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**Nasal sounds of Brazilian Portuguese: A didactic proposal for
pronunciation with pre-service language teachers**

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Pre-service Teachers Experiences: Linguistic Interference in the Nasal Sounds of Brazilian Portuguese Language

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Abstract

The following research proposal examines Portuguese nasal challenges that pre-service foreign language teachers experience. Phonetics play a significant role in language learning since it helps learners communicate effectively, recognize patterns, and improve fluency. Previous research has discovered that Spanish speakers face difficulties in pronunciation due to the differences of intonation and sounds, but little attention has been given to finding learning strategies to minimize these difficulties. For instance, Pérez (2022) mentioned that some of these difficulties are related to nasal sounds and distinctive stress patterns compared to Spanish.

Similarly, Santos (2016) emphasizes the importance of addressing pronunciation challenges to avoid persistent errors and linguistic interference; because without proper support and guidance, Spanish-speaking students may experience frustration and limitations in their ability to communicate in Brazilian Portuguese. The present action research proposes a didactic unit that is composed of three chapters to develop in class to improve their phonetic awareness as well as the skill, mostly focused on pronunciation to try to minimize the linguistic interference. Data is going to be analyzed using semi structured interviews, students' previous tasks, recording audios and field diary to examine whether there is an improvement in the pronunciation of the nasalization patterns. Furthermore, it is expected to understand the role of the nasal sounds and analyze the music as a tool to encourage students to appreciate the phonetic awareness.

Keywords: Pronunciation, linguistic interference, and phonetic awareness.

Chapter 1. Introduction

This monograph delves into the challenges faced by Spanish-speaking pre-service teachers learning Portuguese, as a foreign language with a specific focus on the difficulties associated with the production of nasal sounds and the phenomenon found called linguistic interference. The study recognizes linguistic interference as a phenomenon in which the patterns and structures of the mother tongue impact the learning of another language, in this case the Portuguese one.

In the first instance, the population I will work with is a group of 5 students who are preparing to be foreign language teachers in a private university in Bogota. Therefore, it is a unique population because they are not only learning the language for educational purposes, but they are learning how to teach and for this it is necessary that they do not have difficulties in pronunciation. In this vein, nasal sounds of Portuguese are widely used and if they are not produced properly, a wrong message can be communicated. For this reason, to identify what difficulties the pre-service teachers had, I conducted a semi-structured interview where they commented that they were not able to produce nasal sounds naturally and adequately because these sounds are not present in their mother tongue. In addition, I also conducted an interview with the Portuguese teacher where he responded that the main problem, he has identified in his classes is nasal sounds because students are embarrassed to make the correct pronunciation, furthermore they simply avoided using words where nasal vowels were emitted as oral vowels.

That is why, according to Brisolara (2011), although Portuguese and Spanish are close languages, they have phonetic components that vary. The author highlights that nasal vowels of Portuguese are different from those of Spanish because in Portuguese a vowel is nasalized followed by a consonant m or n, while in Spanish they are nasalized when they are between two nasal consonants.

Moreover, the findings of this author demonstrate that research or action on the difficulties of Portuguese in Spanish speakers is often ignored because there is a mistaken idea that it should not be analyzed because they are *equal* languages. That is why as teachers we must pay attention to these pronunciation challenges and create phonetic awareness so that students

not only understand how sounds are related to letters, or how sounds are related to suprasegmental and segmental structures, but they can also show that Phonetics can be useful in the communication of a language.

Consequently, when a person learns another language, it is common that they bring with them the characteristics of their native language and apply them to the new language as Karim & Nassaji (2013) stated in their writing research or Fatemi, Sobhani and Abolhassan (2012) who address the phenomenon in oral production blaming to the phonetic rules; and, if in class it is not emphasized and didactically taught, the phonetic component will not be seen important enough for more than a good pronunciation, students are used to see phonetics as something simply theoretical, but this is a matter for another paper. For that reason, this study focuses on helping students master phonetic recognition to improve the pronunciation of nasal sounds. The idea is that students have a new perspective that the phonetic components of a language can be taught in a didactic way because the usual thing is to use theory which, although students can learn each component, they cannot identify it when they speak or in a given context. Therefore, in this case I am going to use songs as a tool that helps students understand that nasal sounds are also frequently used with an included context through the lyrics that contain them, with the strategy of *filling in the blanks*.

I chose this strategy because first, this methodology leverages the powerful combination of music and language, providing students with an immersive cultural context that not only enriches their learning experience, but also establishes emotional connections with the content. Brazilian music, with its varied styles and rhythms, offers a unique path into the linguistic diversity of Portuguese, including the distinctive presence of nasal sounds.

Secondly, by having to identify and fill in gaps in the lyrics of the songs, critical listening and auditory discrimination are encouraged, fundamental skills for developing accurate pronunciation. This approach also facilitates the internalization of phonetic patterns, as students are not only exposed to nasal sounds, but are also forced to replicate them in the context of melody and rhythm, reinforcing memorization and practical application. Thirdly, with songs it offers a meaningful teaching tool that can be adapted to various levels of linguistic competence. From beginners focusing on sound identification to more advanced students looking to perfect their pronunciation, this technique fits a variety of needs.

Likewise, by working with popular and relevant songs, intrinsic motivation is promoted, since students find a direct connection between the music they enjoy and the language learning process. Furthermore, this methodology not only strengthens students' phonetic awareness and pronunciation, but also contributes to building a solid foundation for their communicative competence in Portuguese.

In summary, this manuscript consists of four chapters, the initial chapter delves into the problem statement, rationale, research questions and objectives, providing a comprehensive context of the study, highlighting the challenges faced by pre-service teachers in Portuguese nasalization. Moving on to the second chapter, it explores the state of the art and the theoretical framework, offers information from local and international articles, identifies a gap in the national literature regarding phonetic awareness in Portuguese learners, and establishes theoretical connections with the study. The third chapter focuses on methodology, detailing the paradigm, research approach, and data collection techniques such as semi-structured interviews, audio recording, and field diary. Finally, the fourth chapter will be related to the expected results

which will be aligned with the specific objectives, and a discussion about these possible results as well as the achievement in the development of the implementation of the didactic unit.

1.1 Statement of the Problem

In this section, the problem is presented, it works as a starting point in this research paper. This study does not seek to simply highlight problems that pre-service teachers may present, but instead, it aims to make their voices, their stories, and narratives visible in their process of improving their pronunciation, especially in nasal sound patterns. This is through a qualitative paradigm to consider their perceptions. It is for this reason that was decided to document this problem from both an empirical and a theoretical perspective, because the experiences of those pre-service teachers in a Portuguese phonetics class can be characterized by a number of challenges, those challenges are the difficulty of adapting to a new phonetic system, the need to develop practical application skills, and the importance of understanding the nuances of the language in order to teach it to others. So, I found this problem through an interview with the participants where they commented on the phonetic patterns that were most difficult for them when pronouncing them, where I found that all the participants placed emphasis on nasal sounds (m/n)/ That is why this study focuses specifically on the nasalization of Portuguese and how this phenomenon not only affects understanding the sound but also producing and using it naturally.

In addition, a review in databases was conducted, looking for concepts such as: phonetics, phonetic patterns, and phonetic challenges in Portuguese for Spanish speakers with the purpose of giving theoretical support to the research. Common challenges identified include phonetic development and the need to transfer knowledge for proper accentuation. Authors like González & Romero (2007) argue the importance of starting from simpler sounds and progressing to more complex ones. To sum up, this section highlights the central problem and

laying the foundation for our research. Rather than simply pointing out the challenges that future teachers face, the idea is to amplify their experiences and narratives as they strive to improve pronunciation, particularly in mastering nasal sound patterns. Through the interviews, a common emphasis on nasal sounds (m/n) was found, which led me to focus on Brazilian Portuguese nasalization and its impact on comprehension and natural production. Additionally, the literature review uncovered valuable information about phonetic challenges for Spanish speakers learning Portuguese, emphasizing the importance of starting with simpler sounds. As we move forward, the goal is to address these challenges and contribute to the development of teaching strategies for language learners.

Hence, I initiated by identifying a problem in the population I will work with, coinciding with the introduction of Portuguese phonetics class. An evaluation in that subject revealed a recurring difficulty among students, particularly with nasal sounds, often confused with oral sounds. Subsequently, I interviewed the Portuguese teacher, who confirmed the difficulty students faced in emitting nasal sounds due to infrequency of use in Spanish, their native language. Further interviews with students revealed that students struggled with nasal sounds production. This prompted me to focus on nasal sounds, aiming to understand the underlying reasons for this difficulty. Conducting a diagnostic test confirmed nasal sounds as a weak area for the students. That is why, to reinforce this finding, I recorded their pronunciation of nasal sounds, confirming their struggle and their desire for alternative practice nasal sounds patterns in Brazilian Portuguese language.

For this reason, the interest in investigating the phonetic part of Portuguese arose because phonetics is an essential part of learning any foreign language, since it allows students to develop a correct and natural pronunciation of the language. Apart from that, understanding phonetics

helps students to differentiate the sounds that exist in the target language, which in turn, improves their reading and listening comprehension apart from the writing and speaking production. The problem is when learners are immersed in complex theoretical components, which makes it difficult for them to understand phonetics, causing misunderstanding, and frustration in skills related to listening and speaking of the phonetic linguistic components of language. According to Brisolara (2011), phonetic components should be taught so that students perform different exercises where they continuously produce sounds. An example of this that he highlights is reading books aloud where the teacher gives importance to the pronunciation part. Also, according to Santos (2016) one of the biggest challenges for Spanish speakers is the production of nasal sounds due to phonetic differences, for example in Spanish nasalization occurs in vowels followed by a nasal consonant, but in Portuguese nasalization is more prominent due to nasal vowels, nasal diphthongs, and nasal consonants. This can be interpreted as linguistic interference because Spanish speakers can transfer nasalization patterns from Spanish to Portuguese, which makes it difficult to produce nasal sounds correctly, since in Spanish nasalization is rarely used when communication occurs.

In addition, García (2010) emphasizes that words with nasal sounds in Portuguese are represented differently in spelling compared to Spanish. This divergence can make it difficult to associate the written symbols with the correct pronunciation of the nasal sounds. This is why García (2010) mentions that if phonetic awareness is developed in the classroom, it can generate an improvement in the articulation of sounds, for example if the target population understands the phonetics of Portuguese in nasal patterns, students can improve their ability to pronounce nasalized words and phrases accurately.

From the moment this interference was noticed, the investigation began on how the process of learning the phonemic dimensions of Portuguese had been for the selected population. The population consists of a group of five students, aged between 19 and 22 years old., They are pre-service teachers who are pursuing a degree in foreign languages with emphasis in English and Portuguese. This group is in their seventh semester (fourth year in other countries) and have had a long path since their fourth semester learning Portuguese. The context will be developed in the School of Education and Social Sciences. Focused on the bachelor's degree in foreign languages, a program created in 2014. This program was created with the purpose of training language teachers who work in the process of teaching the English and Portuguese language with a broad profile of work performance integrating their skills and highlighting human training. This university also offers mostly focused conversation clubs and recently started Portuguese conversation clubs where students can practice their communication skills. In addition, a requirement to graduate from this program is that students must reach a proficiency level of B2 minimum to C1 in the Portuguese exam (Celpe-bras). That is why they should take into account the phonetic aspect since it helps them in their professional development to improve all four abilities in the language.

In addition, two main difficulties were encountered, firstly, there are sounds that do not exist in our native language or that are similar in our mother tongue but in the second language they have completely different phonetic patterns, which can lead to confusion. A learner (learner one) mentioned in the interview that there are sounds that are complex, allow me to say they are not in Spanish, so it is difficult to try to get that sound out because it sounds very artificial. There are some symbols that are not at all similar to the sound they are supposed to represent, so it is complex to learn that. (*Juan's Interview, January 2023; own translation*).

This leads to the analysis that, according to Alves & Magro (2011), a sound can occur in the L2 but not in the L1. It refers that one of the reasons why Spanish speakers may find it difficult to learn certain sounds in Portuguese is because some of the sounds are not present in the Spanish language, or they are pronounced differently. For example, the Portuguese "ão" sound does not exist in Spanish. Additionally, some vowels are pronounced differently in Portuguese, which can also be challenging for Spanish speakers to master.

Secondly, the specific challenge identified was the nasal sounds. The nasal sounds in Portuguese are produced by allowing air to pass through the nose while blocking the oral cavity with the tongue and/or the lips. These nasal sounds are not easily perceived by Spanish speakers, although they exist, little importance is given due to the fact that there are many variations in pronunciation depending on the country and region of the speaker. This is why they can be difficult for Spanish speakers to learn. A participant mentioned in the semi-structured interview that a difficulty or a difference that can be a bit shocking with Spanish is the fact of the nasal sounds. The nasal sounds, since they are not taken into account or are not present in Spanish, they are something new for us and which are too present in Portuguese, they are very present and can represent a bit of a difficulty, since the nasal sounds are not incorporated into our vocabulary, in our speaking so nasal sounds are something new for us and when it comes to speaking fluently they are a bit complicated to consider. (*Joana's Interview, January 2023; own translation*).

According to Bateman (2017) Portuguese has seven oral vowels and five nasal vowels, as compared with only five (oral) vowels in Spanish. That is why nasal sounds represent a great challenge for Spanish speakers, because they may have difficulty producing these sounds correctly, as their pronunciation patterns are different from what they are used to. Additionally,

Portuguese nasal sounds are often unstressed, which can make them harder for Spanish speakers to distinguish as in Spanish, vowels tend to be pronounced more clearly and distinctly, whereas in Portuguese, unstressed vowels can be reduced or even omitted, which can make it harder for Spanish speakers to perceive and produce the nasal sounds correctly.

The before mentioned could be evidenced with the development of two exercises to identify if the selected group had difficulties in producing nasal sounds. The first exercise consisted of giving them a list of words specifically with nasal vowels where out of the 10 words, only 1 to 2 words were tried to be produced adequately, but their pronunciation felt a little forced as they closed their mouth too much, which limits them to communicate fluently or appropriately when they have a nasal sound present.

Another exercise that was done in site (at a classroom during a class) was the reading of a tongue twister where the students only tried to make the nasal sound when they saw the graphic sign called (til), but they did not have the phonemic awareness of the other nasal production rules such as: vowel after nasal consonants and nasal diphthongs, which they did not consider at all.

And before that they carried out these two oral production exercises, in class, it was already evidenced that nasal challenge for them when in a written phonetics evaluation, they were asked to identify phonetic transcription errors, most of learners omitted the graphic signal of nasalization in the text which could have been due to the fact that the population does not take into account the phonetic component in any other specific context out of the instructional way.

Overall, the differences in pronunciation patterns and the presence of additional nasal sounds make it challenging for Spanish speakers to learn the nasal sounds in Portuguese. However, with practice and exposure to the language, they can improve their pronunciation and

become more comfortable with these sounds. Here is where a new approach throughout songs will be presented in order to improve and overcome these challenges.

Finally, another problem identified was the lack of articles addressing this situation. In terms of international literature, Tlazalo & Basurto (2014) would describe the importance of the phonetic and phonological aspects when learning a foreign language. So, by conducting this research project, a great contribution to the pedagogical and research field will be made by brightening some experiences and enriching the literature.

To sum up, the problem that I seek to address in this research proposal addresses its efforts is the linguistic interference that pre-service teachers may face in the acquisition of Portuguese nasal sounds. According to García (2010), the similarities that facilitate understanding, at the same time, make communication more difficult due to the constant interference of the mother tongue. The findings suggest that learning phonetics is essential in developing a correct pronunciation to comprehend the nasal sounds patterns of the language, and it helps students to distinguish and understand the different sounds that exist in the target language, which in turn improves their communicative skills. However, complex theoretical components can make it difficult for students to understand phonetics. Therefore, making emphasis in the improvement of phonetic learning and consequently, improvement of communicative abilities, a didactic unit will be shown. This unit is task-based and will work with songs, lyrics miming to be more specific, that would be the key to facilitate nasal sounds.

1.2 Rationale

The acquisition of a foreign language has been an important topic of study for linguists and educators around the world. For many people, learning a new language can be a challenging and complex process that requires a great deal of time, effort, and practice. For that reason, the

current research project and proposal aims to investigate the experiences of pre-service teachers in learning the Portuguese language, with a specific focus on the phonetic awareness of the language particularly in nasal sounds.

First, it is important to highlight that in the bachelor's program that the population belongs, little attention has been given to the phonetic part of the Portuguese language. In fact, there has not been any research in their program about the Portuguese language, where even though the students express that they have a difficulty with Portuguese, they are not taken into account, for this reason I seek to make visible the voices and experiences of these pre-service teachers because if they have problems with pronunciation and identification of phonetic patterns, in this case nasals, this could affect their communication process and way to produce the nasalization.

Then, this line of research focuses on exploring pedagogical strategies and methods that promote the development of knowledge and skills in the educational field. In this way, this study seeks to improve the pronunciation of nasal sounds through this proposal for a didactic unit because I would focus on the use of music and songs as effective strategies in teaching pronunciation and phonetics. On the one hand, according to Morelo and Peixoto (2021) music that provides the context of the target language helps students develop listening skills which improves their oral comprehension and their ability to identify and distinguish different sounds and intonations. In my case, seeing the didactic manual that these authors created where they taught each phonetic pattern and sound of the Portuguese language served as path that it is possible to integrate music in an educational context since music not only captures attention of the students but also allows them to realize that those sounds that they thought were not so important are very present in the language, in this case Portuguese, because students can

evidence in Brazilian songs the great use of that phonetic pattern, in this case it would be nasal patterns.

On the other hand, the use of music implies an analysis and reflection on the didactics used in the teaching of phonetics and pronunciation. Huback (2022) argues that although most teachers who are teaching Portuguese as a foreign language rely on books, which address grammatical aspects and vocabulary, many lack substantial coverage of pronunciation and phonetics content, which requires educators to complement teaching with resources, teaching tools or strategies. The author emphasizes that as teachers it is important to rethink how phonetics is taught and introduce basic aspects of Portuguese phonetics to avoid fossilization or confusion in oral production. In the advice or guides that he mentions, describe that it is important to generate a strategy that contains activities such as phonetic distinctions, spelling-pronunciation correspondences, and contextual variations in pronunciation. Due to this, I consider that through Brazilian songs, students would be practicing listening and pronunciation where they will previously be introduced to the phonetic components of Portuguese so that they can identify minimal pairs and be able to correctly produce nasal sounds but in a way that they have not done before in their Portuguese classes since students have been looking at the phonetic alphabet, and memorizing it, but this does not allow students to identify phonetic patterns in a specific context.

