa.da] 'to kick' or 'to be cold', /s/ 살 [sal] 'flesh', and /s͈/ 쌀 [s͈al] 'uncooked grains of rice'. In comparison with the other two languages, allophonic variation is not so frequent in Korean, although it has been reported as a partial voicing phenomenon, in all cases, in intervocalic position (Kang, 2000). Table 3 presents the list of fricatives in Korean, including the different allophones existing and the contexts in which they appear, based on the description provided by Kang, (2000).

Table 3: Distribution of fricatives and affricates in Korean

Phoneme	Allophone	Articulation	Context
/s/	[s]	voiceless alveolar plain fricative	
	[ʃ]	voiceless postalveolar fricative	Before [i]
	[z]	voiced alveolar plain fricative	Intervocalically
/s͈/	[s͈]	voiceless alveolar tense fricative	
		partially voiced	Only intervocalically
/tɕ/	[tɕ]	voiceless palatal sounds plain	
		partially voiced	Only intervocalically
/t͈ɕ/	[t͈ɕ]	voiceless palatal sounds tense	
		partially voiced	Only intervocalically
/tɕʰ/	[tɕʰ]	voiceless palatal sounds aspirated	
		partially voiced	Only intervocalically
/h/	[h]	voiceless glottal fricative	Never in final position
	[ɦ]	voiced palatal affricate	Intervocalically after voiced consonants (potentially silent)

While this section of the article does not aim to provide the most detailed description of all languages and all the variations that can be found (contextual and/or dialectal), the aim is to showcase the main differences among the three languages and the complexity that would be required for Korean learners to master the phonological inventories of either Spanish or Portuguese. This brief description is a good motivation for conducting a first approach to understanding what are the real problems faced by Korean-speaking learners of Spanish and Portuguese as an L2 or foreign language, at least as perceived by their instructors.

2.2 Pronunciation in the classroom

Given that adult learners encounter the challenge of acquiring an L2 while already possessing a well-established phonological system from their native language, numerous authors suggest that this native language filter can be a significant obstacle to overcome. It does not imply that students cannot eventually attain native-like pronunciation in their L2, but rather that they are likely to employ different strategies compared to children and native speakers of the language (Simões, 1996). One of the most frequently discussed strategies in the literature pertains to the inclusion (or exclusion) of explicit pronunciation instruction in the language classroom. While some researchers argue that exposure to input during the early stages of learning is sufficient for enhancing pronunciation (Winitz 1996; Terrell 1977; 1991), others advocate for the necessity of explicitly emphasizing this aspect to achieve improvement. In a study conducted by Elliott (1997), both approaches to teaching pronunciation (input vs. explicit instruction) were

compared. The findings indicated that students who received explicit instruction in pronunciation showed greater improvement compared to those who solely received input. Añorga and Benander (2015) concur with Elliot on the significance of providing pronunciation-specific instruction, recognizing the current lack of such practice in the general curriculum. However, the question lies in determining the most suitable type of instruction to employ. While Elliot recommends formal pronunciation instruction for enhancing accuracy in adults learning Spanish as an L2, Añorga and Benander (2015) advocate for incorporating exercises that progress from intuitive to imitation, and from analytical to linguistic approaches.

Añorga and Benander (2015) and Elliott (1997) recommend a mix of methods and strategies that should include various exercises to introduce pronunciation in the classroom. Among other options, authors such as Cobb and Simonet (2015) or Whitley (2002), propose the explicit instruction of pronunciation. These proposed methodologies greatly vary, because while Elliot (1997) recommends the use of a modified form of the articulatory presentation, Añorga and Benander (2015) recommend the use of recordings to practice, starting with recording themselves and then listening to others' recordings for self-assessment, and García Bayonas (2007) recommends practicing lists of minimum pairs with a peer to evaluate each other. All the authors, though, agree in the importance of starting with isolated words (but not with isolated sounds) and then continuing with more elaborated phrases and contexts (Elliot 1997; García Bayonas 2007).

How pronunciation is approached in the classroom in South Korea is not well-studied at this point. While some studies have supported the idea that phonemic explicit instruction is beneficial for Korean learners at different ages (see Chung & Ahn 2000 and Lee & Lee 2001 for studies with children and Nam, 2006 for a study with adult Korean learners of English as a foreign language), how this phonemic methodology is applied within an already designed curriculum in the real classrooms has not been reported before. Moreover, no other study, like the current one, has tried to understand how pronunciation instruction is implemented in the foreign language classroom or in less-studied languages in the country and what are the perceptions of foreign instructors of languages other than English in the South Korean context.

