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**UNDERGRADUATE PROGRAM**  
**DEPARTMENT OF NATIONAL AND FOREIGN LANGUAGE PEDAGOGY**  
**ENGLISH MAJOR**

**RESEARCH PROJECT**

**THEME:**

**L1 Interference in English Major Students' Pronunciation at  
Technical University of Cotopaxi.**

Research report before obtaining the bachelor degree in National and Foreign  
Language Pedagogy, English Major

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**PUJILI-ECUADOR**

**AUGUST 2023**

## **TUTOR'S ENDORSEMENT**

In my capacity as a supervisor of the research report entitled “**L1 Interference in English Major Students’ Pronunciation at Technical University of Cotopaxi**”, and researched by Pupiales Yepez Janeth Patricia, ID number 1004476626 for obtaining the bachelor’s degree in National and Foreign Language Pedagogy, English Major.

### **I CERTIFY THAT:**

This research report has been fully revised and has the requirements and merits to be submitted for evaluation by the assigned revision Committee and its presentation and defense.

Pujilí, August 2023



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## COMMITTEE APPROVAL

The research report entitled “L1 INTERFERENCE IN ENGLISH MAJOR STUDENTS’ PRONUNCIATION AT TECHNICAL UNIVERSITY OF COTOPAXI.”, has been revised, approved and authorized for printing and binding, before obtaining the bachelor’s degree in National and Foreign Language Pedagogy, English Major; this meets the substantive and formal requirements to hand in for the presentation and defense.

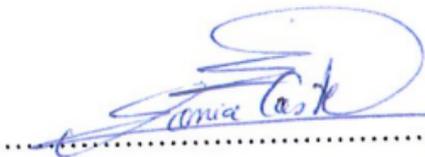
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## **GRATEFULNESS**

*First, I want to thank God, for giving me the strength and health to achieve one of my main goals. I want to thank, the Technical University of Cotopaxi, that received me and gave me the opportunity to improve myself, to **MSc. Marcia Chiluisa**, for being such a supportive teacher. To the PINE teachers, who are a big family that provided me knowledge and wisdom in the whole career.*

*Jane*

## DEDICATION

*This work is dedicated to **Jennyfer**, the strongest and smartest woman I've ever known, and also the love of my life. To the little boys of my heart, **Jahir**, **Rommel**, and my favorite one, **Eithan**, for all the things we've gone through together. For a new beginning, my loves. And, last but not less important, to **Fabián**, for being such a meaningful support in my daily battles.*

*Jane*

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**ENGLISH MAJOR**

**THEME: “L1 INTERFERENCE IN ENGLISH MAJOR STUDENTS’ PRONUNCIATION  
AT TECHNICAL UNIVERSITY OF COTOPAXI.”**

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**ABSTRACT**

This research aims to investigate the impact of mother tongue interference (Spanish) on the pronunciation of the phoneme /d/ across different positions among seventh-semester students enrolled in the English Major at the Technical University of Cotopaxi. The study employs a mixed-method approach with a descriptive correlational design. The data collection process involved five stages: Pronunciation Recordings, Qualitative Analysis, Quantitative Analysis, Comparison with Standard English, and Validation and Interpretation. The independent variable is the interference of L1 (mother tongue), while the dependent variable is the pronunciation of students. The findings of the study shed light on the challenges faced by students when pronouncing words with the phoneme /d/ in different positions. In the initial position, the interference is characterized by the transference of Spanish tongue positions and aspiration tendencies, leading to the production of [d] instead of the standard English sound. In the middle position, students exhibit a tendency to apply Spanish flapping and elision patterns, resulting in the articulation of a tap or alveolar flap [ɾ] instead of the expected English sound. Finally, in the final position, the influence of Spanish leads some students to voice the English final /d/ even when English requires voicelessness, indicating the persistence of L1 interference. These results emphasize the importance of addressing specific phonetic and phonological challenges that arise due to mother tongue interference in pronunciation training. Pedagogical strategies should be developed to address these issues and guide students toward more accurate English pronunciation, particularly in the context of the Technical University of Cotopaxi. Understanding the intricate interplay between L1 influence and the articulation of the phoneme /d/ can lead to targeted interventions that enhance students' pronunciation skills and contribute to their overall communicative competence in English.

**Key words: English, Mother tongue, Interference, pronunciation, Spanish, Variations.**

**TECHNICAL UNIVERSITY OF COTOPAXI**  
**UNDERGRADUATE PROGRAM**  
**DEPARTMENT OF NATIONAL AND FOREIGN LANGUAGE PEDAGOGY**  
**ENGLISH MAJOR**

**TITULO: “INTERFERENCIA DE LA LENGUA MATERNA EN LA PRONUNCIACIÓN  
DE ESTUDIANTES DE LA CARRERA DE INGLÉS EN LA UNIVERSIDAD  
TÉCNICA DE COTOPAXI”**

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**RESUMEN**

El presente documento tiene como objetivo investigar el impacto de la interferencia de la lengua materna (español) en la pronunciación del fonema /d/ en diferentes posiciones entre los estudiantes de séptimo semestre inscritos en la carrera de inglés en la Universidad Técnica de Cotopaxi. El estudio utiliza un enfoque de método mixto con un diseño correlacional descriptivo. El proceso de recopilación de datos involucró cinco etapas: Grabaciones de Pronunciación, Análisis Cualitativo, Análisis Cuantitativo, Comparación con el Inglés Estándar y Validación e Interpretación. La variable independiente es la interferencia del L1 (lengua materna), mientras que la variable dependiente es la pronunciación de los estudiantes. Los hallazgos del estudio arrojan luz sobre los desafíos que enfrentan los estudiantes al pronunciar palabras con el fonema /d/ en diferentes posiciones. En la posición inicial, la interferencia se caracteriza por la transferencia de posiciones y tendencias de articulación de la lengua española, lo que conduce a la producción de [d] en lugar del sonido estándar del inglés. En la posición intermedia, los estudiantes exhiben una tendencia a aplicar patrones de vibración y elisión del español, lo que resulta en la articulación de un toque o batido alveolar [r] en lugar del sonido esperado en inglés. Finalmente, en la posición final, la influencia del español lleva a algunos estudiantes a sonorizar la /d/ final en inglés incluso cuando el inglés requiere ausencia de voz, lo que indica la persistencia de la interferencia del L1. Estos resultados enfatizan la importancia de abordar los desafíos específicos de fonética y fonología que surgen debido a la interferencia de la lengua materna en la formación de la pronunciación. Deben desarrollarse estrategias pedagógicas para abordar estos problemas y guiar a los estudiantes hacia una pronunciación en inglés más precisa, especialmente en el contexto de la Universidad Técnica de Cotopaxi. Comprender la intrincada interacción entre la influencia del L1 y la articulación del fonema /d/ puede llevar a intervenciones dirigidas que mejoren las habilidades de pronunciación de los estudiantes y contribuyan a su competencia comunicativa general en inglés.

**Palabras clave: español, inglés, interferencia, lengua materna, pronunciación, variaciones.**

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## 1. GENERAL INFORMATION

**Theme:** “L1 Interference in English Major Students’ Pronunciation at Technical University of Cotopaxi”

**Starting Date:** April 2022

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**Sponsoring Faculty:** Pujilí Campus

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**Knowledge area:** Education

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## 1. PROBLEM STATEMENT:

Learning English comes with challenges, especially when it comes to pronunciation. Vyomakesisri, (2017) mentions, that ‘Many students learning English as second language have problems in pronouncing the words correctly’ (p.22). Since English is spoken by people of various nationalities, there is a wide variation in accents and pronunciation styles around the world (Wold, 2006). This can lead to misunderstandings and difficulties in communication, even between competent speakers, which also is remarked by Gilakjani, (2016) with the statement ‘a speaker has acceptable pronunciation when other people can understand him/her and the speaker’s English is of great value to listen to’ (p.2). Correct English pronunciation is essential for effective and clear communication; pronunciation involves not only producing correct sounds, but also the ability to use proper stress and intonation to convey meaning and intentions appropriately.

The problem of the pronunciation of English in Ecuador lies in the difficulties that students face when acquiring an authentic and clear pronunciation of the language. In an Ecuadorian context, Ortega & Fernández , (2018) mention specifically that ‘most college students present difficulties obtaining the respective proficiency accreditation’ (p.55) Spanish is the predominant mother tongue in the Ecuador, and phonetic and phonological differences between Spanish and English can lead to linguistic interference.

Ecuadorian students may experience difficulties producing certain sounds in English that do not exist in their native language, resulting in different or unnatural pronunciation (Silva, 2022). They may also have problems with the intonation and rhythm of English, which affects comprehension and fluency in oral communication; as Lado, (1956) quotes ‘Because the student transfers habits of English system to Spanish there will be a problem when the sound systems of English and Spanish differ’ (p.26).