Second, after reviewing several research projects in databases, it was identified a gap in the literature. Specifically, there was no research on how Colombians learn Portuguese phonemes or how the phonemic part is fundamental in the learning process. Most of the research was international, where the majority of authors made a list of the difficulties that Spanish speakers present because of the proximity of the mother tongue and the target language

(Portuguese), none showed any contributions in the phonetic aspect. Therefore, this research project seeks to address this gap in the literature and contribute to our understanding of how pre-service teachers can improve their phonetic skills.

The third aspect of this research project is to inquire about how it can contribute to the learning processes where the nasal sounds of the Portuguese language are especially challenging. Portuguese is known for its complex nasal sounds, which can be difficult for Spanish speakers to master. By focusing on phonetic awareness and proposing a learning strategy that emphasizes the phonetic aspect, it is expected to be helpful to pre-service teachers so that they can identify their weaknesses and work on them. In this case, the strategy to be implemented in the didactic unit proposal will be Brazilian songs. This was inspired by a book called songs to teach Portuguese phonetics, where Castelo et al. (2021) addressed 25 didactic units to the phonetic topic, a form of oral production and even vocabulary. To this concern, this research proposal will only focus on the nasal phonetic theme such as: nasal vowels, nasal diphthongs, and nasal consonants through songs imitation since it is how phonetic formation can be promoted in a way that it is not mechanized, it will be playful and contextualized. Also, music and rhythm help engage students' attention and facilitate active participation in the learning process. Singing along with songs, students can practice imitating and then producing nasal sounds in a guided way. According to Solis (2023) music involves different aspects that could help a language such as sounds, rhythmic, harmony, melody and tone and can act as an academic complement, in his research, the author emphasizes that by using music he was able to expose students to a wide range of sounds, topics and opinions, promoting analysis and understanding of language.

That is why, with music students can improve their understanding of grammatical structures, pronunciation and intonation as well as improve students' oral communication skills.

In my opinion, one aspect to highlight is that thanks to music, it can help students remember words, phrases, and structures of the language, since melodies and rhythms can facilitate the retention of information. Therefore, in my research, music will be a tool to help students since it will not only entertain them and create a good atmosphere in the classroom, but it will also help them practice the production of the nasal sounds in a guided manner.

Furthermore, the importance of this research project is to improve and make an impact on language learning programs for pre-service teachers in Colombia who are learning Portuguese for their professional and academic aspects. By identifying the specific experiences of this population and proposing strategies that emphasize on the phonetic aspect of the language, educators and policymakers can develop adequate language learning programs that recognize the challenges.

In conclusion, this research project explores and evidence the experiences of pre-service teachers who are learning Portuguese as a foreign language and moreover, to become educators. By addressing the gap in literature and proposing a strategy that emphasizes Portuguese phonetics to make a change in the difficulty of the language.

1.2.1 Analysis and diagnostic activities

In the next section I will show evidence of the problem:

In this case I asked the students to show me evaluations of the phonics subject to identify if they have done any with nasal sounds. Which I was able to collect this evaluation which one of the points was that they had to identify the words with nasal and oral vowels, where some of the students selected with a circle in the nasal vowels, they chose some oral ones and in the oral vowels they chose some words with nasal sounds. From that first student's artifact I could notice

that they were confused when producing and identifying nasal patterns, this underscores the need for further instruction and clarification on the distinction between nasal and oral vowels to ensure comprehensive understanding among students.

Table SEQ Table * ARABIC 1.
Phonetic evaluation

Considere-se a sua pronúncia, sempre as palavras que iniciam o som indicado na coluna da esquerda. Você deverá selecionar entre duas a quatro palavras em cada linha. Se necessário faça uso da tabela fonética. Siga o exemplo dado.

Ex.: Consoante oclusiva	ba	sa	ma	fa	na
1. Consoante bilabial	biteta	bita	bita	bita	bita
2. Consoante fricativa	sala	capta	dafo	subta	zara
3. Consoante nasal	puta	barba	aba	ma	ama
4. Vogal oral	sim	sim	sim	sim	sim
5. Vogal nasal	sim	sim	sim	sim	sim
6. Consoante oclusiva	sim	sim	sim	sim	sim
7. Consoante líquida	sim	sim	sim	sim	sim
8. Consoante sibilante	sim	sim	sim	sim	sim
9. Vogal média	sim	sim	sim	sim	sim
10. Vogal posterior	sim	sim	sim	sim	sim

Handwritten marks: +22, -4, 0,65

Considere-se a sua pronúncia, sempre as palavras que iniciam o som indicado na coluna da esquerda. Você deverá selecionar entre duas a quatro palavras em cada linha. Se necessário faça uso da tabela fonética. Siga o exemplo dado.

Ex.: Consoante oclusiva	ba	sa	ma	fa	na
1. Consoante bilabial	biteta	bita	bita	bita	bita
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4. Vogal oral	sim	sim	sim	sim	sim
5. Vogal nasal	sim	sim	sim	sim	sim
6. Consoante oclusiva	sim	sim	sim	sim	sim
7. Consoante líquida	sim	sim	sim	sim	sim
8. Consoante sibilante	sim	sim	sim	sim	sim
9. Vogal média	sim	sim	sim	sim	sim
10. Vogal posterior	sim	sim	sim	sim	sim


Handwritten marks: 0,45, +72, -4

Source: Students Artifacts

It is important to mention that this evaluation was one of the first carried out in the phonetics class where students had to identify different types of vowels and consonants, including nasals. Therefore, it will serve as an analysis to show some confusions that the study population has. From this first image and second image, where there are two evaluations of different students and I can evidence that they have difficulties in differentiating nasal vowels from oral ones, since they enclosed the word *sim*, *cem*, *bombom* as oral vowels when they would be nasal vowels. Because a vowel becomes nasal not only when it has the graphic signal but also when the vowel is before m/n. In addition, they locked in the nasal vowel *mulher* when it would be an oral vowel and they needed to identify some nasal consonants and nasal vowels. Because where it says -1 it's because it wasn't a vowel or nasal consonant. This shows the lack of phonetic awareness in the population.

The following table is about the first diagnostic interview that I conducted with the students to identify the skill they had difficulty in Portuguese. Due to their responses, I decided to focus on phonetics, especially nasal sounds:

Table SEQ Table * ARABIC 2. Diagnostic questions to identify which sounds students had difficulties.

Questions	Some Answer of the population that I will work with										
What is the skill that you have weakness in Portuguese?	 <table border="1"> <caption>Data from the bar chart</caption> <thead> <tr> <th>Skill</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Speaking</td> <td>100%</td> </tr> <tr> <td>Listening</td> <td>80%</td> </tr> <tr> <td>Writing</td> <td>100%</td> </tr> <tr> <td>Reading</td> <td>0%</td> </tr> </tbody> </table>	Skill	Percentage	Speaking	100%	Listening	80%	Writing	100%	Reading	0%
Skill	Percentage										
Speaking	100%										
Listening	80%										
Writing	100%										
Reading	0%										
Why do you think you have difficulty in that skill?	<p>Porque me da miedo equivocarme en las reglas gramaticales lo que causa que me de nervios y no pueda hablar.</p> <p>Porque es difícil asimilar la pronunciación de las palabras</p> <p>La velocidad y los sonidos propios de la lengua me confunden</p> <p>Por los diferentes acentos que vienen en los audios</p>										
What Portuguese sounds are more difficult for you to produce?	<i>x/h o n/m/ chil (graphic signal of nasalization) all the population mentioned having difficulty with nasal sounds.</i>										
Why do you have more difficulty with the sounds you mentioned?	<i>I think that the class sometimes tends to be theoretical and a lot of repetition of sounds. However, when we are speaking in a conversation, we tend to omit the nasal sound since it is not used as much in Spanish.</i>										

Source: Own elaboration

Phonetics being too big a field of study, that is why I delve into a specific sound that students had difficulty with, that is why this interview gave me a clearer background of which sound to focus on, because in Portuguese there are many different phonetics patterns to study, and I was able to determine from answers such as: the students tended to avoid nasalization because they didn't know how to produce nasal sounds without sound mechanization. Also, students thought that the nasal words are the ones that only have the chil that is the graphic

signal. That is because students dismiss or pronounce nasal vowels as nasal so due to this the main difficulty for students were the nasal sounds. In addition, as the students mentioned that the skill, they witnessed with the greatest difficulty was pronunciation, my objective with this research will be to carry out a strategy through songs with a didactic unit where students can specifically practice nasal sounds.

The table below is the interview that I conducted to the Portuguese teacher of the students to ask if he had identified weaknesses in the language through classes:

Table 3. Portuguese teacher interview

In Portuguese classes, what is the ability that students have weaknesses?	<i>Eu acho que a habilidade em que eles são fracos é a pronúncia porque às vezes eles omitem sons ou fazem a entonação incorretamente.</i>
Could you mention in which sounds you have noticed that students find it difficult to pronounce?	<i>Sons nasais, pois às vezes os emitem como se fossem vogais orais e diferenciação de sons bilabiais (b/v).</i>
What strategies do you use in class to practice the pronunciation of those sounds?	<i>Diferentes estratégias, como repetição, ditado, leitura em voz alta, apresentações.</i>

Source: Own elaboration

The interview with the Portuguese teacher was to find out if he had evidenced weakness in the sounds that the students also identified. In the interview he commented that nasal sounds are difficult because as their native language is Spanish in their mother tongue nasal sounds are not present in daily words, which is why students didn't recognize when a word could be nasal or oral. Moreover, I would like to implement with this research new strategies that have not been used before for students to try another way of learning these sounds that is not so theoretically focused.

The table below is the phonetic transcription of how the population pronounced the list of nasal words:

Table 4. Nasal Sounds Word List: First column (Pronunciation with Correct Transcription), Second Column (As the students pronounced)

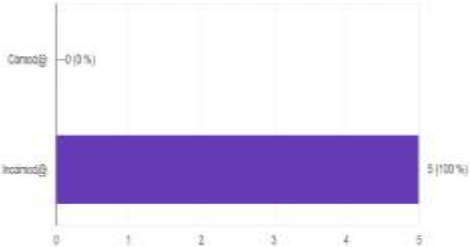
Põe	['põj]	['poj]
Mãe	['mẽj]	['mẽj]
Amanhã	[ɐmẽ'ɲɐ]	[ɐmɛ'ɲɛ]
Chão	['ʃɛw]	['ʃɛw]
Estão	[i'tɛw]	[i'tɛw]
Impõem	[ĩ'põj]	['ipoj]
Hortelã	[orti'lɛ]	[orti'lɛ]

Source: Own elaboration

From the following table we were able to identify that the 5 students the word that had the best pronunciation in nasal sounds was mãe but the others omitted the nasal sound of the vowels and in the last word hortelã they all had a common pattern of putting the nasal sound as if it were the nasal vowel e instead of a.

The table below is the interview I conducted with the students to ask their perceptions when they produce nasal sounds in Portuguese:

Table 5. Diagnostic questions after the list of nasal sounds

Questions	Some Answer of the population that I will work with									
How did you feel pronouncing the list of nasal words?	<p data-bbox="630 863 688 884">Frecuencias</p>  <table border="1" data-bbox="716 905 1182 1150"> <thead> <tr> <th>Categoría</th> <th>Frecuencia</th> <th>Porcentaje</th> </tr> </thead> <tbody> <tr> <td>Correcto</td> <td>0</td> <td>0%</td> </tr> <tr> <td>Incorrecto</td> <td>5</td> <td>100%</td> </tr> </tbody> </table>	Categoría	Frecuencia	Porcentaje	Correcto	0	0%	Incorrecto	5	100%
Categoría	Frecuencia	Porcentaje								
Correcto	0	0%								
Incorrecto	5	100%								
What made you feel like that? justify your answer	<p data-bbox="630 1224 704 1245">5 respuestas</p> <ul style="list-style-type: none"> <li data-bbox="639 1276 1175 1297">Porque siento que en la mayoría no podía producir correctamente los sonidos Nasales <li data-bbox="639 1318 1224 1339">Porque como en español no está ese sonido, es muy complejo para mí tratar de que suene así. <li data-bbox="639 1360 1289 1402">Diría que porque no sé bien como se pronuncian, y creo que pronuncie mal la mayoría. Excepto las que ya conocía que son la de estáo y amanhã. Pero no quede satisfecha en la manera que las pronuncie. <li data-bbox="639 1423 1321 1465">De por sí mi forma de hablar es bastante nasal así que hacer estos sonidos puede ser en parte un reto ya que siento que el sonido es muy forzado. <li data-bbox="639 1486 997 1507">Porque no estaba seguro si mi pronunciación era la ideal 									

<p>Do you consider nasal sounds a challenge? justify your answer</p>	<p>5 respuestas</p> <p>Si, porque en algunos momentos tiendo a forzar mucho el sonido nasal y obstruyo la corriente de aire por ahí, lo cual siento que no permite que el sonido suene totalmente nasal</p> <p>Si, porque como mencioné en español no está ese sonido entonces toma un poco más de tiempo y énfasis tratar de pronunciar para que suene similar.</p> <p>Si, se me dificulta ya que no estoy muy acostumbrada a esos sonidos. No los practico mucho, y siempre me han parecido duras las palabras que tiene esos sonidos. No me siento capaz de pronunciarlos correctamente.</p> <p>Si, debido a lo anteriormente mencionado. Además de que estos sonidos hacen cortar el flujo de mi pronunciación, otro motivo puede ser de que en el idioma español no hay sonidos nasales tan marcados como en el portugués por lo que de por sí estamos aprendiendo desde cero una pronunciación nueva.</p> <p>Siento que si tienen cierta dificultad ya que es un sonido que no tenemos incorporado en nuestra lengua materna, esto hace que sea difícil incorporarlo en nuestra habla y que seamos capaces de identificarlo.</p>
<p>In class, have you practiced or approached this sound with strategies? justify your answer</p>	<p>5 respuestas</p> <p>No, hemos visto la diferencia de algunas palabras que tienen estos sonidos pero no realizamos ejercicios que nos ayuden a mejorar como lo producimos</p> <p>La opción que hemos tomado es tratar de repetir estas palabras hasta que suenen un poco similar, sin embargo no hay alguna estrategia específica que permita adoptar este sonido para que suene nasal completamente</p> <p>Si, el profe suele repetir mucho las palabras que cuenten esos sonidos. Pero siento que no hay suficiente práctica de esos sonidos, para que se nos sea más fácil.</p> <p>Si, aunque de manera breve. El docente muchas veces intenta aplicar un direct feedback al momento de la pronunciación, dándole enfoque a este tipo de sonidos.</p> <p>La verdad no, aunque pueda imitar el sonido no me siento capaz de identificarlo con facilidad en todas las palabras del lenguaje. Sería bueno saber más estrategias que puedan ayudar a fortalecer aquellos sonidos que se. DS dificulta a los hispanohablantes.</p>

Source: Own elaboration

Finally, the recording of the pronunciation of nasal sounds served as a valuable tool to reaffirm the challenges that students face in produce these phonetic patterns. Beyond mere observation, the recording captured the nuances of the students' difficulties with intonation and highlighted instances of linguistic interference that hindered their nasal pronunciation. This idea underlines the complexity of nasal sounds in Brazilian Portuguese and emphasizes the importance of specific interventions to help students overcome these difficulties.

1.3 State of the Art

In order to offer a solution to the previously mentioned problems in relation to the phenomenon, this proposal is based on developing phonetic awareness so that students

understand the role of phonetics and pronunciation of Portuguese. Additionally, the literature review focuses on exploring research related to phonetic difficulties in Portuguese and how to develop phonetic awareness in Portuguese as a foreign language to Spanish speakers.

Based on the difficulties that arise in the production processes of nasal sounds, by Spanish-speaking teachers of ninth semester who are learning Portuguese as a foreign language; and, with the purpose of substantiating said research proposal, the following research background was taken into account, which provided a more detailed vision of the current state of said phenomenon, as well as the advances that have been made regarding this. To offer a broader description of the present state of the art, criteria that are covered within 6 international articles, 4 national articles and 5 local context articles were considered where it is mentioned in which aspects they contribute to my research. (See annex 1)

In order to explore research related to phonetics and pronunciation to support my monograph, the first international research entitled *Using Songs to Improve EFL Students' Pronunciation*. According to Villalobos (2013) the use of songs is a pedagogical tool and an innovative approach to strengthen the pronunciation skills of English as a foreign language (EFL). This methodology aims to delve into the nuances of oral expression and pronunciation within English classes, taking advantage of songs to the production of sounds and suprasegmental elements. Through an examination of the processes of acquisition of oral skills, especially in the production of sounds such as vowels, consonants, and linguistic phenomena such as assimilation and connection, the research seeks to offer comprehensive ideas on crucial aspects to improve the competence of students in the production of sounds according to their level. Finally, it is important to mention that this study contributes in terms of reaffirming that songs not only help students listen and repeat songs, but it also allows students to practice

specific sound patterns, but also helps students to immerse themselves in real linguistic and cultural contexts, which enriches their understanding and appreciation of the language.

The second research is called *The Effects of English Songs on Young Learners' Listening Comprehension and Pronunciation* (Ghanbari & Hashemian, 2014). It investigates how the use of songs in English affects the listening comprehension and pronunciation of young learners of English as a second language (L2). The methodology used included sixty students between eight and eleven years old from primary schools in Isfahan, Iran, distributed into four experimental and control groups. A pretest was conducted to ensure homogeneity between the groups, and the results showed a positive impact on both the listening comprehension and pronunciation of the L2 learners, with significant differences between genders in the development of pronunciation. According to Ghanbari and Hashemian (2014) mention that the use of songs in teaching second languages has positive implications, especially for oral comprehension and pronunciation. Furthermore, they highlight that the use of songs can improve students' pronunciation, since by singing the lyrics, students practice articulating the sounds of the target language in a natural and fun way. This research helps to the development of this research project, since it shows that the strategies linked to music generate a good impact on learning and its development of pronunciation. In the case of the development of Portuguese pronunciation, for example, it is sought that students interact through communicative exchanges supported by various didactic tools, where they can develop physical actions that help reinforce spontaneity when expressing themselves, as well as also to comprehension, which acts as a support for memorization.