3. Study

3.1 Participants

Individual interviews with the foreign faculty in the Spanish and Portuguese departments at Hankuk University of Foreign Studies (Seoul, South Korea) were conducted in order to learn more about their perceptions on the difficulty their students face when learning the language. These two departments were chosen, as they are the largest departments in South Korea and only the foreign faculty was interviewed because we wanted to get the results of those with native sensitivity to the exact pronunciation of the different phonemes explored in the study. While none of the interviewees were phoneticians, all of them had taken classes in the past of this topic and, so, they were able to provide more accurate descriptions of the sound systems of their respective native languages and how the productions of their students differed from the canonically expected forms.

At the end, two of the three foreign faculty in the Portuguese department (the other professor could not participate due to health reasons) and the five professors in the Spanish department completed the interview. Among the two professors in Portuguese, one of them speaks the European variety of the language, while the other speaks the Brazilian variety (although he also pointed out that he is familiar with the European variety as well). On average, they have lived and taught in South Korea for 10 years (one of them close to 19 years, while the other only for 2 years). With respect to the faculty in the Spanish department, two of them speak the Castilian variety, two of them are Mexican Spanish, and the final one is Colombian Spanish. On average, they have worked and taught in South Korea for an average of 10 years (ranging from 2 to 20 years). Those individuals who have taught in South Korea for a shorter period of time, do have years of experience teaching the language at other institutions around the world.

3.2 Interviews

Each interview was a semi-spontaneous dialogue between the researcher and the instructor, in which the instructor was asked to (1) answer the question: "As a foreign instructor of Portuguese/Spanish, what do you think are the most difficult sounds to produce among your students?". (2) Once this question was answered, follow-up questions (focusing on the consonants of interest) were asked to fully understand the contexts in which the sounds seem to be problematic. For example, one of the follow-up questions focused on the vowels in which the sounds are produced, to determine whether students always show problems when producing them, or whether the problems are vowel-induced. (3) The interviews always finalized with questions regarding whether the instructors approach the pronunciation of these sounds in the classroom and, if so, which methodology they use and what are their thoughts regarding students' perception of the usefulness of these phonetically-oriented lessons.

The interviewees were not expected to use terminology specific to the field of phonetics, but to honestly explain and discuss their real perceptions on the problem. All the interviews were conducted in private sessions, in which the researcher tried not to rush the instructor so that he/she felt comfortable sharing their experiences in the classroom. The interviews were recorded and later analysed by the main researchers. In none of the cases, personal information was shared that could jeopardize the anonymity of the students or of the instructors interviewed.

3.3 Results

The results will be reported as the answer of the three parts in which each interview was structured.

Question 1: What do you think are the most difficult sounds to produce among your students?
Interestingly, all the instructors, independently of which language they are teaching answered with the same three parameters (although some of the instructors pointed out problems with suprasegmental features, such as with lexical stress, we will only discuss the aspects related to segmental information, as they are the main purpose of this study). The three main aspects, shown to be problematic for Korean-speaking learners of Spanish and Portuguese are (the order in which we present them is random):

1) The distinction between [l] and [r]. This is one of the most-studied phenomena among scholars working with the speech perception and production of Japanese- and Korean-speaking learners of languages with this phonemic distinction. This problem emerges from the fact that Korean has one liquid sound /ɾ/ for the English (on in this case, Spanish or Portuguese) /l/ and /r/. Thus, it is commonly reported that Korean students have problems distinguishing /l/ from /r/ when pronouncing or listening to them (see Ingram and Park (1997) for a review).
2) The distinction between voiced and voiceless stops (in all places of articulation). Keeping in mind that Korean only has voiceless stops (differing on whether they are realized as plain, tense, or aspirated), it is not surprising that students struggle to produce a phoneme that does not exist in their L1. In fact, this parameter has been attested in multitude of occasions among Korean-speaking learners of English (see Major & Michael (1996) for a review).
3) The pronunciation of certain fricatives and affricates. We will further explore this point in the next subsection.

Question 2: Could you elaborate on what aspects do you think are the most problematic related to the pronunciation of fricatives and affricates?

When asked specifically to elaborate on the problems that Korean-speaking learners of Spanish and Portuguese face when producing fricatives and affricates in their L2, differences emerged between Spanish and Portuguese.