The interference of the mother tongue in the pronunciation of English is a common difficulty that affects many non-native students. The different sounds, intonation patterns and phonological structures between Spanish and English can give rise to systematic errors in pronunciation. In Spanish, the phoneme /d/ is pronounced as a voiced alveolar stop consonant, where the tongue touches the alveolus, the space between the upper and lower teeth. In contrast, in English, the phoneme /d/ is also a stop consonant, but its

phonetic realization can vary depending on its position in the word and surrounding consonants. For example, in words like 'day' or 'dog', the phoneme /d/ is pronounced similarly to Spanish. However, in words like 'hand' or 'adventure', the phoneme /d/ is often pronounced with a slight voicing or may even be dropped in some dialects.

The interference of the mother tongue in the pronunciation of English by seventh semester students at the Technical University of Cotopaxi could be manifested in the transfer of the pronunciation of the phoneme /d/ from Spanish to English. This could result in a different pronunciation in words where the phonetic realization of the phoneme /d/ differs between the two languages. (Salcedo, 2010).

These phonetic differences can lead to a variation pronunciation of the phoneme [d] in English, which affects the clarity and comprehensibility of communication (Afonso, 2020). The lack of clear distinction between the two phonemes can result in errors in word production and difficulties in understanding and being understood by native English speakers. In this way, the research question is formulated as: What is the interference factors of the mother tongue in English pronunciation of 7<sup>th</sup> semester students at the technical University of Cotopaxi?

### 3. OBJECTIVES

#### General

To determine the interference aspects of mother tongue (Spanish) on the pronunciation of the phoneme /d/ different positions, in seventh semester students at the Technical University of Cotopaxi.

#### Specific Objectives:

- To identify the main differences of Spanish and English sound system by bibliographic review.
- To Collect data related to the variations of Spanish in the pronunciation of the phoneme /d/ in English among 7<sup>th</sup> semester students at the Technical University of Cotopaxi.
- To describe detailed results about the mother tongue interference in /d/ phoneme pronunciation of 7<sup>th</sup> semester students.

### 4. ACTIVITIES AND TASK SYSTEM IN RELATION TO THE OBJECTIVES PROPOSED.

**Table 1**

Objectives.

Specific objectives	Activities	Verification Means
To identify the main differences of Spanish and English sound system by bibliographic review.	Bibliographic review of information that will contribute to the development of the research.	Theoretical Framework development.
To Collect data related to the variations of Spanish in the pronunciation of the phoneme /d/ in English among 7 <sup>th</sup> semester students at the	Design a checklist of words that allow to collect data from the students of 7 <sup>th</sup> semester at the technical University of Cotopaxi.	Analysis and discussion of the data collected.

Technical University of Cotopaxi.	The documentation is carried out by recording the students' pronunciation by reading words in English and Spanish, provided by the researcher.	
To describe detailed results about the mother tongue interference in /d/ phoneme pronunciation of 7th semester students.	Through conclusions and recommendations determine the main factors of the mother tongue interference in the English pronunciation of the students.	Conclusions and recommendations for the project related to the level of interference of the phoneme /d/ in English major students.

## 5. JUSTIFICATION

The accurate pronunciation refers to the precise and faithful reproduction of the sounds, intonation patterns, stress, rhythm, and other phonetic elements of a spoken language (Ambalegin, 2021). Accurate pronunciation involves producing speech sounds that match the standard or native way of speaking in a particular language. In today's global context, English is used in various professional and academic fields, and future language teachers must cultivate authentic pronunciation skills to be an effective role model for their students. Likewise, the mother tongue (L1), in this case Spanish, can influence the pronunciation of a foreign language such as English. The authentic pronunciation which is the ability to produce the sounds in an accurately and natural way, also taking into consideration the intonation patterns and rhythm of the language, one of the examples of the authentic pronunciation is the distinct vowel sounds which involves the correct pronunciation distinct vowel sounds. On the other hand, the appropriate stress and rhythm patterns of the language, and as well the connected speech, the same that involves handling connected speech phenomena. Mastering the authentic pronunciation enhances language learners' ability to communicate effectively sound natural, and be understood by native speakers.

The interference of Spanish in the pronunciation of the phoneme /d/ in English can result in errors and difficulties that affect communication and understanding of the message. This phenomenon can be attributed to the phonological differences between two languages. Notably, these errors and difficulties often revolve around the voicing and placement of the phoneme /d/. The most common errors lay on the voicing errors, taking into account that Spanish and English differ in the voicing of certain consonants. Other of the difficulties for Spanish speakers is the placement of errors; the placement of the phoneme /d/ within words can also be challenging for Spanish speakers. Finally, the devoicing in Final position, because the Spanish does not exhibit the same the same voiced-voiceless distinction as English.

The research seeks to determine the interference of Spanish in the pronunciation of the phoneme /d/ in English among seventh semester students at the Technical University of Cotopaxi. The results of this research will provide further insight into the specific phonetic deviation and interference patterns faced by these students, which will contribute to the existing scholarly literature on pronunciation teaching and learning in the context of English as a foreign language.

The research findings will have important pedagogical and linguistic implications. By understanding the main differences between the sound system of Spanish and English, as well as the most common errors in the pronunciation of the phoneme /d/, effective strategies can be developed to improve the teaching of pronunciation in the Language Pedagogy course. Nationals and Foreigners at the Technical University of Cotopaxi. Furthermore, this research will benefit future teachers of English by giving them a deeper understanding of the pronunciation challenges their students face and how to address these challenges in their teaching practice.

## 6. SCIENTIFIC AND TECHNICAL FOUNDATION

### 6.1 Background

The background provides the necessary context to understand the research topic in its entirety. It allows to know the background, historical evolution, previous studies and theories related to the subject. This prior understanding is essential for asking the right questions, designing the right methodology, and avoiding duplication of effort (Academy, 2023).

The research by Singh, (2016) was aimed to find out whether mother tongue affects the English Pronunciation. For the procedure of the research, the author mentions a main theory in his job, which is aimed to English vowels, diphthongs, and consonants. Also, the study was qualitative with second semester students at Teacher Training and Education Faculty Pematangsiantar. The data was analyzed by phonetic transcription and comparison to Standard English Pronunciation. The author mentions as results of the research, the interference of the students' mother tongue (Batak Toba) makes the students difficult to pronounce some English Phonemes, such as vowels, diphthongs and consonants. As a conclusion, the study shows relevant results about the cause of the interference of the mother tongue of the students, which is the ascence of some phonemes.

Another research carried out by Erinastasis, (2018), where the main objective was to discover the mother tongue interference on students' pronunciation. The method of the research was qualitative and quantitative, with a descriptive research where documentation and recording was used to collect the respective data. The results categorizes the words into feature and made a percentage of interference, specifically in vowels and consonants and making clear that there is an interference of the mother tongue in the pronunciation of students since there are some vowels and consonants that does not exist in their native language.

A research by Chávez, et, al., (2021) was aimed to determine the phonological interference from spanish into English in the pronunciation of the students. The research approach was correlational with a quantitative methodology, since the researcher applied a phonological test composed by 35 items. The items contained specific sounds that students were supposed to discriminate when pronouncing. Then, the data was carefully

analyzed by each item responded by each student. As results of the study, were shown in a chart containing every error students made. Also, adding a certain percentage of students that were unsuccessful when pronouncing the items. As a conclusion of the research, there was a 57,74% of students that could not discriminate the consonant sounds, and a 56,95% of the students that had trouble when discriminating the vowel sounds, showing a notorious interference of the Spanish into English pronunciation.

There is another research by Olivo, (2017) which main objective is to analyze the influence of the Spanish on the pronunciation of English phonemes, such as /t/ and /d/ from students of 8<sup>th</sup> level International Commerce studies at PUCESE in the first semester of 2016. The research was descriptive by observing the characteristics of the students when they pronounce English, also by techniques of data collection, the observation and interview were used for the development of the research. As conclusion of the study, the author remarks that the biggest problems presented in students, are when they are pronouncing two specific phonemes located in the final position of a word due to the influence of their mother tongue, making clear that there is a mother tongue interference.

The research faces a lack of local documents in Ecuador that specifically address the interference of the mother tongue in the pronunciation of the phoneme /d/ of English learners. Although there is a considerable amount of international literature on linguistic interference in second language acquisition, the contextualization and application of these studies to the Ecuadorian linguistic reality is a significant challenge. The absence of local research in this area may make it difficult to identify specific patterns of interference related to the particularities of the Spanish spoken in Ecuador, as well as sociocultural and educational influences unique to the country. In this way, the lack of local documents may also hinder a full understanding of how English learners in Ecuador experience and deal with the challenges of L1 interference in their pronunciation. Given that pronunciation is a skill highly influenced by linguistic and cultural factors, the absence of contextualized research in the country may make it difficult to formulate specific teaching strategies and intervention programs. Therefore, the research faces the task of adapting and applying international findings to the Ecuadorian reality, while highlighting the need to fill the gap in local literature for a more accurate and effective understanding

of L1 interference in communication. pronunciation of English students at the Technical University of Cotopaxi.