Then, the study titled *Perception of Brazilian Portuguese Vowels by Australian English and Spanish Listeners, explores group differences in the discrimination of Brazilian Portuguese (PB) vowels between monolingual speakers of Australian English and Spanish in Australia who*

are learning English as a second language (Elvin & Escudero, 2014). Researchers analyze the acoustic properties of vowels to determine whether they are good predictors of perceptual difficulties in the English language. According to Elvin & Escudero (2014) who found that Australian English speakers have a larger vocal inventory compared to Spanish speakers, both groups have similar accuracy scores for seven Brazilian Portuguese (PB) contrasts. This suggests that it is not easier for listeners with a larger vocal inventory to discriminate non-native vowels. The results show that Australian English and Spanish vowels have the same acoustic properties as Brazilian Portuguese vowels. This study highlights the importance of differentiating sounds and producing them in a second language such as Portuguese, which highlights the need for teaching strategies that provide a solid communicative approach to develop effective linguistic and communication skills. In relation to my research, this study allows us to reflect on the importance of identifying sounds that can interfere with students' pronunciation, such as nasal vowels, which are prominent in Portuguese but not in Spanish.

The fourth study called an *Articulatory Study of Posterior Nasal Diphthongs in Brazilian Portuguese* by Demasi & Savariaux (2019) focuses on investigating the articulatory characteristics of posterior nasal diphthongs in Brazilian Portuguese, specifically in the Paulista dialect of São Paulo. The methodology used involves the analysis of the pronunciation of oral-nasal diphthongs and is supported by a study called EMA 2D, which contrasts the sounds [aw] and [ãw] in monosyllabic words. Through the analysis of the pronunciation of oral-nasal diphthongs, the study reveals linguistic differences in the articulation of these sounds, highlighting the importance of pronunciation technique for effective communication. The findings suggest that incorrect pronunciation can negatively impact communication and comprehension in a second language, such as Portuguese, underscoring the need to include

pronunciation teaching in the classroom to improve students' oral communication skills. In view of what has been said, it is worth mentioning that pronunciation is more than a production of isolated sounds or words, which indicates that it should be perceived as a relevant and integral part of communication, which is why it should be included in classroom where it allows the student to develop in oral communications. This affirms that pronunciation is an important skill to practice in the classroom, and I want to reinforce it in my study because by developing strong pronunciation skills, learners can enhance their ability to comprehend and engage in effective oral communication.

Continuing with the study called Nasal vowels and diphthongs in European Portuguese: a problem for Slovenian speakers, focuses on analyzing how native Slovenian speakers face difficulties when learning European Portuguese as a second language, particularly in the production of nasal vowels. They used a test with 20 Slovenian students, aged 20 to 23, who also have experience with other Romance languages. Müller & Markič (2020) found that the main difficulty lies in the lack of nasal vowels in the Slovenian phonetic system, but they also highlighted the need to pay more attention to the Portuguese phonetic system in the classroom. This research is valuable for my monograph because it highlights the importance of teaching efficient phonological and phonetic skills in real communication situations, especially for populations with similar difficulties in the production of nasal sounds, such as the one I will study. Furthermore, it highlights how linguistic interference and pronunciation can affect the understanding and transmission of the message in different communicative contexts.

In the latest study called Teaching pronunciation through songs: analysis of didactic material considering a guiding model, it examines the teaching of pronunciation over the years, from the belief that students acquired sufficient pronunciation in a way natural, through exposure

to the target language (L2), to a reevaluation of pronunciation teaching. Castelo & Morelo (2022) highlight the importance of integrating pronunciation teaching in the learning of other languages and consider the use of songs as a valuable tool to improve pronunciation and other linguistic skills. This research is relevant to my monograph since it suggests the implementation of teaching tools that encourage interaction, oral and auditory expression, and spontaneity in students. In the case of learning Portuguese, songs contribute to the construction of typical phonetic concepts of the language, which allows an optimal perspective of pronunciation both in a second language and in a foreign language, positively influencing the oral production of the language. That is why the article addresses the importance of songs and how various specific phonetic sounds can be practiced.

At the beginning, when I chose to use songs as a tool to improve pronunciation, I did not think about various aspects that the article mentioned as pre-while and post listening activities. In addition, the authors mentioned that the songs must be chosen carefully considering the purpose that you want to reach. Also, the parts that are useful to me for my monograph is that thanks to the authors Castelo & Morelo (2022), I discovered that the songs are very useful for phonetics because with the units that they carried out, I was able to notice that phonetics can be practiced without such theoretical methodologies. It does not mean that the theory part of phonetics to improve pronunciation is not important, but I mean that usually teachers focus on teaching phonetics only with theory and this overwhelms or bores students.

To conclude this section of international articles, it is evident that the phonetic part of Portuguese has been considered, the research covered songs as a suitable strategy to address pronunciation aspects, satisfactory results have been evidenced when implementing it in students. On the other hand, thanks to this research that recommends a deeper approach to

phonetics and pronunciation, they motivate me to continue investigating and contribute in the pedagogical field.

Moreover, within the national background, the author Andrade (2013) presents the proposal on the *Teaching of Portuguese as a Foreign Language*, specifically in the context of the Complementary Training Program of the Escuela Normal Superior de Leticia in Amazonas. Through this research, didactic processes that favor the learning of Portuguese as a foreign language are addressed, with the aim of developing methodological and didactic strategies that achieve significant learning in the linguistic skills. It was found that most students have contact with Brazil and the Portuguese language, but do not feel completely confident with their mastery of the language. This research is important for this monograph, since it provides strategic guidelines related to the design of didactic training for the learning and acquisition of Portuguese as a foreign language or second language, especially considering that it is a language with little knowledge acquired within a specific approach. as a second or foreign language for Spanish speakers. Furthermore, it highlights the importance of evaluating the student based on their prior knowledge and helping them overcome their interpretation of the reality they face, especially regarding oral expression and pronunciation.

Another research contribution that I found was in Rodríguez (2018) with his research *Enhancing EFL learners speaking fluency through group discussions*, he revealed the positive impact on speech fluency generated through a didactic implementation design based on the use of worksheets. Contextualized worksheets based on group discussions in a group of pre-intermediate English students from a language institute. The study specifically analyzed how group discussions and the implementation of speaking strategies help students in the oral production process; Since, more fluid communication processes in terms of ideas and thoughts

were evidenced, despite any limitation related to the English language. Results also showed that group discussions helped students develop their speaking fluency and focus on meaning rather than form of language.

The last research at this national level is called investigation *Creencias de los estudiantes de portugués con respecto al aprendizaje de esta lengua extranjera en la pontificia universidad javeriana y un acercamiento a la motivación*. Puello (2019) used a mixed descriptive methodology, the research investigates students' beliefs using the Language Beliefs Inventory (BALLI) and finds intrinsic motivation towards mastering Portuguese linguistic and communicative skills. The study serves as a benchmark for future research, addressing the importance of pronunciation development and its role in language acquisition. It emphasizes the need to integrate pronunciation training into foreign language teaching planning, highlighting its significance in increasing the motivation in students and a dynamic language acquisition.

To conclude, in this section of national articles, it is evident that Colombia has tried to give more importance to Portuguese because in recent years it has gained strength not only in institutes but also in business sectors. Although I did not find studies related to phonetics or linguistic interference that Spanish speakers can present. At least they contributed to clarify concepts and show that there really is a gap in Colombian literature.

Now to give a deeper closure to the present state of the art, it is allowed to provide the background corresponding to the local context, among which stands out as the first reference Patiño (2005) who developed a study called *El portugués como lengua extranjera en Bogotá*. The study aims to raise awareness about the necessity of incorporating Portuguese into the foreign language curriculum of the city, considering the historical and social ties between Brazil and Colombia, and the importance of Latin American solidarity against globalization's

homogenizing effects. Furthermore, the investigation proposes a scrutiny of legal frameworks and educational policies to facilitate the inclusion of Portuguese in basic and secondary education in Bogotá, aligning with the city's ten-year commitment to promoting bilingualism among its residents. This documentary research serves as a valuable resource for understanding the current state of Portuguese inclusion in Spanish-speaking curricula, offering insights into potential formative processes as a second or foreign language.

Meanwhile, Mejia (2016) is taken, who presented a degree thesis, called *Reflexiones en torno a la práctica pedagógica de los profesores de portugués del programa de extensión de la universidad nacional de Colombia*. This research is about understanding the diverse pedagogical approaches of CE-UN teachers, aiming to uncover the uniqueness in their teaching methods, language approach, teaching context, and student demographics. To achieve this, the author initially explored the global presence of the Portuguese language and its introduction to Colombia, particularly in Bogotá's educational landscape. Subsequently, the author delved into factors facilitating the growth of Portuguese in Colombia before analyzing semi-structured interviews with teachers to grasp their pedagogical practices. By examining their responses through the lens of global economic, social, and political influences shaping Portuguese language education; Mejia (2016) mentioned that he gained insights into the evolution of Portuguese as a second language in Colombia and its impact on teachers' perspectives and practices. This investigative study holds significant relevance for future language educators, advocating for tailored approaches to Portuguese instruction, especially for Spanish speakers, given the cultural exchange between Brazil and Colombia. It underscores the importance of seeking support from governmental bodies like the Ministry of Education to enhance curricular designs and ensure competitive quality in language education.

With the research by Granados & Paez (2016), *Teaching phonological awareness to avoid interference in young students' output*. The aim is to identify and recognize how the processes and procedures of phonological awareness can help teach to speak correctly and practice pronunciation in an English as a foreign language class for eighth grade students in Bogotá, Colombia. Hence, the author hints at the way in which the teacher uses strategies through activities where the student must identify spoken words, rhymes, segmentation, mixing and isolation of new vocabulary and phrases, students practice their pronunciation and are aware of the variety of sounds, avoid the interference of the mother tongue and participate actively; helping make communication effective and meaningful and increasing output.

Meanwhile, the research by Eustáquio (2018) *La pronunciación del portugués por los estudiantes hispanohablantes*, whose main objective of this study is to provide elements that facilitate the teaching and learning of the PLE to Spanish-speakers to broaden their professional profile. To do this, the authors started from a mixed approach that allowed them to collect data from teachers who work in different educational institutions in Bogotá, which were analyzed using the IRAMUTEQ software, which allowed extracting the results of the dissertations of each teacher on the most important difficulties. Which that means that the development of these processes also lies in the student's perception of their ability to produce suitable vowel sounds and pronunciation or as production based on a model.

Finally, the authors Del castillo & Duarte (2020), in their research, *the practices of the teachers in the B.A. in Modern Languages at Pontificia Universidad Javeriana when approaching pronunciation from the Elementary to the Pre-intermediate level of English classes*, sought to describe the practice of four teachers in teaching pronunciation in the first three levels of the Bachelor of Modern Languages program at the Pontificia Universidad Javeriana.

Pontificia Universidad Javeriana with emphasis in English and French. To achieve this objective, three instruments were used: preliminary interviews, classroom observations (with field notes) and final questionnaires. In this way, an in-depth analysis was carried out where firm positions were identified by teachers to address pronunciation processes in their classes, however, they manifest difficulties in assuming favorable strategies that achieve successful objectives in their students. In this order of ideas, the authors conclude leaving this research in favor of a contribution to the inclusion of pronunciation as a more "active" part of the curriculum and help teachers to adopt a more systematic approach to teaching and assessment.

To conclude this section of local articles, although the interference between Portuguese and Spanish needs to be addressed in more depth. These articles are a good start to investigate more Portuguese as a foreign language. I chose a few local articles because there is a gap in the literature and with my research I would be contributing to the process of teaching and learning Portuguese in my country.

1.4 Research Question and Objectives

As a result of the above-mentioned problematization, a research question that arises from the introduction of the challenges is: What impact does the use of Brazilian songs have on the pronunciation of Portuguese nasal sounds among five pre-service teachers at Juan N. Corpas University?

Objectives:

General Objective

- To explore the influence of incorporating Brazilian songs in Portuguese nasal sounds pronunciation among five pre-service teachers at Juan N. Corpas University.

Specific Objective

- To create a didactic unit that will help students in the production of nasal Portuguese sounds.
- To apply the incorporation of Brazilian songs in the oral production in pre-service teachers on the pronunciation of Portuguese nasal sounds.
- To analyze a didactic unit based on Brazilian songs that focuses on the pronunciation of nasal sounds.

Chapter 2. Theoretical Framework and Legal Framework

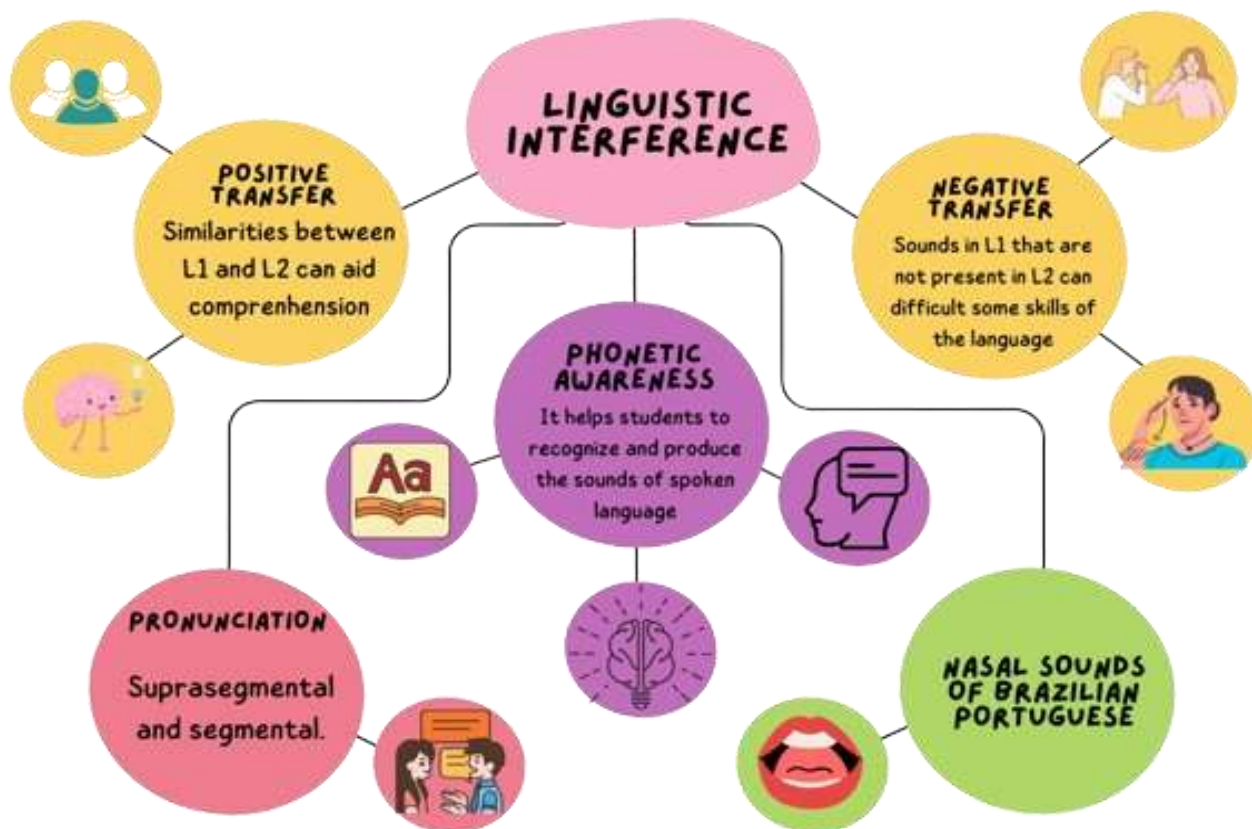
This chapter addresses an exploration of the conceptual and regulatory foundations essential for this research. Starting with the theoretical framework which provides information on the concept of linguistic interference, emphasizing that this phenomenon can influence the learning of the target language, in this case Brazilian Portuguese. Additionally, it analyzes the role of pronunciation in foreign language learning and highlights phonetic awareness as a key component in grasping linguistic nuances. After this theoretical exploration, the chapter moves to the legal framework, which outlines the regulatory landscape governing research. This section highlights the importance of compliance with legal standards to ensure ethical conduct and

safeguard the rights of participants, particularly in the context of qualitative research involving pre-service teachers.

2.1 Theoretical Framework

This section aims to explain various theories, which supported the present research work, and which are also based on its general objective that explore the influence of incorporating Brazilian songs on the improvement of Portuguese nasal sounds pronunciation. In this way, an adequate understanding to try to give a solution to the problem of linguistic interference experienced among five pre-service teachers, especially regarding nasal sounds in the pronunciation of Brazilian Portuguese. Therefore, detailed information is provided, firstly, on linguistic interference, since these intervene directly in the cognitive and procedural field of the acquisition of a foreign language, which in this case is the Portuguese language. Once this is understood, it is allowed to speak specifically about the concept of pronunciation in a foreign language (Portuguese) and its characteristics for the productive scope of communication, through these, the didactic strategy for the development of their learning is recognized, estimating thus, finally, phonetic awareness as a resource to deeply understand the correspondence between the most regular patterns between these two languages.

Figure 1. Visual representation of the theoretical framework



Source: Own Elaboration

This is a visual representation of the description and development of the concept framework, based on the light of primary and secondary sources oriented to a deep interest in the importance of linguistic interference in the teaching of the pronunciation of Brazilian Portuguese as a foreign language to five pre-service teachers that are native in the Spanish language.

2.2.1 Linguistic interference

When two or more languages coexist or are in contact within the same region, the continuous overlapping of linguistic systems is a propitious area for union with each other Montserrat (2004). This union is presented through a deep scale of phenomena, which starts from

the exchange of codes to linguistic interferences; I feel this last object of study of the present investigation; so, it becomes pertinent then, to deal with this issue through various authors who will then provide important contributions. Having said this, it becomes relevant then, to start with the term interference, which Domínguez (2001) considers to be the borrowing of a term or lexicon as a substitution of a word; such as science fiction, football, kindergarten, among others; or also by neutralized foreignism, which in other words is a term phonetically adapted from other languages to L2, such as pizza (in Italian), spinning and mouse (in English), derrière and cliché (in French), among many other examples. This type of adoption is known as neologism and has to do with the creation of new words when the language lacks proper names, especially at a technological and cultural level.

For his part, Czochralski (1971) argues that borrowing and interference make a big difference, since while borrowing is conscious, diachronic, accepted by the linguistic community because it is part of language; the interference is unconscious, synchronous, dynamic, it occurs by default on linguistic abilities, and it is part of the word. In this way, both the borrowing and the substituted lexicon are phenomena that can have their own linguistic status.