On the one hand, Spanish instructors noticed two main problems. First of all, some instructors pointed out that students struggle to perceive the distinction between [s] and [θ]. However, it is important to point out once again that the voiceless dental fricative is only produced in the northern and central part of Spain, while both sounds have merged into [s] in the rest of varieties. Then, technically speaking, the fact that students do not produce a distinction is not a mistake *per se*. However, and as the instructors pointed out, this problem is more important for perception than for production, as students struggled to understand their pronunciation. An aspect in which all the instructors agreed was in the palatalization of [s] in front of the vowel [i] among the majority of the Korean students (a mistake perceived to perdure as proficiency in Spanish increases). This seems to be a clear example of L1 transfer into the phonological system of the L2, and the same problem was reported by the Portuguese instructors.

Among the Portuguese instructors, and independently on the huge dialectal variation that it exists between European Portuguese and Brazilian Portuguese, both instructors agreed that Korean students seem to struggle to produce a clear distinction between the following phonemic pairs /s/ vs. /z/ and /ʃ/ vs. /ʒ/. While the voiceless counterparts seem to be produced in a rather canonical way, "students do not know how to produce the sound of /z/ and /ʒ/ in the correct point of articulation" (using the literal words used by the instructors interviewed). The problems reported by the instructors can, once again, be linked with the phonotactics of the students' L1.

Finally, all the instructors agreed in that, in most of the cases, Korean-speaking learners of Spanish and Portuguese tend to pronounce /f/ (in Spanish and Portuguese) and /v/ (in Portuguese) as a bilabial stop (voiced or voiceless, respectively). Once again, this is another example of Korean learners trying to replace a non-existing phoneme in the L1 by a phoneme that shares some of the features and exists in their phonemic inventory.

Question 3: How do you approach the teaching of these sounds in the classroom?

When answering this specific question, all instructors (independently on the language they are teaching) agreed in that it is necessary to explicitly explain to students what the problem is with their pronunciation and how to address it. Most of them started with using recasts (that is, by repeating, correctly pronounced, what the student had mispronounced). However, they quickly realized that students were not paying attention to the correction on pronunciation, but thought the mistake they had made was either a grammatical or a lexical one. In order to provide a more explicit explanation of the appropriate pronunciation, instructors resorted to either drawing a vocal tract on the board (or using another way of visually presenting the vocal tract to students) and explicitly explaining how the sounds were produced in the mouth, or they did specific activities and games in which students had to identify different sounds problematic for them (e.g., playing bingo with those sounds) or they had to repeat problematic sounds after listening to the canonical example produced by the instructor (e.g., reading tongue-twisters aloud in pairs/small groups).

While all the instructors agreed that these activities, although short and limited due to time constraints, were useful for making students more aware of the L2 pronunciation and of L1-L2 phonetic/phonemic differences, none of them is entirely sure on whether these techniques are the most appropriate or how much these activities helped their students transfer the knowledge acquired to other contexts (e.g., to words not explicitly practiced in the activities). That is, they were not sure if the knowledge acquired was stored in their long-term memory or not.

4. Discussion

This research was originally proposed as an exploratory study of the most common mispronunciations produced by Korean-speaking L2 learners of Spanish and Portuguese in their production of fricatives and affricates. While the perception and production of certain sound contrasts by Korean speakers have been studied in detail in the literature (e.g., Ingram & Park 1997; Major & Michael 1996), this is one of the first studies to carefully explore the perception of foreign instructors of the production of fricatives and affricates in Spanish and Portuguese, two understudied languages among Korean learners.

Results indicated that fricatives and affricates are one of the most problematic aspects of L2 pronunciation in Spanish and Portuguese among Korean learners. These results seem to be consistent with those reported in previous speech perception and acoustic analysis made to Korean-speaking L2 learners' productions of English fricatives/affricates (see Cheon, 2005, for a review). Interestingly, in most of the studies reviewed, perceived phonological similarity

between the phonemes in the L1 and the L2 led to either more native-like pronunciation or perception of fricatives in English. Previous studies on the production of L2 English fricatives and affricates by native speakers of Korean have found that this group of learners is able to produce these contrasts at an advanced level of proficiency and with increasing experience in the L2 (Cheon, 2005). While it is possible that in our study variables such as L2 proficiency and L2 experience could affect the results, the instructors were never asked to determine when the reported errors disappear or are less noticeable among their students. Instructors mentioned that some of these errors (like the case of the palatalization of [s] in front of the vowel [i]) seem to be persistent in time, we cannot conclude that the variables are not important in our scenario.