## **6.2 Theoretical Framework**

### **6.2.1. English Pronunciation**

English pronunciation plays a crucial role in language learning and development, as correct pronunciation facilitates effective communication with native speakers and improves listening comprehension. In 'Teaching American English Pronunciation' (1992), Peter Avery and Susan Ehrlich, stress that proper pronunciation is essential for students to be able to express their ideas clearly and be understood by other speakers. Additionally, accurate pronunciation is an important component of achieving fluency in English and improving student confidence in their ability to communicate in everyday and academic situations. The importance of pronunciation in learning English lies in its link with listening comprehension. Leather, (2008) in 'Second-language pronunciation learning and teaching' suggest that correct pronunciation is essential for effective listening comprehension, since pronunciation errors can affect the perception of the message. Accurate pronunciation allows students to capture the details and nuances of spoken speech, which enhances their ability to communicate effectively in a variety of situations.

In addition, proper pronunciation also contributes to the development of more advanced communication skills, such as intonation and emphasis in speech. In 'English Pronunciation for International Students', Dale & Poms, (1994) emphasize that clear, expressive pronunciation enables students to use proper tone and emphasize words and phrases to convey specific intentions in communication. These skills are especially relevant in formal situations, presentations and debates, where correct pronunciation can influence the perception and credibility of the speaker.

### **6.2.2. Factors That Affect Pronunciation.**

English pronunciation can be affected by a combination of factors, ranging from mother tongue and age of learning start to learning exposure and environment, student motivation and attitude, and feedback received (Avery & Ehrlich, 1992). It is important to consider

these factors when teaching and learning English to facilitate a more accurate and effective development of this language skill.

There are several factors that affect the pronunciation as the following; **A)** Language Transfer which remains to the mother tongue, that is a fundamental factor influencing English pronunciation. Selinker, (1972) in 'Interlanguage' has explored the concept of linguistic transfer, which refers to how learners apply rules and sounds from their mother tongue when learning a second language, affecting their pronunciation. **B)** Age of onset of learning and brain plasticity, which Eric Lenneberg and other researchers have studied the relationship between the age of onset of learning a second language and brain plasticity. In 'Biological Foundations of Language', Lenneberg, (1967) notes that young children have a greater ability to acquire sounds and pronunciation patterns more naturally and similarly to native speakers. **C)** Exposure and learning environment, definition that Michael Long and other language acquisition experts have stressed the importance of exposure and the learning environment for English pronunciation. In *The Role of the Linguistic Environment in Second Language Acquisition* Long (Michael Long, 1996). points out that consistent exposure to native speakers and an authentic English-speaking environment are critical to the development of more accurate pronunciation. **D)** Student Motivation and Attitude same that in 'Motivation and Second Language Acquisition' Gardner, (2007) highlights how high motivation and a positive attitude can positively influence the improvement of pronunciation skills. **E)** Phonetic and phonological learning, taking into consideration that John Archibald and other linguists have investigated how phonetic and phonological learning influence English pronunciation. In 'Second Language Phonology' Archibald, (1997) explores how learners assimilate the sounds and patterns of English through the process of phonetic and phonological learning.

### **6.2.3. Interlanguage Theory**

Interlanguage theory, a fundamental concept in the field of second language acquisition (SLA), was introduced by Larry Selinker in the early 1970s. It seeks to explain the transitional linguistic system that language learners develop as they progress towards

proficiency in a second language (L2). This theory challenges the earlier belief that L2 acquisition is a linear process where learners move from a direct translation of their native language (L1) to complete mastery of the target language. Instead, interlanguage theory underscores the dynamic and evolving nature of language acquisition. Selinker's interlanguage theory posits that learners develop a unique and autonomous linguistic system that sits between their L1 and the target language. This system is shaped by a range of factors, including L1 influence, exposure to the target language, individual learning strategies, and cognitive processes. Interlanguage is seen as a temporary state in which learners' linguistic knowledge is characterized by both elements from their L1 and approximations of the L2. This intermediate stage is influenced by the learners' existing linguistic repertoire and cognitive resources (Selinker, 1972).

The **Systematicity and Variability** answers to the Interlanguage is marked by systematic patterns, suggesting that learners follow consistent rules even when they diverge from L1 or L2 norms. **Developmental Stages** refers Learners' interlanguage evolves through identifiable stages as they move closer to L2 proficiency. This progression is not uniform; learners may temporarily exhibit certain linguistic features that resemble an earlier developmental stage, even as they acquire more complex language structures (Nemser, 1971). **Fossilization** is defined by Selinker introduced the concept of fossilization, which refers to instances where certain interlanguage features become resistant to change, even in the face of exposure to accurate L2 models. **Overgeneralization and Simplification** refers learners often apply general linguistic rules to situations where they might not entirely apply. This leads to variations such as overgeneralization, where L1 rules are differently applied to L2 contexts.

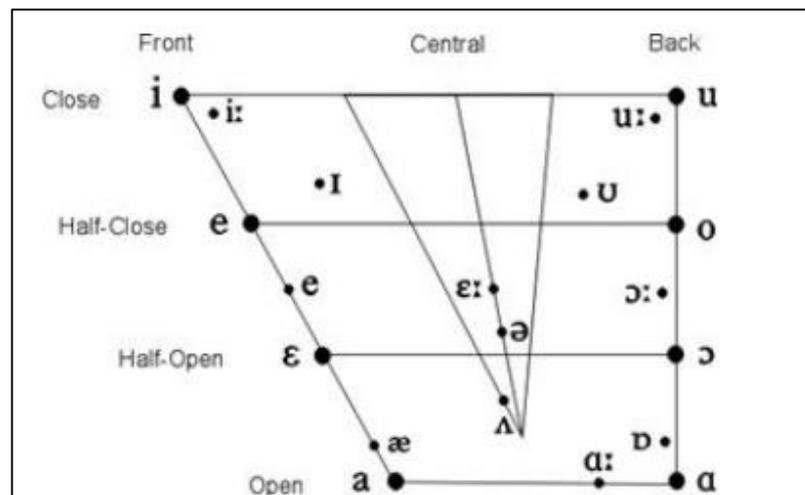
#### **6.2.4. English phonemes system.**

The English sound system, also known as its phonology, is a fundamental aspect of the language that determines how speech sounds are produced, perceived, and distinguished. Phonology studies the sounds of language and the rules that govern them, and plays a crucial role in effective communication (Wheelock, 2016). The sounds of English are classified into vowels and consonants, each with its own characteristics and patterns.

English phonemes are the distinctive sounds used to differentiate words in the language. These phonemes can vary depending on the accent or variety of English spoken, but in general, around 44 phonemes are recognized in standard English (Nakajima, et al., 2017). These phonemes fall into two main categories: vowel phonemes and consonant phonemes.

### Vowel Phonemes in English

Are those that are produced without significant airflow obstruction. In standard English, around 20 vowel phonemes are recognized (Solis, et al., 2019). Some examples of these phonemes include /i:/ as in 'see', /æ/ as in 'cat', /ʌ/ as in 'cup', and /ə/ as in 'about'. English vowel phonemes also include diphthongs, which are combinations of two vowel sounds in a single syllable, such as /eɪ/ in 'say' and /ɔɪ/ in 'boy'.



**Figure 1** The English Vowels Chart

*Source:* Taken from (Rostore, 2023)

### Consonantal Phonemes in English

Are those that imply an obstruction or restriction of airflow when produced. In standard English, around 24 consonantal phonemes are recognized. Some examples of these phonemes include /p/ as in 'pen', /t/ as in 'time', /k/ as in 'cat', /m/ as in 'man', and /n/ as in 'nice' (Al-Hattam, 2010). The consonantal phonemes of English also include fricative

sounds such as /f/ in 'fish' and /s/ in 'sun', as well as approximant sounds such as /r/ in 'red' and /j/ in 'yes'.

It is important to note that the pronunciation of English phonemes can vary depending on the accent or region, which can lead to different variants in the pronunciation of certain phonemes. For example, the pronunciation of the phoneme /r/ can vary in different accents of English, being more marked in some accents such as American and less so in others such as British (Al-Hattam, 2010).