Meanwhile, Flor (1995), considers that the combination of codes of a bilingual speaker in communication with another bilingual speaker is an ingenious phenomenon that essentially does not imply restrictions on the use of each language but rather, the possibility of mixing them with an affective, expressive language or even for critical reasons, making this a different act from requesting a loan due to lack of knowledge of a word in the language that is intended to be spoken. Considering the author perspective, the interference is therefore a natural and unavoidable phenomenon, so immediate repair is not necessary, except in cases where communication can be affecting the understanding of the production of the spoken language.

The previously exposed position is defended by various authors, such as Romaine (1988) who affirms that interferences should not be considered as a deviation from the basic grammatical organization, but rather, that those same interferences build the grammar of these communities. Having said this, and it can be affirmed then, that despite the differences established to the concept by the previously mentioned authors, there are coincidences of a phonic, lexical and grammatical type; but in addition to this, they also agree that in the analysis of the interference oriented to the linguistic borrowing, several factors must be taken into account, such as sociolinguistic aspects, the speech community and pragmatic aspects, since these are important phenomena due to the different speaker cultures.

For the purposes of this research study, I understand the concept of linguistic interference as the cross-influence of linguistic patterns between the native language and a target language, resulting in deviations from the linguistic norms expected by the latter. In this research, the focus is on discerning how linguistic interference, derived from the structural and phonetic attributes of Spanish, the mother tongue of the participants, introduces challenges in the precise reproduction of nasal phonemes inherent to Portuguese. That is why, the phenomenon of linguistic interference was recognized because Portuguese has phonetic nasal vowels, nasal diphthongs and a greater prominence of nasal consonants compared to Spanish, which lacks phonetic nasal vowels and nasal diphthongs and has a lower presence of nasal consonants. Taking into account the need to develop learning processes of a second and/or foreign language, where two cultures are integrated; In this case, from the culture of the Portuguese language, the native language of Brazil, to the culture of Spanish, the native language of Colombia, two different codes emerge to refer to the same reality; Therefore, the main role of the foreign language teacher is to unify and

harmonize communication based on the recognition of linguistic and cultural plurality, without forgetting that all this entails linguistic interferences in learning.

Therefore, it is relevant to mention that, around the research topic that explore how the phonetic structures of one language, in this case, Spanish, influence the pronunciation of nasal sounds in the target language, Brazilian Portuguese. This research seeks to uncover the challenges encountered by pre-service teachers in accurately producing nasal sounds due to the interference from their native language phonetics. Due to this, teaching-learning processes must be worked on, oriented towards activities that promote the adequate development of linguistic interference, through topics that may be of interest. Therefore, the characteristics of both positive and negative transfer of linguistic interference that must be considered in relation to simultaneous foreign language learning processes are described below.

In the present research, in the production of nasal sounds by pre-service teachers between classes of Portuguese as a foreign language, it has been shown that when interference is considered an error, contrast analysis can be useful to retrospectively explain the errors of certain students, but not in advance. Even more if they are linguistically heterogeneous groups (natives of different nationalities). On the contrary, in the case of homogeneous groups as in this case, normally in a foreign language situation (factors external to the second language), teachers can identify some patterns about what type of difficulties the students may present.

In short, it can be stated that the population I will work with, they present linguistic interference specifically with negative transfer because L1 sounds not present in L2 can lead to mispronunciation or difficulty in acquiring new sounds. This means that Spanish does not present nasal sounds as prominent as In Brazilian Portuguese this can generate complications when acquiring these sounds, however, it should be noted that this occurs exactly due to

linguistic interference; through which, the student presents difficulties in oral participation and/or pronunciation, causing consequences reflected in communicative abstention. Hence, it is relevant to explain the causes and consequences of said interferences in students' oral production.

2.2.2 Pronunciation

Pronunciation or phonic competence is perhaps the most relevant role within oral production, and therefore a successful result in the speaker's communicative skills depends on it, as revealed by Cantero (1998) pronunciation is “the ability to produce and recognize the phonic units of a language both at the segmental level (vowels and consonants) and at the suprasegmental level (accent, rhythm, intonation, etc.)” (p. 132).

The previously exposed premise indicates that the development of its process within teaching-learning is an arduous task for both the teacher and the student, since it entails a competitive and aptitude level of complexity in terms of phonetics and phonology; Therefore, it is then necessary to generate strategic guidelines and interactions that make it possible to adequately predict and correct the errors identified in the oral and communicative production of students Morris (2012). From what has been stated, it is known to make it clear that the teacher does not necessarily have to be a phonetician or phonologist, nor be specialized in these areas, it is only required that they have theoretical knowledge about it.

This is how it is demonstrated that the development of pronunciation for a successful oral production entails several factors that play an important role in the natural and effective way to communicate in real and everyday environments in a foreign language. Because of this, it seeks to consolidate the topic in question, making known in the following sections that are usually key arguments of the main topic of this research; this, by virtue of basing the pedagogical intervention for which the present study is directed, to facilitate the oral production of adequate

statements in the students, through various interactions and dynamics. For this reason, it is convenient to first establish knowledge about notions of phonetics and phonology of Spanish and Brazilian Portuguese, thus giving way to the segmental and suprasegmental elements of each of these languages.

2.2.3 *Phonetic Awareness*

A way that can be very useful in the process of teaching and learning a foreign language is to make students aware that there are certain sounds in their own linguistic system, of which they are not normally aware, because they are variations (allophone or free), characteristic of the phonemes of their native language L1; but that in the language they learn they are different units; and therefore, sound units that must learn to hear and produce deliberately. Therefore, not understanding the phonetic similarities between both languages can cause unnecessary difficulties or significantly delay the mastery of a new phonetic system (Obediente, 2018).

Also, it requires that the teacher know the phonetic characteristics of the language of the students, which, unfortunately, is not common. In this case, it is known that Spanish-speaking teachers who seek to teach a second language, such as Portuguese; and therefore, tend to systematically master Spanish, they can take advantage of certain elements that would often facilitate their learning in their students.

From this point of view Tummer (2001) point out that phonological awareness can be considered one of the four categories of metalinguistic awareness, or the ability to manipulate the structural features of language. The remaining three categories would be: word awareness, syntactic awareness, and discursive awareness. In this sense, Rayner & Pollatsek (2000) consider phonological awareness as the most important form of metalinguistic knowledge in learning. such awareness requires conscious attention to sounds as distinct elements of word meaning and

requires awareness that words can be broken down into smaller units such as syllables, intrasyllabic units, and phonemes.

The sound units that constitute phonological awareness have been the subject of debate, giving rise to different definitions of the term. On the other hand, Tunmer & Rohl (2017) define the term phonological awareness as the ability to conduct the sounds of words at the phonemic level; On the other hand, Treiman & Zukowsky (2014) also include the manipulation of syllables, intrasyllabic units, and phonemes in their definition of phonological awareness. However, excluding debates of a terminological nature, and following the instructions of (Morais, 2013), phonological awareness allows clear recognition and manipulation of the properties and phonological units of words. Of the recognitions, the duration of a sound, rhyme or accent can be highlighted, and of the units are the syllabic, intersyllabic and phoneme units.

The breadth of the concept of phonological awareness is reflected in many studies using different tasks, procedures, and materials. However, these contributions allowed the formation of different forms and levels of phonetic awareness. Thus, for example, Goswami and Bryant, (2010) distinguish three levels of phonological awareness (syllabic, intrasyllabic and phonemic). As these authors indicate, distinct types of phonological information can be considered because there are diverse ways of accessing the structure of words and breaking them down into smaller units.

Syllabic awareness. Syllable awareness is based on the ability to recognize and divide the series of syllables that make up words. The first investigations of the group Haskins & Carter (2017) showed the fact that the articulatory properties of phonemes are not discrete and immutable, but rather overlap and depend on the context in which the syllables are produced. This has led many researchers to view the syllable as the primary unit of perception and

articulation, as suggested by Tent & Clark (2015) oral production error experiments, in which listeners detected segment-level errors much better than others. Possessing this type of phonological awareness requires an internal representation of the syllabic units that make up words, which is the basis for performing the meta phonological task, which is aimed at producing them in isolation, identifying them, segmenting them, merging them, and inverting their order.

Intrasyllabic awareness. Research by Treiman (2004) highlights the importance of syllabic units larger than phonemes. According to this understanding, syllables have an internal hierarchical structure consisting of a syllable initial or principle (beginning), an optional element made up of a consonant or group of consonants, and another ending or rhyme. This in turn consists of an obligatory vocal nucleus and a coda formed by the consonant or consonants that follow the vowel. From this point of view, intrasyllabic awareness then refers to the ability to recognize, segment and process these units. Although these units are not recognized as clearly as syllables, Treiman (2004) suggests that intrasyllabic units are natural in any language because learners naturally gravitate towards them, as opposed to difficulties with syllable awareness. of the phonemic level.

Phonemic awareness. Real, segmented, or phonological phonemic knowledge (Tunmer & Rohl, 2017). Phonemic awareness involves the ability to represent and manipulate phonemes; This includes, for example, the metaphonological tasks of identification, segmentation, and addition necessary to learn and develop alphabetic reading, as well as other skills used to measure it, such as phoneme deletion or translation. From this point of view, it is necessary to clarify that the development of segmental or phonemic awareness is not a hypernym of the

phonetic treatment of a word, it is not only learning the correspondence of sounds and letters, but also offers the student the opportunity to manipulate segments to raise awareness about speech.

The result of the analysis and documentation of this theoretical framework should be useful and transformative for the author of this study, and for future research, since as a teacher of foreign languages (English - Portuguese), it motivates the generation of teaching strategies for a second language., considering its own and analogous characteristics in terms of morphosyntactic levels, such as semantic and phonetic-phonological.

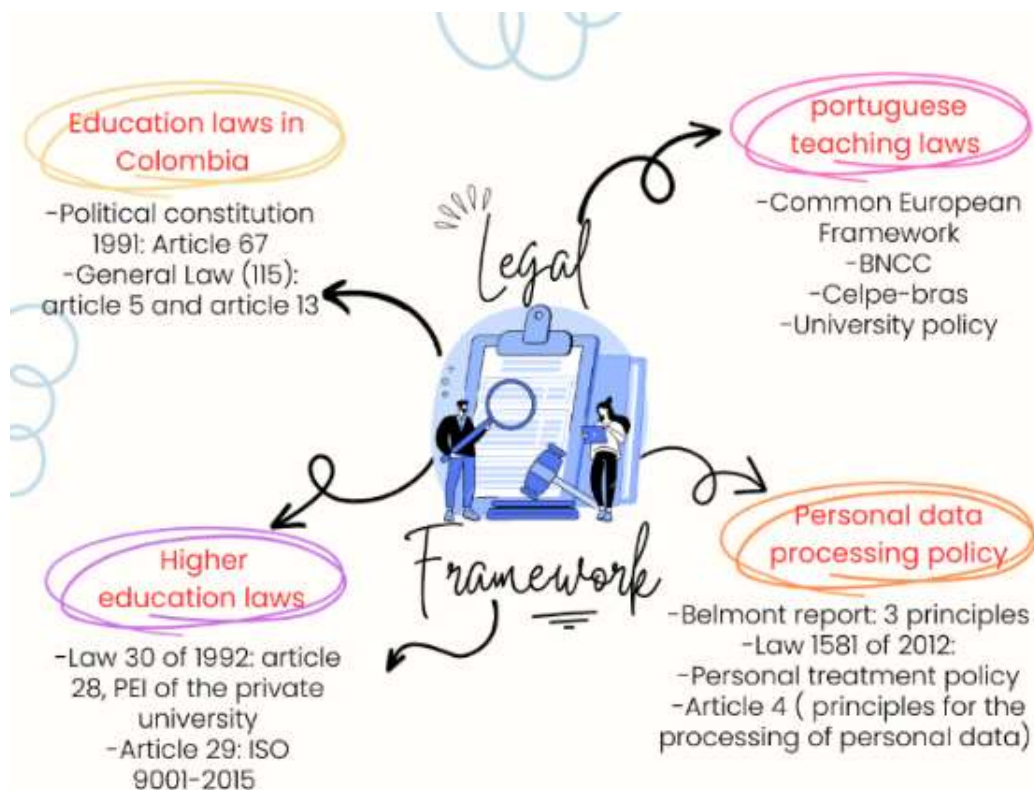
2.2 Legal Framework

In this section I will address the legal framework that will provide solid foundations for my research proposal entitled: pre-service teachers experiences: linguistic interference in the nasal sounds of Brazilian Portuguese. In the first instance, the legal framework refers to a set of laws, regulations and standards that govern a certain area. These laws and regulations can be national, regional, or international. Without a legal framework, there could be inconsistencies and disputes in the interpretation of educational policies. Furthermore, in my research, which is qualitative, it is worth highlighting that I will work with 5 pre-service teachers from a private university, which is important that the participants are guaranteed the rights of freedom to participate and the benefits that this can bring with the research proposal. This is essential to ensure that our research is ethical and complies with applicable legal regulations, respecting the rights and privacy of all parties involved.

In addition, in the form of a graphic I will present the main national and international regulations that are closely related to this research.

Figure 2. Legal framework

This figure is about the regulations that I must consider in this study:



Source: own elaboration

The figure represents the laws to explain in detail, first from a general perspective the most important laws from the country of Colombia such as the political constitution of Colombia and the general law of education, then, because the population with which I will work belongs to higher education, that is why I will highlight Law 30 of 1992 with articles 28 and 29, as well as local laws of the private institution such as the PEI and the ISO 9001 quality standard. Likewise, how the context is related to Portuguese as a foreign language, I highlighted the laws of teaching Portuguese such as the Common European Framework, the Portuguese Standards (BNCC), the international Celpe-bras exam and the institution's policies in relation to the Celpe-bras exam. Finally, the figure mentions the personal data processing policies which are essential to protect the data of the participants for research purposes only.

2.2.1 Education Laws in Colombia

Therefore, the previously illustrated information, in this first division, is a general perspective on which are the most important regulations in Colombian education, which are the political constitution of Colombia in its latest version of 1991 and the general law 115 of education. Starting with the Political Constitution of Colombia, that establishes the fundamental rights of citizens, including the right to education (Article 67). According to the Colombian political constitution (1991) it mentions that education is considered an inalienable right of all Colombians.

That is why this article is important because it guarantees the fundamental right to education, promotes equal opportunities, establishes the responsibility of the State in education, and emphasizes the importance of the integral development of the person and cultural diversity. It is a fundamental pillar in the educational system. In addition, this law is related to my research because my topic is related to analyzing the linguistic interference of nasal sounds in Portuguese as a foreign language. The idea is to contribute to education through a didactic unit through songs. So, education is essential to not only go beyond traditional practices but also to transform society.

Then, with Law 115 it is important since it establishes the fundamental principles and objectives of education in Colombia. According to the general law of education (1994), it defines the purpose of education as the integral development of the person, citizenship training and the strengthening of cultural identity. Therefore, this law serves as a legal basis for the formulation of educational policies in Colombia because it guides the development of laws and regulations related to education and establishes the fundamental principles that should guide the educational

system. Of this law I highlight article 5 because this article mentioned the principles of education in Colombia, including quality and relevance. Likewise, I highlight article 13 because it talks about the cultural and linguistic diversity of Colombia, this means that it supports the implementation of bilingual intercultural education programs. This is of utmost importance in my research because the context with which I will work is a bilingual program with an emphasis on English and Portuguese and this law supports these programs to improve increasingly, aiming towards high quality.

Then we move on to a more specific educational legal aspect because the context with which I will work in my research is based on a higher education university and for this the laws that regulate it must be known.

2.2.2 Higher education laws

Starting with the Law 30 of 1992 is important in Colombia because it establishes the legal and regulatory framework that regulates higher education in the country. In accordance with the higher education law (1992) it promotes quality, university autonomy, access, equity, research and development, internationalization, and regional development. In addition, it protects the rights of students and promotes transparency in the management of educational institutions. This higher education law is connected to my monograph because both public and private institutions are regulated with this law, in my case I will be working with a private institution.

Of this law I highlight article 28 and 29. On the first hand, article 28 because it guarantees university autonomy, which means that higher education institutions have the freedom to make academic and administrative decisions without undue government interference. In the context with which I will work, an example of university autonomy is the PEI because it

establishes the identity and mission of the university. It defines the long-term vision of the institution, its fundamental objectives, and its purpose in society. This provides clear and consistent direction for all academic and administrative activities. On the other hand, we have article 29, which aims to promote continuous improvement of quality in higher education. Through evaluation and accreditation, institutions are encouraged to improve their academic programs and maintain high quality standards. This is why the institution with which I will work for my research proposal has accreditation and a quality assurance system in accordance with the ISO 9001 standard of 2015, which is the international standard of certifiable nature that regulates Health Management Systems Quality.

2.2.3 Portuguese teaching laws

On the other hand, my focus in my research proposal is that students have phonetic awareness in Portuguese to reduce the phenomenon presented in nasal sounds. This is why I must consider the regulations when teaching Portuguese.

The first important regulation for teaching Portuguese is the common national curricular base (hereinafter BNCC) since they are the basic standards that define the Portuguese language. It is important since they define the objectives of each skill, language practices and knowledge of skills. According to the Brazilian Ministry of Education (2018) BNCC standards provide solid guidance for curriculum planning. Teachers can use these standards as a reference to develop coherent curricula and educational activities. In this case, these standards help my monograph because if I am going to create a curricular unit for pre-service teachers to practice Portuguese in nasal sounds, I must start from a guide to be able to plan this unit. Then, I must take into consideration the Common European Framework (hereinafter, CEFR) which establishes an

international standard for the evaluation of language proficiency. According to the Council of Europe (2020), the objective is to provide a clear and objective structure for measuring the level of proficiency in a foreign language. This means that they evaluate linguistic skills with levels, from A1 (beginner) to C2 (expert), which leads us to the Celpe-bras exam, which is a Portuguese certificate for foreigners, developed and awarded by the Brazilian Ministry of Education. It is important to mention that this exam's levels are different from those of the common European framework because they qualify by a score of 5 points maximum (advanced superior, advanced, senior intermediary, intermediary, without certificate). I highlight this exam because according to the private university, the policy mentions that students must graduate with an advanced level of Portuguese. For that reason, students are required as a graduation requirement to have a good command of the language, reaching an intermediate to high level.

In conclusion, the theoretical framework and the legal framework presented in this monograph serves as a foundation for understanding the complexities and dynamics surrounding the teaching and learning of Portuguese as a foreign language, particularly within the Colombian context. Through an in-depth examination of research studies and legal framework governing language education has shed light on the regulatory landscape and institutional frameworks guiding the implementation of Portuguese language.