Although other explanations could be proposed (such as misperception of sounds or problems with the coarticulation of certain sounds), L1 transfer could be one of the most likely scenarios to account for the patterns observed. The current study seems to be consistent with the claims that Korean speakers learning Spanish and Portuguese have no major problems in perceiving fricatives and affricates in these two languages (e.g., Cheon, 2005), as a misperception error cannot solely account for the pattern observed in the perceptions of instructors of these two languages. Moreover, a purely misparsing hypothesis should be ruled out, as it does not explain why students are able to produce these sounds when explicitly taught. In fact, the perception of these instructors is in line with those studies that point out the importance of including explicit, formal pronunciation instruction for enhancing accuracy in adult learners of any foreign language (e.g., Elliot 1997; Añorga and Benander 2015). However, it is important to point out that, in this specific study, only seven instructors were interviewed (to try to control for the type of students, the established curriculum, and the expectations of the university where the interviews were done). With a larger data sample and more variability in the results, more detailed findings could be reported that could lead to stronger findings on the role of L1 transfer in the mispronunciation reported and the validity of including explicit instruction of pronunciation in the foreign language classroom.

Beyond being a plausible example of L1 transfer, this specific pronunciation problem provides an interesting scenario for future research to compare the predictions of L2 speech learning models. Although this study was not designed to directly compare and disambiguate between Flege's SLM (1995) and Best's PAM (1995) models of speech perception, its findings support the claim that the phonetic inventory of the L1 affects the perception of phonetic inventory in the L2. Clearly, all the pronunciation problems reported in this study related to fricatives and affricates in Spanish and Portuguese can be directly linked to the properties of these learners' L1. Future studies should focus on differentiating between these models to better understand how the phonemic inventory of the L1 influences the perception of the L2, maybe by manipulating the condition under which each type of phoneme is produced.

Interestingly, dialectal variation (as the one described between European and Brazilian Portuguese) does not seem to influence the perception of mispronunciations made by Korean-speaking learners of Portuguese, contrary to previous studies that have found how the properties of the dialect spoken influences speech perception (e.g., Eulitz & Lahiri, 2004; Sebastián-Gallés *et al.*, 2009; Bühler, Schmid, & Maurer, 2017). While the dialectal phonological inventory of our two Portuguese instructors is supposed to be different, as described in the

introduction, they reported perceiving the same exact type of problems among their Korean-speaking students. One possible interpretation for this lack of "dialectal" differences could be the fact that the Brazilian instructor reported being exposed to both varieties from an early age, potentially making him more lenient towards small acoustic differences in the productions of his students. Another interpretation could be that these dialectal differences are not strong enough to lead to the perception of L2 pronunciation as "errors". Of course, this finding needs to be taking with precaution, as we could only include two Portuguese instructors in this study. Future studies should recruit a larger data sample of instructors, so that these dialectal differences can be further explored in more detail. In any case, it is important to point out that most of the Portuguese manuals found in South Korea (e.g., 바른 브라질 포르투갈어 - Português Brasileiro or 우리말로 배우는 브라질어 (포르투갈어) 회화 – Conversation Course in Portuguese) explain Portuguese pronunciation using the Korean alphabet which, in turn, could have a direct impact on how these learners perceive and produce the sounds, at least at the earliest stages of acquisition (see Bassetti 2017 for a review on the effect of orthographic information in the perception and production of L2 sounds).

Although achieving a native-like production of L2 phonology may not be realistic, it is crucial to emphasize the significance of striving to enhance learners' intelligibility and comprehensibility (Derwing & Munro, 2015). According to the present study, based on the perception of phonetically-trained foreign language instructors, Korean-speaking learners encounter challenges in producing Spanish and Portuguese fricatives and affricates. It is important to acknowledge the limitations of the study, such as the small data sample, absence of experimental acoustic data analysis, and limited range of proficiency tested. However, these findings serve as evidence that the teaching of pronunciation should be a significant consideration within established curricula.

5. Conclusion

The current study offers a concise and exploratory overview of the significant challenges faced by Korean-speaking L2 learners when producing Spanish and Portuguese fricatives and affricates in a foreign language context. We conducted interviews with foreign-language instructors from major Spanish and Portuguese departments in South Korea to identify the main issues encountered by these learners. Additionally, we investigated how pronunciation instruction is conducted in the country in languages other than English.

Although the primary objective was to explore the types of errors made by Korean-speaking learners in the production of Spanish and Portuguese fricatives and affricates, these findings underscore the importance of prioritizing learners' intelligibility and potentially introducing pronunciation instruction in foreign language classrooms.

Ethical statement and competing interests (required)
The author(s) declare(s) no competing interests.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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