- *Oclusives or Plosives*: These are consonants that are articulated by a brief interruption of the airflow and then a sudden release. In English, we have the stops /p/ as in 'pen', /b/ as in 'boy', /t/ as in 'time', /d/ as in 'dog', /k/ as in 'cat' and /g/ as in 'go'.
- *Fricatives*: These are consonants that are produced by narrowing the airflow, creating audible friction. In English, we have the voiceless fricatives /f/ as in 'fish', /θ/ as in 'think', /s/ as in 'sun' and /ʃ/ as in 'she'. We also have the voiced fricatives /v/ as in 'van', /ð/ as in 'this', /z/ as in 'zoo' and /ʒ/ as in 'measure' (Ambalegin, 2021).
- *Affricates*: They are consonants that combine a brief stop followed by a fricative. In English, we only have one affricate: /tʃ/ as in 'chair' and /dʒ/ as in 'judge'.
- *Nasals*: These are consonants that are produced by allowing air to pass through the nose while blocking the oral cavity. In English, we have the nasals /m/ as in 'man', /n/ as in 'nice', and /ŋ/ as in 'song' (Ambalegin, 2021).
- *Approximants*: These are consonants that are articulated with a narrowing of the vocal tract, but not enough to produce friction. In English, we have the approximants /r/ as in 'red' and /l/ as in 'love'.

- *Laterals*: They are consonants in which the air flows through the sides of the tongue. In English, we only have one lateral consonant, /l/ as in 'love' (Al-Hattam, 2010).

Based on the concepts above, the English consonants can be understood as in the following chart.

		PLACE OF ARTICULATION									
		Bilabial	Labio dental	Dental	Alveolar	Post alveolar	Palato alveolar	Palatal	Velar	Glottal	
<b>MANNER OF ARTICULATION</b>	Plosive	vl	<b>p</b>			<b>t</b>				<b>k</b>	<b>ʔ</b>
		vd	<b>b</b>			<b>d</b>				<b>g</b>	
	Affricate	vl						<b>tʃ</b>			
		vd						<b>dʒ</b>			
	Nasal	vl									
		vd	<b>m</b>			<b>n</b>				<b>ŋ</b>	
	Lateral	vl									
		vd				<b>l</b>					
	Fricative	vl		<b>f</b>	<b>θ</b>	<b>s</b>		<b>ʃ</b>			<b>h</b>
		vd		<b>v</b>	<b>ð</b>	<b>z</b>	<b>r</b>	<b>ʒ</b>			
	Semi Vowel	vl									
		vd	<b>w</b>						<b>j</b>		

**Figure 2:** English Consonants Chart

*Source:* Taken from (Umanitoba, 2019).

### English Diphthongs.

According to Jones, (1914) the diphthongs can be understand as ‘When two vowels are so placed and so pronounced that there is no diminution of sonority between them’ (p.22) Diphthongs in the English sound system are combinations of two different vowels that are articulated together in the same syllable. The first component of the diphthong is more prominent or accentuated than the second. These vowel combinations can be found in various English words and are an important feature of English phonology. The types of diphthongs are divided into two as following:

*Rising diphthongs:* These diphthongs start with a more closed or less open vowel and move towards a more open vowel. They are called 'Rising' because the tongue moves from a more closed position to a more open one during its pronunciation.

### **Stress and Intonation**

In the English sound system, intonation plays a crucial role in communication and in the expression of different meanings (Yangklang, 2013). Intonation refers to the melodic patterns used when speaking and how they affect the meaning and intent of a sentence or phrase. Although there are many regional and accent variations, we can identify some common intonation patterns in standard English. Some of them include:

*Falling intonation:* In this pattern, the voice drops at the end of a declarative or affirmative sentence. It is the most common pattern in English and is used to indicate that the sentence is complete and that no response or continuation is expected (Heinz & Van der Hulst, 2019).

**Rising intonation:** In contrast to falling intonation, rising intonation involves the voice rising at the end of a sentence, which can give the impression that the sentence is asking a question or asking for an answer (Yangklang, 2013).

**Falling-rising intonation:** Also known as 'fall-rise' intonation, this pattern begins with a fall in the voice and then rises towards the end of the sentence. It is often used to express questions that may have additional implications or to request confirmation (Gardner, 2007). **Rising-falling intonation:** Sometimes called 'rise-fall' intonation, this pattern shows an initial rise in the voice followed by a fall. It is used in questions that indicate surprise or disbelief. **Flat intonation:** In this case, the voice remains relatively constant without a significant rise or fall at the end of the sentence. It can denote emphatic statements or statements that do not require a specific response (Heinz & Van der Hulst, 2019).

### **6.2.5. Spanish Phonology System**

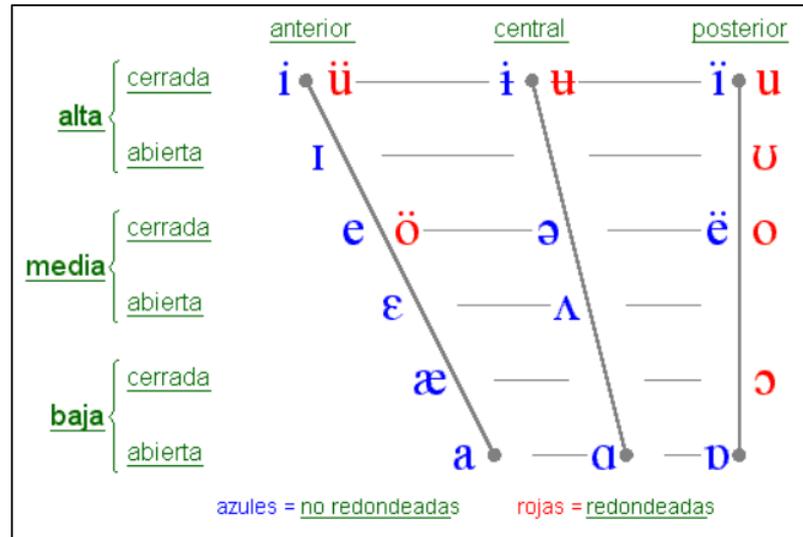
The Spanish sound system, also known as its phonology, is a fundamental aspect of the language that encompasses the consonantal and vowel sounds used to form words and

express meaning (Uribe, et al., 2019). The correct pronunciation of these sounds is essential for effective communication in Spanish, since small phonetic differences can change the meaning of words. The importance of the sound system lies in its role in the mutual understanding between speakers, the adequate expression of the language and the cultural and regional identity that reflects the accent and intonation of the speakers.

Some relevant aspects of the Spanish sound system include regional differences in pronunciation, such as the lisp, where the sounds 's' and 'z/c' are confused. In addition, the phenomenon of yeísmo, which implies the loss of the distinction between the sounds 'y' and 'll', is common in many regions (Uribe, et al., 2019). Learners of Spanish may also face specific challenges, such as the pronunciation of the trill 'r' or the differentiation between the 'b' and 'v' sounds. Research in Spanish phonology has been carried out by various authors, such as Cano, (1995) who have carried out significant research in the field of phonology and the history of Spanish.

### **Vowel phonemes in Spanish**

Spanish vowels are fundamental vowel sounds that play a crucial role in word formation and effective communication. Spanish has five vowels: /a/, /e/, /i/, /o/ and /u/. These vowels are divided into two groups: closed (/i/ and /u/) and open (/a/, /e/ and /o/) (Uribe, et al., 2019). Closed vowels are characterized by having a greater degree of approximation between the articulatory organs, while open vowels are pronounced with a wider opening of the mouth (Cano, 1995).



**Figure 3** Phonetic symbols for vowels

Source: Taken from (SIL, 2016)

### Consonantal Phonemes in Spanish

Spanish consonants are articulated sounds with certain obstructions in the vocal tract. Spanish has a variety of consonants, which are classified into different groups, such as plosives, fricatives, nasals, trills, laterals, and affricates. Some of the consonants in Spanish are /p/, /b/, /t/, /d/, /k/, /g/, /f/, /v/, /s/, /z/, /m/, /n/, /r/, /r/, /ʎ/ and /l/ (SIL, 2016). These consonants are pronounced distinctively and are essential for word formation and oral communication in Spanish.

		Bilabial		Labiodental		Dental		Alveolar		Palatal		Velar	
		sordo	sonoro	sordo	sonoro	sordo	sonoro	sordo	sonoro	sordo	sonoro	sordo	sonoro
Consonantes	Oclusiva	<b>p</b>	<b>b</b>			<b>t</b>	<b>d</b>					<b>k</b>	<b>g</b>
	Fricativa			<b>f</b>		<b>(θ)</b>		<b>s</b>			<b>j</b>	<b>x</b>	
	Africada									<b>tʃ</b>			
	Nasal		<b>m</b>						<b>n</b>		<b>ɲ</b>		
	Lateral								<b>l</b>		<b>(ʎ)</b>		
	Vibrante simple								<b>r</b>				
	Vibrante múltiple								<b>r</b>				
Semi-consonante										<b>y</b>		<b>w</b>	

**Figure 4: Phonological chart of Spanish consonants**

Source: Taken from (Cueva, 2015)

### Stress and Intonation

The intonation of Spanish is an essential aspect in oral communication that affects the meaning and intention of the message (Cano, 1995). Intonation refers to the changes in the frequency and intensity of the tone of voice during speech, which can indicate emotion, emphasis, question mark, exclamation point, or sentence structure. The intonation in Spanish varies according to the context, the regional accent and the style of communication, which adds richness and nuances to oral expression. Relevant studies on the subject have been carried out by authors such as Rafael Lapesa, a Spanish philologist known for his work on the history of the Spanish language (Uribe, et al., 2019). In his work 'History of the Spanish Language,' Lapesa addresses the evolution of intonation and its relationship with the grammatical structure of Spanish, providing a historical perspective on the intonation phenomenon in the language.