Chapter 3. Research Design

This chapter addresses the methodological choices, starting with the qualitative paradigm that seeks to explore and understand in depth the experiences of the participants. Then, the action research method supports the implementation of the didactic unit; allowing students to practice

nasal sounds. Therefore, there is an overview of the instruments: A didactic unit with 3 topics to practice such as, nasal vowels, nasal consonants, and nasal diphthongs and lastly a field diary to document in detail students' experiences.

3.1 Qualitative Research

The research process focuses on the qualitative paradigm, which according to Osorio de Sarmiento and Molano (2020) aims to understand and define reality through trend analysis. This is why as a researcher I began with an examination of the context, which then leads to the interpretation, understanding and identification of potential subjectivities among the participants.

In this case I chose the qualitative paradigm due to its capacity for an in-depth exploration of the participants' experiences and perceptions. Moreover, I designed some instruments that I applied to answer the research question such as interviews, records, and artifacts from the participants. Finally, the qualitative paradigm allowed me to analyze the experiences of the participants and addressed the phenomenon of linguistic interference which could hinder the population's sound production process of the Brazilian Portuguese language.

3.2 Action Research

The type of study is action research which originates from the aim of solving problems in a practical manner, where the researcher acts as an agent of change (Clark et al., 2021). This is a model that enables intervention through knowledge and collaboration. Action research has been integrated into the educational field because of its pedagogical determination within the classroom, as it gives teachers the opportunity to investigate and transform pedagogical, school, and curricular processes (Clark et al., 2021).

Kemmis and McTaggart (2014) argue that action research has a spiral operation, which is conducted through cycles of self-reflection such as: plan, act, observe and reflect, again and so on. Researchers begin by planning their study by selecting appropriate methodologies. Then, they implement their plan by interacting with participants and collecting data, closely observing, and documenting the results. After data collection, researchers reflect on their observations and experiences, analyze the data, and identify patterns or ideas. From this reflection, researchers adjust their approach as necessary, review their plan, and implement changes. Through these steps it allows me to apply the interventions and make informed decisions based on results of the actual intervention. Finally, I consider that the action research is the most appropriate method for this monograph because it seeks to address the difficulty that pre-service teachers must properly pronounce nasal Brazilian Portuguese sounds.

3.3 Data management Instruments

The data collection method used in this study is a critical aspect of the research, as it directly influences the relevance of the data acquired. That is why the instruments in this monograph have been strategically designed to capture significant data that enriches the understanding of the studied phenomenon. For this study the data instruments are the following:

Field Diary: According to Oliveira and Fabris (2017) it is a written record where the observer writes about different moments and activities that were carried out, also seeking to reflect on the experiences that occurred. In this case I will be the one filling out the diary through the weeks with the purpose of considering the student's perceptions, difficulties, nasal sound performances and activities that were developed.

This is the format that I will complete in each class:

Figure 3. Field diary format

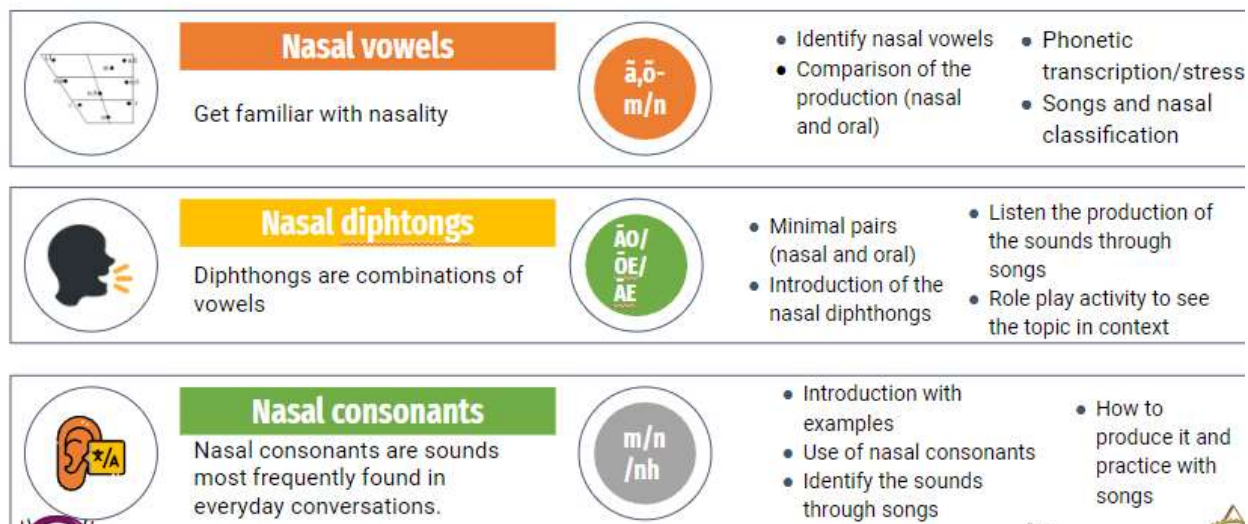
FIELD DIARY #			
Date:			
Theme and purpose:			
Students:			
Description of activities	Difficulties	Students Perceptions	Performance of nasal sounds

Source: Own elaboration

Didactic unit: It is a framework to organize study plans suggested by Arevalo and Artiga (2020), which describes the topics, activities, methodologies, resources, and evaluations. As well as the objectives and the population to which it will be developed must be considered. In this case, the didactic unit will be developed for 3 weeks. The didactic unit called *journey through nasal nuances in Brazilian Portuguese*, describes the activities, instructional materials, products that the students would give it and how it will be evaluated. This unit is aligned according to the topic and objectives. It is a didactic unit because it has the component of Brazilian songs and different strategies such as fill in the blank and finding minimal pairs, among others.

The figure will show the proposal of the didactic unit in a summarized manner with the three topics to be seen and subtopics:

Figure 4. Summary of the didactic unit



Source: Own elaboration

Finally, the figure of the didactic unit presented above is with the purpose that you can briefly identify each week and its respective topics to be addressed. However, the complete didactic unit you can evidence it in (Annex 3).

3.4 Triangulation

Triangulation also known as multimethod or mixed method refers to the practice of using different data sources to enhance credibility of research findings (Thurmond, 2001). In addition, Banik (1993) mentions that an advantage of data triangulation is the amount of generated data that the researcher has for interpretation.

For this study the triangulation process considers the field diary recorded each week, taking into account the teacher's observation and perspective, and the students' artifacts. This helps to identify if there was progress in the production of nasal sounds in Portuguese, and if the

identification of phonetic patterns is generated, contributing to the student developing phonetic awareness.

3.5 Categories

The following table shows the category of the speaking skill. This is because it is related to the general objective that emphasizes the influence of incorporating Brazilian songs in Portuguese nasal sounds pronunciation among five pre-service teachers at Juan N. Corpas University. In addition, there are two categories focused on students developing phonetic awareness and being able to produce nasal sounds. Finally, the indicators are intended to describe how students will achieve the development of the two previously mentioned categories.

Chart 1. Categories about the production of nasal sounds

Unit of Analysis	Categories	Indicators
Speaking Skill	Speaking skill development through phonetic awareness.	<ul style="list-style-type: none"> -The student recognizes oral and nasal patterns. -The student demonstrates an understanding of intonation patterns and stress placement in sentences, leading to clearer and more expressive speech. -The student decodes and pronounces unknown nasal words with greater accuracy and confidence during communication tasks.
	Development of Brazilian songs activities in the didactic unit to progress the production of nasal sounds.	<ul style="list-style-type: none"> -The student practices nasal sound production by listening to Brazilian songs presented in the didactic unit. -The student identifies through songs the different categories that nasal words have.

	-The student incorporates nasal sound patterns encountered in Brazilian songs into spoken language contexts for enhanced oral communication skills.
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Source: Own elaboration

To sum up, the categorization of speaking skills into two distinct categories provides a structured approach to evaluating the incorporation of Brazilian songs in the teaching of Portuguese nasal sounds pronunciation. The first category underscores the importance of developing phonetic awareness, including recognizing oral and nasal patterns and practicing intonation and stress placement. The second category highlights the integration of Brazilian songs to facilitate nasal sound production, involving activities such as listening to songs, identifying nasal word categories, and applying nasal sound patterns in spoken language contexts. These categories, along with their corresponding indicators, offer a framework for assessing students' progress.

3.6 Ethical Considerations

To conduct this research, it is important to consider the personal data processing policy, since instruments to collect the perceptions of students are used, such as audio recordings and semi-structured interviews. Although the population is of legal age, everything should be done ethically in order to protect the identities and data of the participants that are only for research purposes. First with the Belmont report, Department of Health, Education and Welfare (1978) it establishes the fundamental ethical principles that should guide research. This contains 3 ethical principles, which are respect, beneficence, and justice. Likewise, the concept of informed consent, which is central to the Belmont Report, has become standard practice in research. This

means that participants must be fully informed about the risks and benefits of the research before giving their consent to participate.

Second, I will address the law that we have in Colombia for the data processing policy, which is Law 1581 of 2012. One of the key principles of this law is informed consent, which guarantees that people have control over their personal data and how it is used. The importance is that informed consent prevents data from being used in an inappropriate or unauthorized manner. On the one hand, when we obtain informed consent, we are being transparent about our intentions and the purposes of the research. This establishes a trusting relationship with participants, which can lead to more effective collaboration and more accurate data collection. For that reason, in this research I carried out informed consent (see Annex 2) to protect the participants' data and establish the why and benefits of the research.

3.7 Population and sampling

Considering that in chapter one some characteristics of the population have been presented. In this case the following table is to summarize three different personal aspects of the participants:

Table 6. Population and sampling aspects

Pseudonyms	Portuguese Level	Social Stratum
Shirley	B2	3
Catalina	B2	3
Juan	B1	3
Carlos	B2	3
Juliana	B2	2

Source: Own elaboration

The table above shows characteristics in terms of pseudonym or name depending on their preferences presented in the informed consent, the level of Portuguese according to the proficiency test for foreigners (Celpe-bras) and social stratum of each participant.

Chapter 4. Pedagogical Intervention

As described in Chapter three, the intervention will take place through a three-week didactic unit, to be conducted twice a week, with each class lasting two hours. This scheduling aligns with the participants' Portuguese class hours as outlined in the student's curriculum. The didactic unit will be divided into three parts: first, focusing on nasal vowels as they are the most basic component of a language and will help students familiarize themselves with nasality. In the second week, students will study nasal diphthongs, as diphthongs are combinations of vowels, and finally, in the third week, nasal consonants will be addressed, as they are frequently encountered in everyday conversations.

It is important to note that while creating this didactic unit, four components were considered. The emphasis on nasal sounds comes first, as this is the toughest thing for participants to pronounce. Then, the incorporation of Brazilian songs, since they offer various benefits in the classroom as Castelo et al. (2021) suggest, such as facilitating memory and vocabulary, as well as familiarizing students with intonation and rhythm. Moreover, music creates a calmer learning environment, increasing the interest in Brazilian musical genres and encouraging students to participate and speak with confidence, having heard the sounds previously in the songs.

Thirdly, these songs will be used for educational purposes, with activities incorporating strategies such as fill-in-the-blank exercises, sound production, and minimal pair identification. Finally, the fourth component is that students acquire phonetic awareness because with the didactic unit they will be introduced to phonetic patterns in order that they can recognize and produce them more easily.

4.1 Vision of language and learning

In this research my vision of language is based on theory. Chomsky's theory emphasizes that language goes beyond mere communication; it involves a deep understanding of its underlying structure and components. According to Chomsky (2011) language is not solely a tool for transmitting information but also a complex cognitive system with various components, such as phonetics, morphology, syntax, and semantics.

Focusing on phonetics, which deals with the sounds of language, is crucial for several reasons within this framework. First, phonetics plays a fundamental role in pronunciation, because each language has its own set of distinct sounds, and mastering these sounds is essential for clear communication. Due to this, in learning phonetics, students can become more aware of the specific sounds of the target language and how they are produced. This awareness enables them to identify and recognize their own pronunciation difficulties. Likewise, it is important to also define the vision of learning. According to Reisoglu, et al. (2017) learning is conceptualized as a process that involves not only acquiring knowledge but also refining practical skills or abilities. In this case, the focus is on the development of speaking skills, which are essential for communication in the target language. That is why, the pedagogical intervention designed for the study is informed by this vision of learning, which allows students to apply and refine their speaking skills in a supportive and interactive environment. The intervention is designed to be communicative, focusing on real-life communication situations that encourage meaningful interaction and authentic language use taking into account the use of Brazilian songs.

4.2 Role of researcher and participants

On the one hand, in this study my role is not only that of a researcher, but it is also of a teacher. According to Farell (2016), the teacher acts as a guide and facilitator in the students' learning process. In addition, considering this view, the teacher's role is not to transmit knowledge passively but rather to facilitate students' construction of understanding through exploration and reflection. Through the teaching unit I guide students to the theoretical phonetic components as well as guide them to recognize how the theoretical can be evidenced in practical aspects such as songs and situations in context. The idea is to facilitate understanding and to enable them to identify nasal sounds from oral sounds, also making a distinction in the pronunciation of Portuguese.

On the other hand, the role of students according to Reisoglu, et al., (2017) student is conscious of his / her own learning process. Instead of simply passively receiving information, the student becomes an active participant in its process, making informed decisions about how to address the challenges in this case in nasal sounds. Moreover, with phonetic awareness students see mistakes as learning opportunities and are willing to participate.

4.3 Activities and resources

Most activities are related to Brazilian songs, these songs are from different musical genres and have nasal words in their lyrics. I chose Brazilian songs because according to Castelo, et al (2021) they made units with different phonetic components where songs were a good tool to complement in classes. Likewise, Castelo, et al (2021) mention that songs provide a unique rhythm and intonation that can help students better grasp the correct pronunciation of sounds, since they are often highlighted in the melodies. However, the songs must be complemented with other activities. That is why, there are a variety of activities in class and provide a good

environment for the students. Besides the songs there will also be activities such as: conversations, use of the metimeter, visual cards and audios.

Consequently, the resources to be used will be infographics, presentations, news with phonetic transcription, song analysis, notebooks, boards, and worksheets. Since I will rely on these resources to teach the phonetic transcription of nasal sounds and to use them as support. Moreover, I am going to first explain the theory and then move on to the practice of producing nasal sounds.

4.4 Assessment

Assessment is an important stage in education because it influences student learning. According to Yüksel and Gündüz (2017), from the perspective of students, assessment methods increase their effort and commitment in studies and learning. However, teachers' choice of assessment methods also influences students' learning habits.

Likewise, it is important that there are two types of evaluation called formative and summative. First, Gallardo (2021) mentions that formative evaluation is what provides real-time feedback to adjust teaching and learning. He informs both teachers and students about student understanding during instruction, allowing for timely adjustments to ensure that students meet specific learning objectives within a set time. Second, summative assessment is typically conducted at the end of a learning period to measure the extent of a student's learning. Its primary purpose is to assess overall achievement or mastery of specific skills, knowledge, or standards that have been taught over a period. (Gallardo, 2021).

In this case, both types of evaluation will be considered. Formative assessment such as class discussions, self-assessment and peer assessment and summative assessment through

worksheets on categorizing or identifying nasal words and rubrics. The following table shows a summative rubric that I will consider three different criteria such as, accuracy in nasal vowel pronunciation, fluency, and clarity of communication:

Table 7. Rubric to assess students' speech considering nasal vowels.

Criteria	Excellent	Good	Satisfactory	Needs Improvement
Accuracy in Nasal Vowel Pronunciation	Consistently produces nasal vowels with precise articulation and correct pronunciation.	Frequently produces nasal vowels with accurate pronunciation, with occasional minor errors.	Generally produces nasal vowels with some errors in pronunciation or articulation.	Rarely produces nasal vowels accurately, with frequent errors in pronunciation or articulation.
Fluency	Nasal vowels are seamlessly integrated into speech, with natural flow and fluency.	Nasal vowels are generally integrated well into speech, with some instances of hesitation.	Nasal vowels are somewhat noticeable and may disrupt the natural flow of speech.	Nasal vowels are awkwardly pronounced, causing significant disruption to the flow of speech.
Clarity of Communication	Nasal vowels are well produce making the difference with oral sounds.	Nasal vowels are mostly audible when speaking.	Nasal vowels are occasionally unclear or difficult to understand.	Nasal vowels are often unintelligible and hinder communication.

Source: Own elaboration

This summative rubric is linked with an activity that is based on students going through a song (Tocando em frente). First, students will listen and then sing, emphasizing the nasal vowels. This song has both oral and nasal sounds. The first criterion is to identify if they have constant or occasional errors when producing nasal vowels, fluency to identify if they produce the sound with a good rhythm or intonation, and clarity of communication to analyze if students differentiate the sounds. when talking.

4.5 Instructional design

As I explained in the methodological part, action research has three different stages (plan, act, observe and reflect). The plan part refers of the stage that I started to create the didactic unit and designed the three weeks, the act when I am going to implement the unit with the different activities in order to achieve the general objective that is to explore the influence of

incorporating Brazilian songs in Portuguese nasal sounds pronunciation and the last stage that is observe and reflect, the idea is through classes identify if there is a need to change some activities or refine them taking into account students perceptions and reflect upon them with the field diary instrument. That is why in the instructional design I divided it into three phases.

4.5.1 First Phase

This first phase is the planning phase. This phase took 2 weeks, where I began to think about the population, the objectives, and I began to build the framework of the didactic unit. I began to build this didactic unit in four aspects: description of the activity, instructional materials, products and how it will be evaluated. I chose each activity according to the topics and that they are closely related to practicing listening and speaking skills to reduce the phenomenon of linguistic interference.

4.5.2 Second Phase

In this second phase, it is called implementation and will last for three weeks. Each week consists of two classes, each lasting two hours, because that is the hourly intensity that the students have according to the institution's class schedule. The first week will focus on the topic of nasal vowels because vowels are a simple component of the language, and for this reason, it is the first topic; it is the best way for students to start relating to and identifying the nasal patterns of Brazilian Portuguese.

Furthermore, the second week will focus on the topic of nasal diphthongs because it combines vowels, forming the diphthong. This week will involve a combination of various activities such as filling in the blank's strategies combined with conversational exercises. The third week will focus on nasal consonants, which the students will identify and produce the sounds. Additionally, it is important to mention that at the end of each week, I will ask the

students about their perceptions of how they felt when speaking and identifying nasal sounds. As a teacher, I will also fill out the field journal to analyze how the activities progressed. Finally, at the end of each class, there will be reflection, and activities will be reformulated if necessary.