- a) Declarative intonation:* It is the intonation used in affirmative sentences or descriptive statements. Generally, it has a neutral or falling intonation at the end of the sentence.

- b) Interrogative intonation:* Used to ask questions. It can be ascending at the end of the sentence if an affirmative answer is expected, or descending if a negative answer is expected.
- c) Exclamatory intonation:* It is used to express strong emotions or surprise. Generally, it has a rising and emphatic intonation at the end of the sentence (Cano, 1995).
- d) Imperative intonation:* It is used to give orders, suggestions or make requests. It has a descending and energetic intonation at the end of the sentence.
- e) Doubtful intonation:* It is used to express doubt or uncertainty. It may have a rising or hesitant intonation at the end of the sentence.

#### **6.2.6. Contrastive Analysis**

Contrastive Analysis is a theoretical framework within the field of second language acquisition (SLA) that aims to predict and explain the difficulties and errors language learners might encounter when acquiring a new language. This approach originated in the mid-20th century and was influenced by behaviorist theories of learning and structural linguistics. The key concept behind Contrastive Analysis is to systematically compare the linguistic elements of a learner's native language (L1) with those of the target language (L2) to identify similarities and differences. The ultimate goal is to shed light on areas where learners might face challenges due to the divergences between the two languages.

The Contrastive Analysis Hypothesis, proposed by Robert Lado in the 1950s, posits that similarities between L1 and L2 structures facilitate language learning, while differences lead to difficulties and errors. According to Lado, when the structures of L1 and L2 are similar, transfer of knowledge can occur, aiding the learner's understanding. However, when structures diverge, learners might struggle to acquire new patterns and may apply L1 rules inappropriately to L2 contexts, leading to interference (Lado, 1957).

**Structural Comparisons:** Contrastive Analysis involves a thorough comparison of linguistic elements, including phonological, morphological, syntactic, and semantic

aspects, between L1 and L2. This comparison aims to identify potential areas of difficulty and predict the types of errors learners might make.

**Positive Transfer:** Positive transfer occurs when linguistic features in L1 facilitate the learning of corresponding elements in L2. For example, if word order is similar between L1 and L2, learners are likely to have an easier time grasping sentence structures.

**Negative Transfer (Interference):** Negative transfer, or interference, arises when learners apply L1 rules to L2 contexts, resulting in errors. These errors can stem from structural differences between the languages. For instance, if L1 lacks a certain grammatical feature present in L2, learners might omit or misuse it due to negative transfer.

**Error Prediction:** By identifying structural divergences through Contrastive Analysis, educators can predict the types of errors learners are likely to make and design instructional strategies that target these specific challenges.

**Limitations:** Critics of Contrastive Analysis argue that not all errors can be attributed solely to L1 interference. Factors like proficiency level, exposure, and individual learner strategies also play crucial roles. The application of Contrastive Analysis has evolved over time, with a shift towards a more nuanced view that considers the influence of cognitive factors, communication strategies, and sociolinguistic aspects on language learning. Nevertheless, Contrastive Analysis remains a valuable tool for understanding potential challenges faced by learners and tailoring instruction to address specific needs.

### 6.2.7. Allophones

Allophones are variants of the same phoneme in a language. A phoneme is an abstract unit of sound that is distinguished from other phonemes and has distinctive value in language (Tatham, 1969). On the other hand, an allophone is a specific phonetic realization of a phoneme, that is, a concrete way in which that sound is pronounced in specific contexts.

In a language, allophones can vary depending on the place of articulation, the mode of articulation, or the phonetic context in which they are found. Although allophones are variants of the same phoneme, they do not change the meaning of words in the language, since speakers perceive these sounds as representations of the same phoneme (Mitterer, et al., 2017).

The English phoneme /d/ exhibits allophonic variations based on its position within words, contributing to the diverse and intricate sound system of the language. These variations are influenced by factors such as syllable stress, adjacent sounds, and the phonological rules governing English pronunciation. Researchers have extensively examined these allophonic shifts to understand how they affect the overall phonological landscape. According to Ladefoged (2006), the /d/ sound is typically realized as a voiced alveolar stop [d] in word-initial positions and stressed syllables. In contrast, in unstressed syllables and intervocalic positions, an allophone known as the flap [ɾ] is often observed (Crystal, 2008). For instance, the /d/ sound in "rider" may be pronounced as [ɹaɪɾər], highlighting its variation based on syllable stress and context. Roach (2009) highlights the influence of syllable structure on the realization of the /d/ sound's allophones. Following nasal consonants like [n] or [m], the /d/ sound is commonly pronounced as a voiced alveolar stop [d], as seen in "sand" [sænd] or "condemn" [kən'dɛm]. Additionally, the choice between [d] and [ɾ] after vowels contributes to the dynamic nature of allophonic variations (Kenworthy, 1987).

Variations in the /d/ sound's allophones can also be attributed to regional accents. O'Connor and Arnold (1973) suggest that allophonic differences can be influenced by intonation patterns, affecting how the /d/ sound is realized in different dialects. Furthermore, Johnson (2012) discusses the acoustic properties of these allophones, shedding light on the perceptual differences and acoustic cues that distinguish them. In conclusion, the allophones of the /d/ sound in English demonstrate intricate variations based on syllable stress, adjacent sounds, and phonological rules. The realization of [d] and [ɾ] provides insight into the rich phonetic and phonological tapestry of English, showcasing how these allophonic shifts contribute to the diversity of pronunciation patterns. The English phoneme /d/ exhibits distinct allophonic variations based on its

position within words—whether it appears at the beginning, middle, or ending as the following examples:

### **Beginning of Words: [d]**

When the /d/ sound appears at the beginning of words or stressed syllables, it is often realized as a voiced alveolar stop [d]. This is due to the relatively stable and distinct nature of this sound. At the beginning of words, the vocal cords vibrate to produce the voiced sound, and the tongue momentarily contacts the alveolar ridge to create the stop closure. This clear articulation helps in initiating words with clarity and precision, aiding in effective communication.

### **Middle of Words: [ɾ]**

In intervocalic positions and unstressed syllables, the /d/ sound often takes the form of a flap [ɾ]. This is a result of the desire for efficient articulation and smooth transitions between vowels. The flap involves a rapid tap of the tongue against the alveolar ridge, which is less effortful than maintaining a complete closure for [d]. In unstressed syllables, where sounds are often reduced, this flap allows for a quick and fluid transition between vowels, contributing to the rhythm and flow of speech.

### **End of Words: [d] or [t]**

The realization of the /d/ sound at the end of words is influenced by the sounds that follow it. When the next sound is a vowel or a voiced consonant, the /d/ sound is retained as [d]. This is because voiced sounds allow the vocal cords to remain in a vibrating state, preserving the voiced quality of [d]. However, when the following sound is a voiceless consonant, the vocal cords cease vibrating, and the /d/ sound undergoes devoicing to a voiceless alveolar stop [t]. This devoicing prevents the voiceless following sound from conflicting with the voiced nature of [d].

These allophonic variations demonstrate the intricate balance between articulatory ease, perceptual clarity, and linguistic constraints. Phonological rules dictate these variations to ensure smooth speech production while maintaining phonemic distinctions. The choice of [d], [ɾ], or [t] reflects the optimization of communication through both efficient

articulation and clear phonemic differentiation. Overall, these variations contribute to the rich and diverse soundscape of English pronunciation.

### **6.2.8. Deletion**

The 'deletion' (deletion) in linguistics is a crucial phonological phenomenon that involves the omission of specific sounds, whether vowels or consonants, in the production of speech. This process is essential to understand how languages evolve, how speakers simplify their phonetic production, and how sounds adapt to different communicative contexts. Deletion is a widely studied phenomenon in phonology and phonetics, and sheds light on the complexity of sound interactions in language.

Deletion occurs for various linguistic and phonological reasons. On many occasions, it is a strategy to make speech production more efficient, especially in situations of rapid speech and in sequences of sounds that are difficult to pronounce. It can be influenced by phonetic, morphosyntactic and pragmatic factors. Furthermore, deletion can occur at different linguistic levels, from phonology to morphology and syntax.