4.5.3 Third Phase

In this final phase, it will be called the final reflection, where the focus will be on analyzing how the students developed at the end of the week, which will take two weeks. Likewise, analyzing the formative and summative assessments of the students and revisiting both the students' and my own reflections developed in the field diary.

Furthermore, the general and specific objectives will be reviewed to verify whether they were fulfilled or not. It is the last stage to identify if the songs had any influence on how the students produced nasal sounds, and to describe whether Brazilian songs are a good resource for us as teachers to consider not only the theoretical but also practical aspects of a language to know if phonetic awareness was generated in the participants.

4.6 Timetable

The timetable is divided within three sections showing the stages of the study, and the indicators on each phase. The indicators will show how the students can achieve the activities that will be performed in three weeks, also the general objectives of teaching and learning are described.

The following table shows the phases:

Table 8. Phases of the timetable

Phase	Indicator	Activities	Objective teaching/learning
First Phase	-Students will practice the production of nasal sounds and will review nasal rules.	First class: -Colombian news -Theoretical instruction -Practical activity -Listening and word classification -Closing activity Second class: -Warm up activity: Run and touch -Listening conversation -Broken phone -Find the minimal pairs (Tocando em frente song) -Closing activity	-Introduce nasal vowels and encourage student participation. -Identify nasal vowels in written text and understand the concept of nasal vowels.
Second Phase	-Students recognize that nasal vowels and diphthongs can be used in different contexts (conversations, songs).	First class: -Drawing Cloud and Reviewing Nasal Vowel Rules -Listening to Audio with Minimal Pairs -Filling in Blanks in Song Lyrics -Presentation and Explanation of Nasal Diphthongs through a role play	-Teacher aims to provide a deeper understanding of the phonetic pattern of nasal vowels and diphthongs through Brazilian songs. -To apply knowledge of nasal vowels and diphthongs in various contexts.

		<ul style="list-style-type: none"> -Listening and produce nasal diphthongs -Reflection sheet <p>Second class:</p> <ul style="list-style-type: none"> -Find the nasal diphthongs game (warm activity) -Change the phonetic transcription into normal words -Highlight in the lyrics of the Brazilian songs the nasal diphthongs -Closing activity 	
Third Phase	Speaking skill: students will pronounce it correctly and recognize when someone speaks an oral or nasal pattern.	<p>First class:</p> <ul style="list-style-type: none"> -Memory Game -Infographic Explanation -Song Activity -Bingo game -Closing activity <p>Second class:</p> <ul style="list-style-type: none"> -Warm up game -Quiz Fable -Parts of a series -Final presentation 	<ul style="list-style-type: none"> -To facilitate the exploration of nasal consonants in Portuguese employing variety of activities - To recognize the role of nasal patterns to produce it correctly.

Source: Own elaboration

Finally, the timeline provides a structured overview of these phases, describing indicators and activities to guide student progress and achievement of teaching and learning objectives. Throughout the schedule, periodic reflection sessions provide opportunities for students to

evaluate their progress and for you as an educator to adapt activities based on student feedback and observations. This process ensures that the instructional design continues to respond to the needs of the students, developing in a dynamic learning environment.

4.7 Lesson Planning

According to Gomez, et al (2020) a lesson plan is a structured document consisting of various components, including objectives, materials lists, procedures, strategies, assessments, and closures. This serves as a roadmap for teachers to guide their instruction during a particular lesson or unit. Therefore, a well-designed lesson plan helps teachers to organize our thoughts, identify learning objectives, select appropriate instructional strategies, and assess student understanding. Personally, I think that the class plan is a very clear framework that helps me organize how I am going to teach the class, the step by step of the activities and to be able to choose each activity with a purpose and objectives considering the student needs.

To sum up, a lesson plan acts as a structured guide comprising various elements, helping teachers to have their instruction organized for a specific lesson or unit. Personally, I find that a well-designed lesson plan offers a clear framework that helps me to organize the class, outline activities step by step, and deliberately select activities. This serves as an indispensable guide for teaching, ensuring coherence, clarity, and alignment with educational objectives while addressing the diverse needs of students.

The following table will show the lesson plan for the first class on nasal sounds. Which has a variety of activities, most focused on the strategy of using Brazilian songs:

Juan N. Corpas University

Teacher: Isabella Serrano Buitrago

Topic: Nasal vowels (first class, 2 hours)

Teaching objective: To introduce students to the concept of nasal vowels in Portuguese through engaging activities and theoretical instruction.

Learning objective: By the end of the class, students should be able to identify nasal vowel rules and listen to the production of nasal vowel patterns.

Table 9. First lesson plan

This table shows the first lesson plan that lasts two hours and is focused on nasal vowels:

Duration	Activities	Resources	Assessment
20 minutes	<p>Initial activity</p> <p>To begin, the teacher will introduce nasal vowels through a small activity, dividing the classroom into 2 groups, each group will have 2 different written news (about Colombia) that will have nasal vowels, and students should explain the news and identify and underline words with nasal vowels in the news. Then, following the teacher's instruction, students must enter the mentimeter application and put the words that they consider contain Portuguese nasal vowels. When they finish, the teacher will review and ask the students why they believe that the word they put in the mentimeter is a nasal vowel.</p>	<p>-News written with examples of words with nasality.</p> <p>-Mentimeter</p>	Formative: Students should demonstrate their commitment and active participation.
20 minutes	<p>Theoretical instruction</p> <p>Afterwards, the teacher will introduce the theoretical part of nasal vowels with cards with</p>	-Cards with images that represent nasality.	

	<p>images that contain each nasal vowel that have the graphic sign and then cards with images that have nasal vowels that become nasal with the consonants m/n. So, the teacher will explain the 2 nasal vowel rules of Portuguese with examples and making the comparison with the pronunciation of oral vowels and how nasal sounds are produced, showing a table of the words that were on the cards with their phonetic transcription so that the students take into account where the stress of the word is.</p>	-Table with examples of words with phonetic transcriptions.	
10 minutes	<p>Practical activity The teacher will give them phrases from a song that contains nasal vowels, they should form groups of 2 people and try to produce the sound with nasal resonance. Students should help each other produce the sound and check if their partner is doing it properly. Likewise, the teacher will go through the stations monitoring the activity.</p>	-Phrases from a song that contains nasalities.	Formative: students will practice the speaking skill with the production of nasal sounds.
5 minutes	<p>questions and clarifications The teacher will resolve doubts about the rules or production of nasal sounds. She will also ask about how you have felt so far producing nasal sounds in Portuguese.</p>	-Board	
15 minutes	<p>Mentimeter activity Students will enter Mentimeter again and first answer 1 question: for you, what is the importance of nasal sounds in Portuguese? Then, they will provide examples</p>	-Mentimeter	Formative: students will put their perceptions about the importance of the nasal sounds and provide examples.

	of words that contain nasal vowels. They will then be discussed and analyzed in the classroom.		
20 minutes	<p>Listening Practice</p> <p>Then, the teacher will show a video of a song (O coliseu- Joao Pedro) so that the students pay attention only to the stress of the nasal vowel syllables. The first time the students will only listen. The second time the students will write the words with their transcription that contain the nasal vowels. The third time the students are going to sing the song to produce the nasal sounds.</p>	-Video of the song "O coliseu" by Joao Pedro. https://european-portuguese.info/pt/vowels	Formative: Students will identify the stress of nasal vowel syllables.
10 minutes	<p>Word Classification</p> <p>and then in a chart that the teacher is going to show they are going to classify which rule it is; the one with the graphic signal or the one with m/n.</p> <p>To do this, students must write the chart of the classification of words with nasal vowels in their notebook.</p>	-Chart to classify nasal vowels.	Summative: Students will classify in the chart the word that is aligned with the nasal rule. Grade: 1 to 5. Depending on the wrong and good classifications.
15 minutes	<p>Review and discussion.</p> <p>Students will exchange notebooks and rate whether the word classification was appropriate. All together we will review each word and produce the nasal vowel sounds.</p>	-Students notebook and board	Formative: students will produce the nasal vowel sounds of the chart.
10 minutes	Closing of the class	-Questionnaire	Formative: a short questionnaire of the class performance

	<p>The teacher will encourage the students to complete a short questionnaire.</p> <p>In the questionnaire there will be questions about: What did you like most about the class? What key points do you remember about nasal vowels? What other activities would you recommend we do? From 1 to 5 rate your participation in class and justify it.</p>		
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Source: Own elaboration

The lesson plan above describes in detail the activities, resources, and assessment of the first class of the following week (Annex 4).

Chapter 5. Conclusions and Expected Results

This section aims to consolidate the different components of the monograph, summarizing each chapter. This offers a clearer understanding of the overall purpose of each part and how they contribute to the study. Likewise, the expected results are described considering the benefits given to the participants, the institution and to me as a researcher.

First, this study was born from the phenomenon found called linguistic interference through a semi-structured interview where students named phonetic difficulties. It is for this reason that I decide to focus on the nasal sounds of Brazilian Portuguese. After identifying the problem, the problematic question arose: what impact does the use of Brazilian songs have on the pronunciation of Portuguese nasal sounds among five pre-service teachers at Juan N. Corpas University? Additionally, I propose three objectives to make a step-by-step process of how to solve the question. It is important to say that the context in which this study is developed is among five students belonging to a degree in foreign languages at a private university in Bogotá. Likewise, another reason why I decided to carry out this research is because of the gap in the literature found. For this reason, the state of the art was carried out with national and international articles where the lack of research in the country is evident.

Second, thanks to the objectives I determine three concepts to be covered in the theoretical framework which are: linguistic interference because it is the phenomenon encountered in the participants, pronunciation because is the ability to produce and recognize language patterns in this case nasal sounds and phonetic awareness in order that students can be aware of certain sounds of the target language. Another aspect to take into account in this study is the legal part to analyze what are the educational laws that govern in Colombia, the law of degree requirement according to the university that the students belong, which is to pass the Celpe-bras exam with upper intermediary where one of the components of the exam is pronunciation, that is why it is important that students can practice the speaking skill. Therefore, higher education law is addressed because the students belong to the university context. Another important aspect of law is data processing because it allows students to know about informed consent where they can identify the purpose, objectives and benefits of the research.

Then, the paradigm that this study focuses on is qualitative because the experiences and voices of the students were taken into account. Likewise, the instruments to be used were chosen since they allow us to achieve the objective of developing phonetic awareness and later analyze how they were applied. Besides, the action research method is aligned with the identified problem because a problem is addressed to try to provide a possible solution. Another important part of this study is the categories that emerged from the speaking skill, which is the main skill that participants should practice. In addition, the ethical considerations which give it an ethical sense since the students take voluntary participation and are aware of using their data for research purposes.

Furthermore, in order to detail the components of the didactic unit, the pedagogical intervention is described which will take into account nasal sounds, Brazilian songs with their

respective strategies and develop phonetic awareness through the teaching unit. Likewise, when developing this study, the vision of language and learning were described because they are two elements that make up the study; in this case Portuguese as a foreign language, which language goes beyond just communication and learning with which Participants going to refine their speaking skills. Also, the role of the teacher and student is emphasized because I am going to be a teacher who guides and facilitates the learning process, and the student who will be an active agent in the classroom. Another aspect to consider when planning a class is assessment. I use two types, formative and summative, to have a more complete analysis of how students' learning has evolved and identify their weaknesses and strengths. Moreover, in order to have everything organized, I made a timetable to establish the phases, the activities and how the activities will be developed. Finally, lesson planning, which is crucial to give a detailed step-by-step description of the class with its respective resources.

In addition, what I expect with this study is in the first instance, I expect to provide an answer to the research question: what impact does the use of Brazilian songs have on the pronunciation of Portuguese nasal sounds among five pre-service teachers at Juan N. Corpas University? That is why, I want to analyze the use of Brazilian songs and if those songs have an impact or not when the participants are practicing the production of the nasal sounds. Also, I expect that the participants benefit from this study because with the teaching unit they can practice nasal sounds with a methodology different from simple theory and in this way, they are going to produce the three nasal components adequately, in addition to all the information they provide will be for research purposes.

Subsequently, there are not only benefits for those who present linguistic interference but also for the institution because with this study I leave some suggestions on how to approach and

develop phonetic awareness in students, therefore I contribute to the university through the didactic unit which may be considered by teachers. Furthermore, during the development of this research I can recognize that I am now more aware of the activities to choose and that the methodologies have a purpose of building and facilitating the students' learning process. Besides, I am gaining experience in teaching by being involved in planning and implementation processes in the classroom.

In conclusion, this section has served to provide a comprehensive overview of the various components of the monograph, offering insight into each chapter's purpose and contribution to the study. Through the exploration of theoretical frameworks, legal considerations, research design, and pedagogical interventions, a deeper understanding has been attained of language education practices. Additionally, by considering expected results this study addresses fundamental question regarding the impact of Brazilian songs on Portuguese nasal sounds. Finally, it aims to benefit participants, the institution, and as a researcher, offering valuable insights and contributing to the broader educational context.

Annexes

Annex 1. State of the art

The chart is about the international, national, and local research that will support the literature review.

Title	Year	Author	Institution	Ambit
El portugués como lengua extranjera en Bogotá	2005	Camilo Andrés Patiño Garzón	Universidad Nacional de Colombia	Local
Using Songs to Improve EFL Students' Pronunciation	2012	Nuria Villalobos Ulate	Universidad Nacional, Costa Rica	International
Didáctica de Portugués Lengua Extranjera: una asignatura a incluir en el Programa de Formación Complementaria de la Escuela Normal Superior de Leticia – Amazonas	2013	Andrade Stanzani	Universidad Libre de Colombia	National
The effects of English songs on young learners'	2014	Ghanbari and Hashemian	Shahrekord University	International

listening comprehension and pronunciation				
Perception of Brazilian Portuguese Vowels by Australian English and Spanish Listeners	2014	Jaydene Elvin and Paola Escudero	University of Western Sydney	International
An articulatory study of posterior nasal diphthongs in brazilian portugese	2015	Rita Demasi, Christophe Savariaux and Didier Demolin	Université de Sorbonne Nouvelle	International
Reflexiones en torno a la práctica pedagógica de los profesores de portugués del programa de extensión de la universidad nacional de colombia, sede bogotá	2016	Sara María Mejía Botero	Universidad pedagógica nacional	Local
Teaching phonological awareness to avoid interference in young students' output	2016	Edisson Granados Cristancho and Jorge Leonardo Paez Capera	Universidad Distrital Francisco José De Caldas	Local
Nasal vowels and diphthongs in european portuguese: a problem for slovene speakers	2017	Blažka Müller Pograjc and Jasmina Markič	University of Ljubljana	International

La pronunciación del portugués por los estudiantes hispanohablantes	2018	Antônio Eustáquio	Universidad Militar Nueva Granada	Local
Desarrollo de la comunicación oral en lengua inglesa: el juego dramático y la música como recurso	2018	Sanchez García	Universitat de les Illes Balears	International
Enhancing EFL learners speaking fluency through group discussions	2018	María Ximena Rodríguez Chapetón	Universidad Externado de Colombia	National
Creencias de los estudiantes de portugués con respecto al aprendizaje de esta lengua extranjera en la pontificia universidad javeriana y un acercamiento a la motivación	2019	Ji Hyeon Jang and Eloísa Sofía Puello Cabeza	Pontificia Universidad Javeriana	National
The practices of the teachers in the B.A. in Modern Languages at Pontificia Universidad Javeriana when approaching pronunciation from the Elementary to the Pre-intermediate level of English classes	2022	Paula Andrea Del Castillo Mancilla and Neidy Dayhana Duarte Vallejo	Pontificia Universidad Javeriana	Local

Ensino de pronúncia através de canções: análise de material didático à luz de um modelo orientador	2022	Adelina Castelo, José Peixoto Coelho de Souza and Bruna Morelo	Universidade de Lisboa, Portugal	International
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Annex SEQ Annex_ * ARABIC 2. Informed consent

This annex is about the inform consent that is to protect the data and have permission of

the participants.

Informed consent

Pre-service teacher: You have been invited to participate in the monograph research titled Pre-service teachers experiences: linguistic interference in nasal sounds. This research is developed by Isabella Serrano Buitrago, candidate for a degree in foreign languages (English Portuguese) at the Juan N. Corpas University.

The project seeks to analyze the pronunciation of nasal sounds in Portuguese using Brazilian songs, in this way the phenomenon presented called linguistic interference could be reduced.

Your participation will be recorded and will have the purpose of analyzing your pronunciation process in nasal sounds in Portuguese and what aspects you would like to include in the didactic unit. In this way, the benefit would be that with the creation of this didactic unit you will be able to practice the nasal sounds which present linguistic interference. Please note that by signing this consent you will be guaranteed:

- Use fictitious names to protect your identity if you prefer. Can I use your real name? (answer) or which fiction name would you like to use (put it here)
- Strict confidentiality with information that you consider may affect you. Also, you can leave it when you want because your participation must be completely voluntary.
- A timely response to any questions about the research project.

I _____ with CC. _____ I agree to be a participant in the aforementioned project.

Signature: _____

Email: _____

Annex 3

This annex is about the complete didactic unit that will be developed through the three weeks:

Didactic unit: A journey through nasal nuances in Brazilian Portuguese

Institution: Juan N. Corpas

Teacher: Isabella Serrano

Topic: Nasal sounds in Brazilian Portuguese

Duration of each class: 2 hours, two days a week.

General Objective: To develop students' competence in producing and comprehending nasal sounds in the Portuguese language, focusing on nasal vowels and nasal diphthongs, through a series of interactive and practical activities.

Specific objectives:

- Identify and comprehend the patterns of nasal vocalizations in Portuguese.
- Practice the production and pronunciation of nasal sounds, including distinguishing between oral and nasal sounds, through listening and speaking exercises.