#### **The Deletion and /d/ phoneme**

The deletion of the phoneme /d/ in the English sound system is an interesting phonological phenomenon that occurs in certain linguistic contexts. This process of deletion involves the omission of the /d/ sound in words where it would normally be present. This phenomenon is an example of how speech sounds can adapt and change based on phonological rules and linguistic contexts.

The deletion of the phoneme /d/ is an example of how phonological rules can interact with phonetic production to facilitate speech fluency. However, it is important to note that the deletion can vary depending on the variety of English and the communicative context. Not all varieties of English show the same degree of deletion in these contexts, and pronunciation can vary between speakers. The deletion of the phoneme /d/ in English has been studied in phonology and phonetics. Academic research has explored how this phenomenon varies in different dialects of English and how it is related to other

phonological processes. Authors such as Morris Halle and Noam Chomsky, in their work 'The Sound Pattern of English,' have addressed deletion and other phonological phenomena in English. The deletion of the phoneme /d/ in English generally occurs in three types of contexts:

**After Word-End Consonant:** The phoneme /d/ can be omitted when it appears at the end of a word and is preceded by a consonant. For example, in the word 'land,' the phoneme /d/ is not pronounced in some varieties of English, resulting in a pronunciation similar to 'lan.'

**After Word-Final /n/:** In words where the phoneme /d/ follows /n/ and is at the end of a word, as in 'find,' deletion may occur in some variants of English, resulting in a pronunciation similar to 'fine.'

**In Word Sequences:** Deletion can also occur in word sequences where one word ends in /d/ and the next begins with a vowel. For example, in the phrase 'good apple,' the phoneme /d/ in 'good' may be omitted, resulting in a more fluent pronunciation like 'goo apple.'

### **6.2.9. Problematic English Sounds for Spanish Speakers.**

When a Spanish speaker is faced with a phoneme that does not exist in their native language or is not present in the same way, they may have trouble articulating it correctly. This is because the speech apparatus and hearing abilities of the speakers are adapted to the specific sounds of their mother tongue. When trying to pronounce a foreign phoneme, speakers may produce a similar Spanish sound instead or have difficulty aurally differentiating it in words from another language (Jami, 2016).

For Spanish speakers, some of the sounds in English that can be problematic are those that don't exist in your native language or are pronounced differently. Some of these sounds include the dental fricatives /θ/ and /ð/, which represent the 'th' sound in words like 'think' and 'this.' Also, the alveolar trill /r/, which is different from the 'r' sound in Spanish and can be pronounced like an /l/ or a /d/ instead (Lado, 1956). Spanish speakers

may find some sounds in English problematic that do not exist or are pronounced differently in their native language. Phonemes such as /θ/, /ð/, and /ɾ/ can present pronunciation challenges, just like diphthongs in English (Nakajima, et al., 2017).

### **6.2.10. Language Interference**

Language interference, a phenomenon deeply rooted in the realm of bilingualism and second language acquisition, holds a pivotal role in shaping linguistic patterns, communication nuances, and cognitive processes. It encapsulates the intricate interplay between one's native language (L1) and the acquired language (L2), unfurling a myriad of complex interactions that range from phonological and syntactic to lexical and pragmatic dimensions. This phenomenon has captivated the attention of researchers and linguists alike, as it unravels the intricate dance between linguistic systems and offers insights into the intricacies of language acquisition and use.

#### **The Interplay of Linguistic Systems**

Language interference occurs when the structures, sounds, and conventions of one's native language infiltrate the linguistic output of the acquired language. This phenomenon is not limited to isolated instances; it permeates various levels of linguistic expression, leading to deviations from the target language's norms. As Cook (2003) aptly notes, "Interference affects every aspect of language, from sounds through syntax to discourse" (p. 6). It highlights the interconnectedness of linguistic systems and showcases the ways in which the mental representation of one language can influence the expression of another.

#### **Phonological and Syntactic Intricacies**

At the phonological level, language interference manifests in the pronunciation of phonemes, often resulting in phonetic deviations that reflect the phonemic inventory of the native language. Flege (1987) underscores that the transfer of phonological features can lead to perceptual challenges, shaping an accent that echoes the phonetic norms of the native language. Moreover, syntactic structures from the L1 can impose themselves on L2 sentence formation, leading to syntactic interference. This is illustrated by

Chomsky's Universal Grammar theory, which suggests that language learners have a predisposition to transfer their L1 syntactic structures to L2 (Chomsky, 1986).

### **Lexical and Pragmatic Nuances**

The impact of language interference also extends to the lexicon and pragmatic dimensions of communication. Cross-linguistic lexical interference, as observed by Odlin (1989), can lead to the incorporation of L1 vocabulary into L2 discourse, resulting in code-switching or the adoption of L1 lexical items in L2 communication. Additionally, pragmatic conventions and cultural norms embedded in the L1 can influence speech acts and discourse patterns in the L2. This underscores the role of sociocultural factors in shaping language use (Schmidt, 1983).

### **Cognitive Implications and Language Dominance**

Language interference raises intriguing questions about the cognitive mechanisms underlying bilingualism. It prompts inquiries into how bilinguals manage two linguistic systems and navigate their coexistence. Factors such as language dominance play a crucial role; proficient bilinguals may exhibit less interference due to increased cognitive control and the ability to distinguish between linguistic contexts (Green, 1998). In essence, language interference is a dynamic and multidimensional phenomenon that provides a lens through which we understand the intricate interactions between linguistic systems. It underscores the undeniable influence of one's native language on the acquisition and use of an additional language. By delving into its complexities, researchers gain insights into the cognitive, sociolinguistic, and pedagogical dimensions of bilingualism, enriching our understanding of the dynamic process of language acquisition and communication.

#### **6.2.11. Phonological Differences between L1 and L2**

The phonological difference between the mother tongue and the second language refers to the variations in sounds (phonemes and allophones) that exist between both languages. Each language has its own distinctive set of sounds that are used to form words and convey meaning. These phonological differences can create difficulties for speakers when

learning a second language, since sounds that are common or natural in their mother tongue may not exist or be pronounced differently in the second language (SIL, 2016).

In Spanish, there are some sounds that have no direct equivalent in English, such as the multiple trill 'r' [r] in words like 'pero' or the velar fricative 'j' [x] in words like 'joven.' For native Spanish speakers learning English, the pronunciation of the 'th' sounds (/θ/ and /ð/), as in the words 'think' and 'this', can be problematic since these sounds do not exist in Spanish (Mitterer, et al., 2017). The phonological difference between Spanish and English is considerable due to variations in their sound systems. Both languages have different sets of phonemes and pronunciation rules, which can lead to difficulties for speakers when learning the other language (Avery & Ehrlich, 1992). The main phonological differences between Spanish and English:

**Vowels:** Spanish has five phonetic vowels: /a/, /e/, /i/, /o/ and /u/, which are generally pronounced clearly and distinctly. In contrast, English has a greater number of vowels and diphones, and vowels can have various pronunciations depending on the context (Olivo, 2017). For example, the vowel 'a' in English can be pronounced in different ways in words like 'cat' and 'father.'

**Consonants:** Both languages have consonants that do not exist in the other. For example, Spanish has a multiple trill /r/, which is different from the single trill /r/ in English. Also, Spanish does not have the fricative sound /θ/ (as in 'think') or the voiced fricative sound /ð/ (as in 'this'), which are common in English.

- a) Intonation:** The intonation and rhythm of the sentences can vary between both languages. In Spanish, intonation tends to be flatter and marked by stress accents on specific syllables. In English, the intonation can be more melodic and fluctuate more in the spoken chain, affecting the meaning and intent of the sentence (Jones, 1914).
- b) Syllabification:** Spanish tends to be more syllabic, with words generally being pronounced with all their syllables. In contrast, English may drop some syllables

or blend them in certain contexts, which can make it difficult for Spanish learners to identify specific words (Jami, 2016).

### **6.2.12. /d/ phoneme in English and Spanish.**

The phoneme /d/ is a common consonantal sound in both English and Spanish. Although it is represented by the same letter /d/ in both languages, there are some important differences in its pronunciation and usage. In Spanish, the phoneme [d] is a voiced dental consonant /d/, which means that it is pronounced with the tongue touching the upper teeth and producing vibration in the vocal cords. For example, in words like 'day' or 'finger,' it's pronounced like a clear, loud /d/

In English, the pronunciation of the phoneme /d/ can vary depending on its position in the word. Initially or intervocalically, as in 'dog' or 'bed', it is pronounced similarly to [d] in Spanish, as a voiced dental consonant /d/ (Nakajima, et al., 2017). However, at the end of words or before a consonant, as in 'mad' or 'find', English [d] becomes an alveolar tap consonant [ɾ], which is a softer sound similar to the multiple trill 'r' in Spanish (Avery & Ehrlich, 1992).