Annex 3. Didactic Unit

Weeks	Activities	Resources	Products	Assesment
First week	Initial activity (20 min) To begin, the teacher will introduce nasal vowels through a small activity, dividing the classroom into 2 groups, each group will have 2 different written news (about Colombia) that	-News written with examples of words with nasality.	- Identification and underlining of words	- Participation : Students must demonstrate

Weeks	Activities	Resources	Products	Assesment
	<p>will have nasal vowels, and students should explain the new and identify and underline words with nasal vowels in the news. Then, following the teacher's instruction, students must enter the mentimeter application and put the words that they consider contain Portuguese nasal vowels.</p> <p>When they finish, the teacher will review and ask the students why they believe that the word they put in the mentimeter is a nasal vowel.</p> <p>Theoretical instruction (20 min) Afterwards, the teacher will introduce the theoretical part of nasal vowels with cards with images that contain each nasal vowel that have the graphic sign and then cards with images that have nasal vowels that become nasal with the consonants m/n. So, the teacher will explain the 2 nasal vowel rules of Portuguese with examples and making the comparison with the pronunciation of oral vowels and how nasal sounds are produced, showing a table of the words that were on the cards with their phonetic transcription so that the students consider where the stress of the word is.</p> <p>Practical activity (10 min) The teacher will give them phrases from a song that contains nasal vowels, they should form groups of 2 people and try to produce the sound with nasal resonance. Students should help each other produce the sound and check if their partner is doing it properly. Likewise, the</p>	<p>-Mentimeter app.</p> <p>-Cards with images that represent nasality.</p> <p>-Table with examples of words with phonetic transcriptions.</p> <p>-Phrases from a song that contains nasalities.</p> <p>-Video of the song "O coliseu" by Joao Pedro. https://european-portuguese.info/pt/vowels</p>	<p>with nasalities in the news.</p> <p>-Answers in Mentimeter about the importance of nasalities in Portuguese and examples of words with nasality.</p> <p>-Notes in their notebooks about the classification of words with nasality according to the rules (graphism or m/n).</p> <p>-Evaluating other students' word classifications.</p> <p>-Answers in the class closing</p>	<p>their commitment and active participation</p> <p>Identification of Nasality: The accuracy with which students identified and underlined words with nasality in the news and in the song, video will be evaluated.</p> <p>-The understanding of the rules of nasality in Portuguese will be evaluated, especially the distinction between nasality by graphism and nasality by m/n.</p> <p>-Analysis and Classification</p>

Weeks	Activities	Resources	Products	Assesment
	<p>teacher will go through the stations monitoring the activity.</p> <p>questions and clarifications (5 min)</p> <p>The teacher will resolve doubts about the rules or production of nasal sounds. She will also ask about how you have felt so far producing nasal sounds in Portuguese.</p> <p>Mentimeter activity (15 minutes) Students will enter Mentimeter again and first answer 1 question: for you, what is the importance of nasal sounds in Portuguese? Then, they will provide examples of words that contain nasal vowels. They will then be discussed and analyzed in the classroom.</p> <p>Listening Practice (20 minutes) Then, the teacher will show a video of a song (O coliseu- Joao Pedro) so that the students pay attention only to the stress of the nasal vowel syllables. The first time the students will only listen. The second time the students will write the words with their transcription that contain the nasal vowels. The third time the students are going to sing the song to produce the nasal sounds.</p> <p>Word Classification (15 minutes) and then in a chart that the teacher is going to show they are going to classify which rule it is: the one with the graphic signal or the one with m/n.</p>		questionnaire.	n: Students will classify words with nasalities according to the rules (graphism or m/n). The accuracy of these classifications and the students' ability to apply the rules will be evaluated.

Weeks	Activities	Resources	Products	Assesment
	<p>To do this, students must write the chart of the classification of words with nasal vowels in their notebook.</p> <p>review and discussion (15 min)</p> <p>Students will exchange notebooks and rate whether the word classification was appropriate. All together we will review each word and produce the nasal vowel sounds.</p> <p>closing of the class (10 min)</p> <p>The teacher will encourage the students to complete a short questionnaire. In the questionnaire there will be questions about: What did you like most about the class? What key points do you remember about nasal vowels? What other activities would you recommend we do? From 1 to 5 rate your participation in class and justify it.</p> <p>Second class:</p> <p>-Warm-up activity (25 minutes) Run and touch! In this first activity, students must form two groups, each group making a line a considerable distance from the board. As a teacher I am going to write different words that are similar but with minimal oral and nasal pairs. For example: cano/cão, fala/fã, Vaso/vãos, pães/pais, mão/maus. Then I am going to pronounce the word and the students must run to the board to</p>			

Weeks	Activities	Resources	Products	Assesment
	<p>erase the word they heard. Depending on the word the student erase, I will notice if they still have difficulties or not recognizing the nasal sounds.</p> <p>Role plays with nasal vowels (30 minutes) The next activity will be to assess students as a group if they can identify nasal sounds vowels and produce them correctly. Students will form groups of 2 to a maximum of 3 members. Each group will have different role plays, the idea is that they will have a few minutes to practice among themselves the conversation that I will give them and then other minutes to identify what the nasal sounds are and finally other minutes to go to the front of the room and pronounce the game of role and mention what they think are the nasal words. As a teacher I will show you the criteria of the summative rubric to consider and I will give feedback to each group.</p> <p>Broken phone (26 minutes) The activity consists of all the students getting up from their seats and lining up, we are going to do 2 rounds, with different sentences that have nasal vowel sounds like: O avião voa sobre as montanhas e "A irmã ganhou um anel de diamante. The idea is that each student writes down what the person whispered in their ear and then pronounces it, this way I can later identify where the phrase was lost.</p>			

Weeks	Activities	Resources	Products	Assesment
	<p>Listen and sing: tocando em frente song (25 minutes) -The students will listen to the song called tocando em frente, of the singers Leonardo and Paula Fernandes. I will give each student a sheet with the song with some words omitted, where they must listen and fill in the blank spaces, to do so they must pay attention to the song and write the word they heard. The song will be played 3 times, the first time so that they become familiar with the song and try to write the word, the second time to confirm the words or try to understand the ones they missed and the third time is that each student will sing by turns a song line.</p> <p>Closing activity (10 minutes) Students will make a circle and briefly recap the main topics covered in the class. I will prompt them with questions to stimulate recall:</p> <p>1-What did we learn about nasal vowel sounds today? 2-Can anyone share a nasal vowel sound that you found particularly challenging? 3-How do nasal vowel sounds affect pronunciation in brazilian portuguese language?</p>	<ul style="list-style-type: none"> -Board -Roleplay game -Broken phone game -Song -Students reflection 		
Second week	The class will begin by drawing a cloud on the board asking if they remember what the rules for nasal			

Weeks	Activities	Resources	Products	Assesment
	<p>vowels are and how it is produced. (10 minutes)</p> <p>After that, the teacher will play an audio where there will be minimum pairs of words with nasal vowels and oral vowels. Students must write the words and then it will be checked if they identified the production of nasal sounds (https://www.practiceportuguese.com/learning-notes/minimal-pairs/) (15 minutes)</p> <p>Then, the teacher will play a Brazilian song (Chão de Giz - Zé Ramalho) (2 times) for them to fill in the blank spaces. Then the teacher will check that they have the words in the blank spaces. (20 minutes)</p> <p>Afterwards, the teacher will ask the students what topic they think they are going to see today. The student who guesses will get participation points. Then, the teacher will mention that today's topic is nasal diphthongs. Through a presentation, the teacher will explain the nasal diphthongs: ão/ õe/ ãe. The teacher is going to explain how to identify nasal diphthongs. (20 minutes)</p> <p>Then, for the first diphthong ão, the teacher will first play the song (Azulão by Maria Bethânia). She will then ask which of the 3 diphthongs they identified. After, students must produce the diphthong sound by</p>	<ul style="list-style-type: none"> -Board -Audios (minimal pairs) -Songs -Slides 	<p>Blank spaces filled with words in the lyrics of the song "Chão de Giz."</p> <p>Examples of phrases and sentences created by students with words from the song.</p> <p>Tables with diphthongs identified in the conversation.</p> <p>Graphic representations of words with nasal diphthongs in the song "Canção de Amor."</p>	<p>Participation</p> <p>Teacher rubric</p>

Weeks	Activities	Resources	Products	Assesment
	<p>singing the song previously heard. (15 minutes)</p> <p>Then the teacher will give examples with the words found in the song with sentences. Students will have to create their own sentences with the words too. (15 minutes)</p> <p>Then the students will listen to a conversation where they must listen to it (2 times) then a table will be made of what diphthongs they found in the conversation. Then there will be a role play where students must properly pronounce the sounds of the nasal diphthongs in conversation.</p> <p>Conversation:</p> <p>Luisa: Oi, Pedro! O que você acha dos cachorrinhos que encontramos na praia ontem?</p> <p>Pedro: Oi, Luisa! Achei eles incríveis! Os cães eram tão fofos. Como você encontrou esses filhotes?</p> <p>Luisa: Eu estava caminhando na areia, e de repente, vi um ãeiro correndo atrás deles. Parecia que estavam perdidos.</p> <p>Pedro: Que história incrível! E o que você fez?</p> <p>Luisa: Eu me aproximei devagar, e eles não latiram nem nada. Eles eram</p>			

Weeks	Activities	Resources	Products	Assesment
	<p>tão amigáveis. Eles estavam com fome, então dei-lhes alguns petiscos.</p> <p>Pedro: Que gesto gentil! Tenho certeza de que eles ficaram muito agradecidos. E o que aconteceu depois?</p> <p>Luisa: Decidimos levá-los para a nossa casa temporariamente. Minha mãe ficou preocupada com eles. Ela adora cachorros, afinal, é uma grande amiga dos animais.</p> <p>Pedro: Parece que foi um dia cheio de surpresas e bondade. E como está sua mãe?</p> <p>Luisa: Ela está bem, mas está muito ocupada preparando o almoço para todos nós. Ela quer que seja um almoço especial, afinal, hoje é o Dia das Mães.</p> <p>Pedro: Feliz Dia das Mães para sua mãe, Luisa! Ela é realmente uma pessoa incrível.</p> <p>Luisa: Muito obrigada, Pedro! Vou transmitir seus votos a ela. Como você planeja celebrar o Dia das Mães com a sua mãe?</p> <p>Pedro: Minha mãe ama flores, então comprei um lindo buquê de ôleiro para ela. Também vamos fazer um jantar especial em família. Ela merece todo o carinho.</p>			

Weeks	Activities	Resources	Products	Assesment
	<p>Luisa: Isso é maravilhoso, Pedro. Tenham um Dia das Mães repleto de amor e alegria!</p> <p>(20 minutes)</p> <p>Afterwards the teacher is going to play the song (Canção de Amor by Caetano Veloso) This time the students must represent through drawings which words they identified with nasal diphthongs in the song:</p> <p>Paixão</p> <p>Emoção</p> <p>Não</p> <p>coração</p> <p>Então</p> <p>Desilusão</p> <p>Canção</p> <p>Afterwards they must explain their drawings, for example when I heard the word disappointment in the song it has this nasal diphthong, and for me disappointment is such a thing. The teacher will evaluate the sound production of nasal diphthongs and whether they identified the majority of the words with nasal diphthongs in the song. (15 minutes)</p> <p>Finally, the teacher is going to give them a sheet where they will mention what they learned in today's class, how they felt, and in what aspects</p>	<p>-Game</p> <p>-Quizziz</p> <p>-Tongue twister</p> <p>-Song</p> <p>-Closing activity</p>		

Weeks	Activities	Resources	Products	Assesment
	<p>they should practice as a student for the adequate production of nasal sounds. (10 minutes)</p> <p>Second class:</p> <p>Find the treasure of nasal diphthongs: I will divide the students into 2 groups and explain the rules of the game. Each team will receive a list of clues that will guide them in finding words with nasal diphthongs. The clues will be descriptions of specific locations where each hidden word is found. They have to find 5 papers that will form a sentence where after they find each paper they must organize it and say: I found the treasure. In order to get the point, each member of the team must correctly pronounce the sentence with the sounds of the nasal diphthongs. (25 minutes)</p> <p>Quizziz activity: This activity will involve students entering the Quizziz app and answering questions about nasal vowels and nasal diphthongs such as the rules and identification of words, to check if they are clear about these nasal components or if they still have doubts. (25 minutes)</p> <p>Tongue twister activity: I will give each student a tongue twister but it is written with its phonetic transcription. Therefore, students should try to put the normal form of the tongue twister and then pronounce it. For example: In the old village, the country was despontava.</p>			

Weeks	Activities	Resources	Products	Assesment
	<p>/na aw'dej.ɐ ẽ.'tigɐ, a 'lu.ɐ ɔj deʃ.põ.te'vɐ/ Um ãe brincalhão, entre as ães e os ães, se esgueirava, enquanto o trovão ão, no horizon, ribombava. /? ɔw̃, nu o.ri.zõ.'tʃi, ki.bõ.bɐ'vɐ / (30 minutes)</p> <p>song: O Que Sera (À Flor da Terra)" - Chico Buarque. Students will write in their notebook the words that they identify in the song that have nasal diphthongs. Then, they will try to create a sentence with those words and then they are going to say it out loud. (25 minutes)</p> <p>Closing activity: Discuss about these questions: Did you have any difficulty pronouncing the nasal diphthongs during class? What strategy do you think would help you improve the pronunciation of nasal sounds? (15 minutes)</p>			
<p>Third week:</p>	<p>Memory game (15 minutes) The teacher is going to start the class with a memory game where they have to select cards until they find the pair, the words with their images will contain nasal consonants (m/n/nh). When they finish finding all the pairs, the teacher will ask them if they identified what today's topic will be, which will be nasal consonants.</p> <p>Explanation (30 minutes)</p>	<p>-Memory game -Infography -Song -Bingo game</p>	<p>Sentences created by students using words with nasal diphthongs.</p> <p>Role-play activity evaluation sheets,</p>	<p>Active Participation : Students will be evaluated based on their active participation in all class activities, including the memory game, bingo game,</p>

Weeks	Activities	Resources	Products	Assesment
	<p>Then, the teacher, through an infographic, will explain its use, examples and how to pronounce nasal consonants. When the explanation is finished, students can ask if they have any questions.</p> <p>Song activity (25 minutes) Therefore the teacher will play a song called (garota de ipanema) it will be played 3 times. the first so that they can only listen to it, the second so that they fill in the blank spaces, the third so that they explain what they understood about the song, and write on the board the words that they identified with nasal consonants. The fourth time the students are going to sing the song.</p> <p>Bingo game (25 minutes) Then, the teacher is going to play a bingo game, where there will only be words with nasal consonants. The first person to finish bingo must write 3 sentences using 3 bingo words, she/he should say bingo at the end and say the sentences out loud. The teacher will give the students a rubric to evaluate their classmates, the pronunciation and the correct structuring of the sentences will be evaluated.</p> <p>Closing (15 minutes) Finally, the teacher will also give feedback and ask the students how they felt in class, what they learned and why they consider it important or not to learn the nasal sounds of Portuguese.</p>	<p>-Game -Quizziz app -A coisa mais linda series -Closing activity</p>	<p>completed by peers to evaluate pronunciation and sentence structure.</p>	<p>identification of nasal diphthongs in songs, and role-play activity.</p> <p>Pronunciation of Nasal Diphthongs: The pronunciation of nasal diphthongs will be evaluated during the role-play activity. Students will receive feedback on their pronunciation and ability to use diphthongs in conversational contexts.</p> <p>Identification of Nasal Diphthongs: Identification of nasal diphthongs in songs and conversation will be assessed using</p>

Weeks	Activities	Resources	Products	Assesment
	<p>Second class:</p> <p>-Boat loaded with- game: We are going to start the class with a game, which consists of the students saying, I have a boat loaded with "musica". Then the other student is going to say what her/his previous classmate said and is going to add another word with a nasal consonant, for example: I have a ship loaded with "musica" and "amarelo". With this activity students remember vocabulary and pronounce the nasal consonants at the same time as memory is reinforced. (15 minutes)</p> <p>-Quiz: read a fable called a pomba and a formiga from Esopo fable: This fable contains consonants, vowels and nasal diphthongs. Students must read the fable, then circle, underline and highlight the nasal pattern words. Then they must put them in a classification table of nasal sounds. (30 minutes)</p> <p>-Parts of a Brazilian series "a coisa mais linda": to review the rules of nasal consonants. Then, they will listen to another part of the series where they must write and then pronounce the phrase where the nasal word was. (30 minutes)</p> <p>-Closing activity: the students will make a presentation (it can be in the form of a comic, infographic, video, etc.) in a group where they will</p>			<p>student-created worksheets and charts.</p> <p>Creativity and Comprehension: Creating sentences with words containing nasal diphthongs and representative drawings in the song "Canção de Amor" will demonstrate students' understanding and creativity.</p> <p>Peer Evaluation: The role-play activity will be evaluated by peers. Each student will evaluate the pronunciation and sentence structure of her classmates, using a</p>

Weeks	Activities	Resources	Products	Assesment
	<p>prepare what they learned, why they consider it important to learn nasal sounds, if they consider that nasal sounds are important in the day by day when communicating, their feelings during classes and the activity or strategy they liked the most to practice the production of nasal sounds. Finally, they will present it, each group will have a minimum of 4 and a maximum of 8 minutes to share their perceptions. (55 minutes)</p>			<p>rubric provided by the teacher.</p>

Annex 4. Lessons Plans

This annex shows the tables of the sixth lesson plan of the didactic unit with a total of twelve hours:

Juan N. Corpas University

Teacher: Isabella Serrano Buitrago

Topic: Nasal vowels (first class, 2 hours)

Teaching objective: To introduce students to the concept of nasal vowels in Portuguese through engaging activities and theoretical instruction.

Learning objective: By the end of the class, students should be able to identify nasal vowel rules and listen to the production of nasal vowel patterns.