*Sonority:* In both Spanish and English, the phoneme [d] is voiced, which means that it is produced by vibration in the vocal cords.

*Position in the word:* The position of the phoneme [d] can influence its pronunciation. In Spanish, it is pronounced evenly in all positions within the word, while in English, it can have a different pronunciation at the end of words or before a consonant (Gilakjani, 2016).

*Influence of neighboring sounds:* In both languages, the pronunciation of the phoneme [d] can be influenced by the sounds that surround it within the word, which can lead to different sound realizations.

*Usage and Context:* The phoneme [d] is widely used in both languages to form words and convey meaning. Its correct pronunciation and use are essential for effective communication in Spanish and English (Rostore, 2023).

The foundational categories, such as /d/ phoneme pronunciation, L1 interference in pronunciation, phonetic positions, and interference variations contribute to the research by providing a conceptual framework to explore and analyze the specific issues related to L1 interference in English learners' pronunciation. These categories allow for a systematic and organized approach to address key research questions, identify patterns of interference, and understand how phonetic and phonological aspects of L1 influence English pronunciation.

## 7. METHODOLOGY

Dawadi, et al., (2021) mention that, an integrated approach of mixed methods design presents several advantages when addressing intricate research matters, as it combines the philosophical underpinnings of both post-positivism and interpretivism. The combination of these approaches allows for a more holistic approach to the issue of L1 interference in pronunciation. Quantitative research provides numerical and statistical data to support qualitative observations, while qualitative research provides a deep understanding of individual student experiences and the reasons behind interference. This combination of approaches extends the validity and interpretation of the results and provides a richer and more complete view of the phenomenon in question. Data collection was carried out in several stages to comprehensively address L1 interference in the pronunciation of the phoneme /d/ in English learners. Development of a Word Checklist: A checklist was designed that contained a list of words in English and Spanish that included the phoneme /d/ in various positions (beginning, middle, and end). This allowed us to compare the pronunciation of similar words in both languages and to analyze the phonetic differences and deviations.

**1) Pronunciation Recordings:** Pronunciation recordings of the students were collected. Participants were asked to pronounce the words on the checklist in both English and

Spanish. The students provided 3 audios where they pronounce the words by /d/ phoneme position. This allowed us to analyze how they apply the phonetic and phonological rules of their mother tongue to English and if this results in interference. **2) Qualitative & Quantitative Analysis:** A qualitative analysis of the recordings was performed to identify interference patterns and pronunciation errors. It was examined how the students treated the phoneme /d/ in different positions and if they applied the rules of Spanish to English. Instances of interference and pronunciation errors in the recordings were quantified. Percentages and frequencies were calculated to determine the prevalence of different types of interference at specific phonetic positions. **3) Comparison with Standard English:** Student recordings were compared with a standard English pronunciation to identify deviations and differences. This allowed evaluating the degree of influence of L1 on pronunciation. **4) Validation and Interpretation:** The results of the data collection were validated and interpreted in the context of the investigation. Trends and interference patterns were identified based on phonetic positions and related to the phonological characteristics of Spanish.

The data collection was carried out through the recording of pronunciations of words in English and Spanish, focusing on the phoneme /d/. The mixed methodology allowed a deep and complete understanding of how the students apply the phonetic and phonological rules of their L1 to English and how this affects their pronunciation. Aggarwal & Ranganathan, (2019) mention that a descriptive study is structured to depict the arrangement of one or multiple variables, without considering any causal or alternative hypotheses. In the present research, the descriptive method was used to describe the correlation between the mother tongue interference in the English pronunciation of the 7<sup>th</sup> semester English Major at the technical University of Cotopaxi. The correlation of the mother tongue interference was made by a checklist of 30 words in Spanish and 30 words in English, divided in three groups according to the position of the phoneme /d/ (beginning, middle & ending) and each word was organized with a vowel in alphabetical order, in Spanish and English. In this way, the students had the opportunity to pronounce a word in their mother tongue (Spanish) and then pronounce the English word, with the same pattern as the Spanish word pronounced before, making evident the mother tongue interference in the English pronunciation.

Bhandari, (2023) mentions that a correlational research design examines connections between variables without the researcher exerting control or altering any of them. This research is correlational because it focuses on analyzing the relationship and associations between two variables: the interference of the mother tongue (L1) and the pronunciation of the phoneme /d/ in English students at the Technical University of Cotopaxi. In this type of research design, the aim is to identify if there is a relationship between the variables without manipulating any of them. In this case, the independent variable is the interference of L1 (Spanish) in the pronunciation of the phoneme /d/ in different phonetic positions, while the dependent variable is the actual pronunciation of the students. The objective is to determine if there is a significant correlation between L1 interference and different or deviant pronunciation of the phoneme /d/.

The research seeks to establish whether the presence and main aspects of L1 interference in the pronunciation of the phoneme /d/ is associated with errors or pronunciation difficulties in students. Through the analysis of the pronunciation recordings and the comparison with standard English, we seek to determine if students who show greater L1 interference also have more impaired pronunciation. In the present project, the study objects are the students from 7<sup>th</sup> semester of National and Foreign language pedagogy, English major career, at the Technical University of Cotopaxi.

### **Population and sample**

For the present project, the population sample selected were seven students of the seventh semester of the National and Foreign Pedagogy, English Major, of the Technical University of Cotopaxi the seventh semester 'A' was conformed by 28 students where only 7 were taken into consideration for the participation of the students. 5 of the students were female among the 21 and 25 years old, and 2 of the participants were male, among the 22 and 23 years old. The 7 participants were informed about the objective of the research and were given the corresponding consent to participate.

Nayeem & Huma, (2017) mention in their paper, 'Non-probability sampling method mostly involves judgment, instead of randomization, participants are selected because they are easy to access' (n.p) A type of 'non-probability sample' known as convenience sampling was applied. The criteria for the selection of the 7 participants was based on the accessibility and availability of the students that were part of the sample. Convenience sampling involves selecting participants who are more accessible and convenient to the researcher, rather than selecting them randomly or following a more rigorous sample selection process. In this case, the researchers may have selected students from the National and Foreign Language Pedagogy major at the Technical University of Cotopaxi who were willing and available to participate in the study.

The criteria for the selection of the 7 participants was based on factors such as the availability of time, the willingness to be recorded pronouncing words in English and Spanish, and also on the diverse representation of different levels of L1 interference in the pronunciation of the language. phoneme /d/. The seventh semester students are participating in pre-professional practices, in this way, the level of pronunciation of students is relevant.

## **8. ANALYSIS AND DISCUSSION OF RESULTS**

SHU, (2021) defined the objective of the discussion section is to analyze and illustrate the relevance of the results obtained in relation to prior knowledge about the research problem in question. In addition, it seeks to explain any new perspectives or new insights about the problem after having taken into account the discoveries made.

After providing to students a list of 60 words, where 30 of them were in Spanish and 30 were in English, the students had to pronounce the words, first in Spanish and then in English, starting by the positions of the different deviations of the /d/ phoneme. Three sections were taken into consideration, by the variation of the phoneme /d/, which were called 'Beginning, Middle & Ending' The data is organized and showed in the following table.

**Category A: Mother tongue interference; Beginning Position.**

**Table 2**

*English Words, beginning position with standard pronunciation*

<b>Item</b>	<b>Word</b>	<b>Standard Pronunciation</b>
<b>1</b>	Day	/deɪ/
<b>2</b>	Detect	/dɪ'tekt/
<b>3</b>	Dime	/daɪm/
<b>4</b>	Door	/dɔː/
<b>5</b>	Duck	/dʌk/
<b>6</b>	Date	/deɪt/
<b>7</b>	Deep	/di:p
<b>8</b>	Diner	/'daɪnə/
<b>9</b>	Doll	/dɒl/
<b>10</b>	Dudes	/dju:dz/

*Note:* The chart shows the words selected for the documentation of the category A, beginning position, and its respective phonetic transcription.

The seven student's pronunciation is showed as **data**. The participants pronounce a word in Spanish, followed of an English word. The word taken into consideration to provide a ✓ and an X is the English depends of the correct pronunciation of the /d/ phoneme, which is organized by vowels according to the alphabet. Finally, in the total is showed the percentage of the interference of the mother tongue, which means, the variation pronunciation of the /d/ phoneme.