Table 1. First lesson plan

This table shows the first lesson plan that lasts two hours and is focused on nasal vowels:

Duration	Activities	Resources	Assessment
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<p>20 minutes</p>	<p>Initial activity To begin, the teacher will introduce nasal vowels through a small activity, dividing the classroom into 2 groups, each group will have 2 different written news (about Colombia) that will have nasal vowels, and students should explain the new and identify and underline words with nasal vowels in the news. Then, following the teacher's instruction, students must enter the mentimeter application and put the words that they consider contain Portuguese nasal vowels. When they finish, the teacher will review and ask the students why they believe that the word they put in the mentimeter is a nasal vowel.</p>	<p>-News written with examples of words with nasality. -Mentimeter</p>	<p>Formative: Students should demonstrate their commitment and active participation.</p>
<p>20 minutes</p>	<p>Theoretical instruction Afterwards, the teacher will introduce the theoretical part of nasal vowels with cards with images that contain each nasal vowel that have the graphic sign and then cards with images that have nasal vowels that become nasal with the consonants m/n. So, the teacher will explain the 2 nasal vowel rules of Portuguese with examples and making the comparison with the pronunciation of oral vowels and how nasal sounds are produced, showing a table of the words that were on the cards with their phonetic transcription so that the</p>	<p>-Cards with images that represent nasality. -Table with examples of words with phonetic transcriptions.</p>	

	students take into account where the stress of the word is.		
10 minutes	Practical activity The teacher will give them phrases from a song that contains nasal vowels, they should form groups of 2 people and try to produce the sound with nasal resonance. Students should help each other produce the sound and check if their partner is doing it properly. Likewise, the teacher will go through the stations monitoring the activity.	-Phrases from a song that contains nasalities.	Formative: students will practice the speaking skill with the production of nasal sounds.
5 minutes	questions and clarifications The teacher will resolve doubts about the rules or production of nasal sounds. She will also ask about how you have felt so far producing nasal sounds in Portuguese.	-Board	
15 minutes	Mentimeter activity Students will enter Mentimeter again and first answer 1 question: for you, what is the importance of nasal sounds in Portuguese? Then, they will provide examples of words that contain nasal vowels. They will then be discussed and analyzed in the classroom.	-Mentimeter	Formative: students will put their perceptions about the importance of the nasal sounds and provide examples.
20 minutes	Listening Practice Then, the teacher will show a video of a song (O coliseu- Joao Pedro) so that the students pay attention only to the stress of the nasal vowel syllables. The first time the students will only listen. The second time the students will	-Video of the song "O coliseu" by Joao Pedro. https://european-portuguese.info/pt/vowels	Formative: Students will identify the stress of nasal vowel syllables.

	write the words with their transcription that contain the nasal vowels. The third time the students are going to sing the song to produce the nasal sounds.		
10 minutes	<p>Word Classification and then in a chart that the teacher is going to show they are going to classify which rule it is the one with the graphic signal or the one with m/n.</p> <p>To do this, students must write the chart of the classification of words with nasal vowels in their notebook.</p>	-Chart to classify nasal vowels.	Summative: Students will classify in the chart the word that is aligned with the nasal rule. Grade: 1 to 5. Depending on the wrong and good classifications.
15 minutes	<p>Review and discussion.</p> <p>Students will exchange notebooks and rate whether the word classification was appropriate. All together we will review each word and produce the nasal vowel sounds.</p>	-Students notebook and board	Formative: students will produce the nasal vowel sounds of the chart.
10 minutes	<p>Closing of the class</p> <p>The teacher will encourage the students to complete a short questionnaire.</p> <p>In the questionnaire there will be questions about: What did you like most about the class? What key points do you remember about nasal vowels? What other activities would you recommend we do? From 1 to 5 rate your participation in class and justify it.</p>	-Questionnaire	Formative: a short questionnaire of the class performance

Juan N. Corpas University**Teacher:** Isabella Serrano Buitrago**Topic:** Nasal vowels (second class, 2 hours)**Teaching objective:** To introduce and reinforce understanding of nasal vowel sounds in Brazilian Portuguese.**Learning objective:** Students will demonstrate the ability to produce nasal vowel sounds in words and phrases through spoken activities.

Table 2. Second lesson plan

This table shows the second lesson plan that lasts two hours and is focused on nasal vowels:

Duration	Activities	Resources	Assessment
25 minutes	<p>Warm-up activity. Run and touch! In this first activity, students must form two groups, each group making a line a considerable distance from the board. As a teacher I am going to write different words that are similar but with minimal oral and nasal pairs. For example: cano/cão, fala/fã, Vaso/vãos, pães/pais, mão/maus. Then I am going to pronounce the word and the students must run to the board to erase the word they heard. Depending on the word they erase, I will notice if they still have difficulties or not recognizing the nasal sounds.</p>	<p>Board Eraser Markers</p>	<p>Formative assessment: Teacher will observe if the students can identify nasal vowels in the board considering what they listen.</p>
30 minutes	<p>Role plays with nasal vowels. The next activity will be to evaluate them as a group if they can identify nasal sounds and produce them correctly. Students will form teams of 2 to a maximum of 3 members. Each group will have different role plays, the idea is that they will have a few minutes to practice among themselves the conversation that I will give them and then other minutes to identify what the nasal sounds are and finally other minutes to go to the front of the room and pronounce the game of role and mention what they think are the nasal words. As a teacher I will show you the criteria of the summative rubric to</p>	<p>Role play conversation Board</p>	<p>Summative Assessment: In the Role play with nasal vowels activity, students' performances are evaluated based on predetermined criteria outlined in a summative rubric. This assessment considers their ability to identify, produce, and correctly use nasal vowel sounds in spoken language.</p>

	take into account and I will give feedback to each group.		
26 minutes	<p>Broken phone game</p> <p>The activity consists of all the students getting up from their seats and lining up, we are going to do 2 rounds, with different sentences that have nasal vowel sounds like: O avião voa sobre as montanhas e A irmã ganhou um anel de diamante. The idea is that each student writes down what the person whispered in their ear and then pronounces it, this way I can later identify where the phrase was lost.</p>	Only the game	Formative assessment: teacher will consider students participation and who broke the phone in order to give feedback.
25 minutes	<p>Listen and sing: tocando em frente song!</p> <p>-The students will listen to the song called tocando em frente, of the singers Leonardo and Paula Fernandes. I will give each student a sheet with the song with some words omitted, where they must listen and fill in the blank spaces, to do so they must pay attention to the song and write the word they heard. The song will be played 3 times, the first time so that they become familiar with the song and try to write the word, the second time to confirm the words or try to understand the ones they missed, and the third time is that each student will sing by turns a song line.</p>	Song: tocando em frente	Summative assessment: Teacher will collect the worksheet with fill in the blanks, according to their good and wrong answers the grade will provide it (1-5). Also, teacher will listen to the production and at the end will provide feedback.
10 minutes	<p>Students will make a circle and briefly recap the main topics covered in the class. I will prompt them with questions to stimulate recall:</p> <p>1-What did we learn about nasal vowel sounds today?</p>	Students' notebook. Teacher slides with the questions.	Formative assessment: students will answer the questions and reflect upon their learning process of this class.

	2-Can anyone share a nasal vowel sound that you found particularly challenging? 3-How do nasal vowel sounds affect pronunciation in brazilian portuguese language?		
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Topic: Nasal diphthongs (third class, 2 hours)

Teaching objective: To introduce and explain the concept of nasal diphthongs (ÃO, ÕE, ãE) in Brazilian Portuguese.

Learning objective: Students will demonstrate proficiency in using words containing nasal diphthongs in sentences, both orally and in written form.

Table 3. Third lesson plan

This table shows the third lesson plan that lasts two hours and is focused on nasal diphthongs:

Duration	Activities	Resources	Assessment
10 minutes	Warm up The class will begin by drawing a cloud on the board asking if they remember what the rules for nasal vowels are and how it is produced.	Board	Engagement and participation during the discussion.
15 minutes	After that, the teacher will play an audio where there will be minimum pairs of words with nasal vowels and oral vowels. Students must write the words and then it will be checked if they identified the production of nasal sounds.	Audio: https://www.practiceportuguese.com/learning-notes/minimal-pairs/	Accuracy in identifying and differentiating nasal patterns in the audio.
20 minutes	Then, the teacher will play a Brazilian song (Chão de Giz - Zé Ramalho) (2 times) for them to fill in the blank spaces. Then the teacher will check that they have the	Song and worksheet with fill in the blanks of the song.	Summative assessment: filling in the blanks of the song lyrics. (grade 1 to 5)

	words in the blank spaces.		
20 minutes	<p>Afterwards, the teacher will ask the students what topic they think they are going to see today, but before the teacher will show some nasal diphthongs words and the student who guesses will get participation points. Then, the teacher will mention that today's topic is nasal diphthongs. Through a presentation, the teacher will explain the nasal diphthongs: $\tilde{A}O/ \tilde{O}E/ \tilde{A}E$. The teacher is going to explain how to identify nasal diphthongs.</p>	Board Slides	Formative: I will open a space that students can ask if they have any doubts about the topic of nasal diphthongs.
15 minutes	<p>Then, for the first diphthong $\tilde{A}O$, the teacher will first play the song (Azulão by Maria Bethânia). The teacher will then ask which of the 3 diphthongs they identified. After, students must produce the diphthong sound by singing the song previously heard.</p>	Song	Formative: produce the nasal diphthong sounds correctly through singing.
15 minutes	<p>Then the teacher will give examples with the words</p>	Slides Board Students' notebook	Formative: participation in sharing and discussing their sentences.

	<p>found in the song with sentences. Students will have to create their own sentences with the words too.</p>		
20 minutes	<p>Then the students will listen to a conversation where they must listen to it (2 times) then a table will be made of what diphthongs they found in the conversation. Then there will be a role play where students must properly pronounce the sounds of the nasal diphthongs in conversation.</p> <p>Conversation:</p> <p>Luisa: Oi, Pedro! O que você acha dos cachorrinhos que encontramos na praia ontem?</p> <p>Pedro: Oi, Luisa! Achei eles incríveis! Os cães eram tão fofos. Como você encontrou esses filhotes?</p> <p>Luisa: Eu estava caminhando na areia, e de repente, vi um ãeiro correndo atrás deles. Parecia que estavam perdidos.</p>	<p>Audio conversation Board Roleplay activity</p>	<p>Formative: engagement and participation in the conversation analysis and role-play.</p>

<p>Pedro: Que história incrível! E o que você fez?</p> <p>Luisa: Eu me aproximei devagar, e eles não latiram nem nada. Eles eram tão amigáveis. Eles estavam com fome, então dei-lhes alguns petiscos.</p> <p>Pedro: Que gesto gentil! Tenho certeza de que eles ficaram muito agradecidos. E o que aconteceu depois?</p> <p>Luisa: Decidimos levá-los para a nossa casa temporariamente. Minha mãe ficou preocupada com eles. Ela adora cachorros, afinal, é uma grande amiga dos animais.</p> <p>Pedro: Parece que foi um dia cheio de surpresas e bondade. E como está sua mãe?</p> <p>Luisa: Ela está bem, mas está muito ocupada preparando o almoço para todos nós. Ela quer que seja um almoço especial, afinal,</p>		
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	<p>hoje é o Dia das Mães.</p> <p>Pedro: Feliz Dia das Mães para sua mãe, Luisa! Ela é realmente uma pessoa incrível.</p> <p>Luisa: Muito obrigada, Pedro! Vou transmitir seus votos a ela. Como você planeja celebrar o Dia das Mães com a sua mãe?</p> <p>Pedro: Minha mãe ama flores, então comprei um lindo buquê de ôeiro para ela. Também vamos fazer um jantar especial em família. Ela merece todo o carinho.</p> <p>Luisa: Isso é maravilhoso, Pedro. Tenham um Dia das Mães repleto de amor e alegria!</p>		
<p>15 minutes</p>	<p>Afterwards the teacher is going to play the song (Canção de Amor by Caetano Veloso) This time the students must represent through drawings which words they identified with nasal diphthongs in the song: Paixão</p>	<p>Song Students' notebook</p>	<p>The teacher will evaluate the sound production of nasal diphthongs and whether they identified the majority of the words with nasal diphthongs in the song.</p>

	<p>Emoção Não coração Então Desilusão Canção</p> <p>Afterwards they must explain their drawings, for example when I heard the word disappointment in the song it has this nasal diphthong, and for me disappointment is such a thing.</p>		
10 minutes	<p>Finally, the teacher is going to give them a sheet where they will mention what they learned in today's class, how they felt, and in what aspects they should practice as a student for the adequate production of nasal sounds.</p>	<p>Sheet about a final reflection of the class.</p>	<p>Formative: reflection on what was learned during the class.</p>

Juan N. Corpas University**Teacher:** Isabella Serrano Buitrago**Topic:** Nasal diphthongs (fourth class, 2 hours)**Teaching objective:****Learning objective:****Table 4. Fourth lesson plan**

This table shows the fourth lesson plan that lasts two hours and is focused on nasal diphthongs:

Duration	Activities	Resources	Assessment
25 minutes	Find the treasure of nasal diphthongs: I will divide the students into 2 groups and explain the rules of the game. Each team will receive a list of clues that will guide them in finding words with nasal diphthongs. The clues will be descriptions of specific locations where each hidden word is found. They have to find 5 papers that will form a sentence where after they find each paper they must organize it and say: I found the treasure. To get the point, each member of the team must correctly pronounce the sentence with the sounds of the nasal diphthongs.	List of clues	Formative: The goal is not to evaluate their proficiency at the end but rather to guide and reinforce their understanding and pronunciation throughout the activity.
25 minutes	Quizziz activity: This activity will involve students entering the Quizziz app and answering questions about nasal vowels and nasal diphthongs such as the rules and identification of words, to check if they are clear about these nasal components or if they still have doubts.	Quizziz app	Summative: It involves answering questions to check if students have grasped the rules and identification of nasal vowels and diphthongs.
30 minutes	Tongue twister activity: I will give each student a tongue twister, but it is written with its phonetic transcription. Therefore, students should try to put the normal form of the tongue twister and then pronounce it. For example: In the old village, the country was despontava. /na aw'dej.ɐ ẽ.'tigr, a 'lu.ɐ ãj deʃ.põ.tɐ've/ Um õe brincahãõ, entre as ães e os ães, se	Tongue twister	Formative: The tongue twister activity with phonetic transcriptions allows students to practice pronouncing nasal diphthongs in a fun and engaging way.

	esgueirava, enquanto o trovão ão, no horizon, ribombava. /? ãw̃, nu o.ri.zõ. 'tʃi, ʁi.bõ.bɐ'vɐ /		
25 minutes	Song: O Que Sera (À Flor da Terra)" - Chico Buarque. Students will write in their notebook the words that they identify in the song that have nasal diphthongs. Then, they will try to create a sentence with those words and the They are going to say it out loud.	Song	Formative: It encourages students to actively listen, identify, and use nasal diphthongs in context.
15 minutes	Closing activity: Discuss about these questions: Did you have any difficulty pronouncing the nasal diphthongs during class? What strategy do you think would help you improve the pronunciation of nasal sounds?	Questions	Formative: The closing discussion prompts students to reflect on their learning experience and articulate any difficulties they faced with nasal diphthongs.

Juan N. Corpas University

Teacher: Isabella Serrano Buitrago

Topic: Nasal consonants (fifth class, 2 hours)

Teaching objective: To reinforce their understanding of nasal consonants in Brazilian Portuguese language.

Learning objective: Students will be able to recognize nasal consonant sounds (m, n, nh) in Brazilian Portuguese language.

Table 5. Fifth lesson plan

This table shows the fifth lesson plan that lasts two hours and is focused on nasal consonants:

Duration	Activities	Resources	Assessment
25 minutes	<p>Memory game</p> <p>The teacher is going to start the class with a memory game where they must select cards until they find the pair, the words with their images will contain nasal consonants (m/n/nh). When they finish finding all the pairs, the teacher will ask them if they identified what today's topic will be, which will be nasal consonants.</p>	Game	Formative assessment: As they match pairs, the teacher can observe their recognition of words containing nasal consonants.
30 minutes	<p>Explanation</p> <p>Then, the teacher, through an infographic, will explain its use, examples and how to pronounce nasal consonants. When the explanation is finished, students can ask if they have any questions.</p>	Infographic	Formative: As the teacher presents the infographic and explains nasal consonants, students can ask questions and seek clarification.
25 minutes	<p>Song activity</p> <p>Therefore, the teacher will play a song called (Garota de Ipanema) it will be played 3 times. The first so that they can only listen to it, the second so that they fill in the blank spaces, the third so that they explain what they understood about</p>	Song	Formative: The song activity serves as a formative assessment of students' listening skills and comprehension of nasal consonants in a musical context.

	the song and write on the board the words that they identified with nasal consonants. The fourth time the students are going to sing the song.		
25 minutes	<p>Bingo game.</p> <p>Then, the teacher is going to play a bingo game, where there will only be words with nasal consonants. The first person to finish bingo must write 3 sentences using 3 bingo words, she/he should say bingo at the end and say the sentences out loud. The teacher will give the students a rubric to evaluate their classmates, the pronunciation and the correct structuring of the sentences will be evaluated.</p>	Game	Formative: it evaluates students' ability to recognize and recall words containing nasal consonants independently.
15 minutes	<p>Closing</p> <p>Finally, the teacher will also give feedback and ask the students how they felt in class, what they learned and why they consider it important or not to learn the nasal sounds of Portuguese.</p>	Students' reflection	Formative: through feedback and reflection, the teacher gains insights into students' perceptions, level of engagement, and retention of the lesson content.

Juan N. Corpas University

Teacher: Isabella Serrano Buitrago

Topic: Nasal consonants (sixth class, 2 hours)

Teaching objective: To facilitate the exploration of nasal consonants in Brazilian Portuguese.

Learning objective: Students will reflect on the significance of nasal consonants in Brazilian Portuguese communication.

Table 6. Sixth lesson plan

This table shows the sixth lesson plan that lasts two hours and is focused on nasal consonants:

Duration	Activities	Resources	Assessment
15 minutes	-Boat loaded with- game: We are going to start the class with a game, which consists of the students saying, I have a boat loaded with "musica". Then the other student is going to say what her/his previous classmate said and is going to add another word with a nasal consonant, for example: I have a ship loaded with "musica" and "amarelo". With this activity students remember vocabulary and pronounce the nasal consonants at the same time as memory is reinforced.	Game	Formative Assessment: This activity serves as a formative assessment because it's used to monitor students' understanding and progress during the lesson. It provides the teacher with insights into students' vocabulary retention and pronunciation of nasal consonants.
30 minutes	-Quiz: read a fable called a pomba and a formiga from Esopo fable: This fable contains consonants, vowels, and nasal diphthongs. Students must read the fable, then circle, underline and highlight the nasal pattern words. Then they must	Quiz of a fable	Summative Assessment: The quiz and reading of the fable are considered a summative assessment because they evaluate students' understanding and application of nasal

	put them in a classification table of nasal sounds.		consonants in a structured manner.
30 minutes	-Parts of a Brazilian series "a coisa mais linda": to review the rules of nasal consonants. Then, they will listen to another part of the series where they must write and then pronounce the phrase where the nasal word was.	Series	Formative Assessment: This activity serves as a formative assessment as it allows the teacher to observe students' comprehension and pronunciation of nasal consonants in a real-life context.
55 minutes	-Finally, the students will make a presentation (it can be in the form of a comic, infographic, video, etc.) in a group where they will prepare what they learned, why they consider it important to learn nasal sounds, if they consider that nasal sounds are important in the day by day when communicating, their feelings during classes and the activity or strategy they liked the most to practice the production of nasal sounds. Finally, they will present it, each group will have a minimum of 4 and a maximum of 8 minutes to share their perceptions.	Presentation	Summative Assessment: The preparation and presentation of the project function as a summative assessment because they evaluate students' overall understanding and application of nasal consonants. The criteria will be: content knowledge, organization and clarity, reflection and analysis.

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