**Table 3***Data collection of beginning word's pronunciation*

Item	Spanish Word	English Word	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7	Total
1	Dar	Day	X	✓	✓	X	X	X	X	<b>71,43%</b>
2	Dedo	Detect	✓	✓	✓	X	X	X	✓	<b>42,86%</b>
3	Dice	Dime	X	✓	X	✓	X	X	X	<b>71,43%</b>
4	Dos	Door	X	✓	✓	X	✓	X	X	<b>57,14%</b>
5	Dulce	Duck	X	X	X	X	X	X	✓	<b>85,71%</b>
6	Dado	Date	✓	✓	✓	✓	✓	✓	✓	<b>0%</b>
7	Decir	Deep	✓	X	✓	X	✓	✓	✓	<b>28,57%</b>
8	Diez	Diner	✓	✓	✓	X	X	✓	X	<b>42,86%</b>
9	Dólar	Doll	X	X	X	X	✓	X	X	<b>85,71%</b>
10	Dúplex	Dudes	X	X	X	X	✓	X	X	<b>85,71%</b>

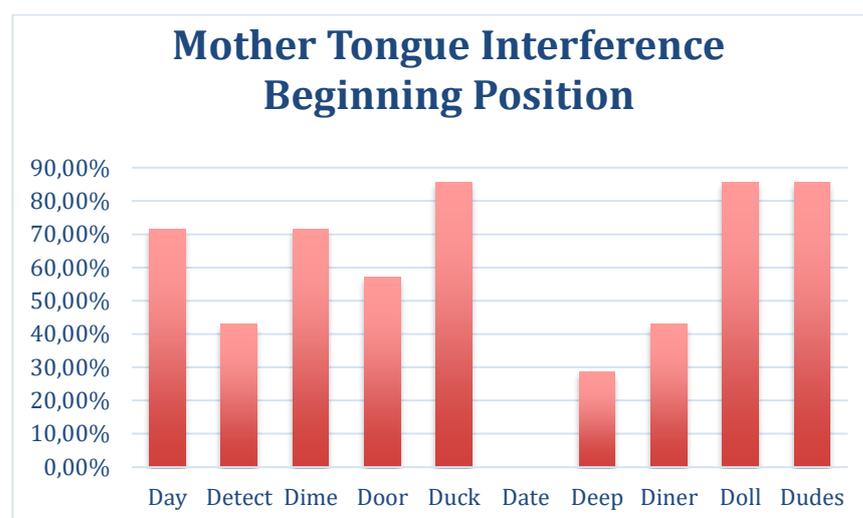
*Note:* The chart shows the data collected by the seven student's pronunciation and the interference of the mother tongue in the pronunciation.

The table analyzes the pronunciation of the phoneme /d/ in words in Spanish and English where the position of the phoneme is at the beginning of the word. Data provided by 7th semester students. Each 'X' in the categories 'Data 1 to Data 7' represents a common error or phonetic deviation in the pronunciation of the phoneme /d/ f. Each '✓' indicates that that error or deviation was not made. The phoneme /d/ is followed by vowels placed in order, according to the alphabet.

In this data analysis, various trends and insights emerged from the pronunciation performance of the students across different words. Starting with Item 1, it was observed

that 71.43% of the students struggled with the pronunciation of 'Day'. Moving on to Item 2, the situation was different with 'Detect', where 42.86% of the students achieved correct pronunciation, marking a notable improvement. Item 3 shed light on another word, 'Dime', revealing that the same percentage, 71.43% of students, encountered issues in pronouncing it accurately. Item 4 introduced a contrast, as 'Door' posed a considerable challenge with 57.14% of students making pronunciation errors. However, despite this difficulty, Item 5 highlighted a more widespread problem, showing that 85.71% of the students faced difficulties in pronouncing a certain word.

An intriguing observation is made in Item 6, where it's noted that all the words in a specific category were pronounced correctly by the students, resulting in a remarkable 0% deviation in phonetics. This positive outcome indicates a strong grasp of pronunciation within this category. Item 7 continued to present a challenge, with 'Deep' causing problems for 28.57% of the students, implying that it was a particularly demanding word for a subset of students. Item 8 brought forward 'Dinner', revealing that 42.86% of the students found fewer difficulties in pronouncing it accurately. On the contrary, Item 9 emphasized a stark difference, as 'Doll' was pronounced differently by a significant 85.71% of the students, indicating a high level of interference. Similarly, Item 10 concluded the analysis, showing that the word 'Dudes' presented pronunciation challenges for 85.71% of the students.



**Figure 5** Mother tongue Interference, beginning position

*Note:* The diagram shows the percentage of the mother tongue interference.

### **Category A: Discussion**

The words that had the phoneme /d/ in a beginning position, represent a challenge for student's pronunciation. Most of the words pronounced by students show a percentage above 28% of interference, which means that most of the words provided by the researcher, were not pronounced correctly, according to the standard pronunciation. The presence of the phoneme /d/ at the beginning of words presents a notable challenge for students' pronunciation. In fact, most of the words articulated by students exhibit an interference percentage surpassing 28%. This indicates that the majority of words introduced by the researcher were not accurately pronounced in line with the established pronunciation norms. One common source of pronunciation issues stems from the interference of the students' mother tongue. This is particularly evident in the positioning of the tongue during pronunciation. In Spanish, the tongue's placement is dental, making contact with the upper teeth. However, students often overlook the fact that in English, the tongue should be positioned alveolarly, resting on the upper part of the mouth behind the upper teeth. Additionally, the lack of aspiration in English phonemes poses a challenge. While English phonemes like /d/ often include aspiration, Spanish phonemes usually lack such aspiration in their pronunciation.

The distinct phonotactic patterns inherent to Spanish and English can lead to interference when Spanish native speakers attempt to pronounce English words. This is especially prominent in uncommon consonant combinations at the onset of words. In these cases, initial sounds might undergo modification or simplification to align with the more familiar phonotactic structures of the speaker's native language. Interestingly, the initial position of the /d/ phoneme does not pose significant challenges for students. However, the interference of their mother tongue remains conspicuous when pronouncing the /d/ phoneme in initial position. This phenomenon arises from the transfer of phonetic and articulatory patterns from Spanish to English. Students unintentionally apply the tongue's position and the absence of aspiration typical in Spanish to the /d/ phoneme in English. Consequently, this results in a pronunciation that deviates from the established English pronunciation standards.

**Category B: Mother tongue interference; Middle Position.****Table 4***English Words, Middle position with standard pronunciation*

<b>Item</b>	<b>Word</b>	<b>Standard Pronunciation</b>
<b>1</b>	Tuesday	/ˈtʃuːzdeɪ/
<b>2</b>	Rodeo	/rəʊˈdeɪəʊ/
<b>3</b>	Creditable	/ˈkredɪtəbəl/
<b>4</b>	Adore	/əˈdɔːr/
<b>5</b>	Modus	/ˈmɒdəs/
<b>6</b>	Oxidation	/ˌɒksəˈdeɪʃən/
<b>7</b>	Condescending	/ˌkɒndɪˈsendɪŋ/
<b>8</b>	Medical	/ˈmedɪkəl/
<b>9</b>	Abdominal	/æbˈdɒmənəl/
<b>10</b>	Educative	/ˈedʒukətɪv/

*Note:* The chart shows the words selected for the documentation of the category B, middle position, and its respective phonetic transcription.

**Table 5***Data collection of middle word's pronunciation*

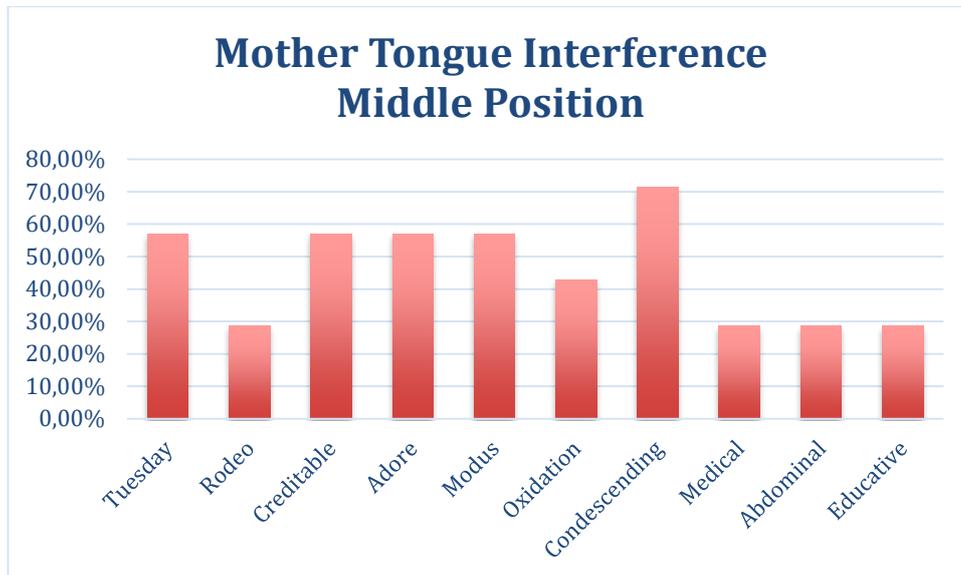
Item	Spanish	English Word	Data	<b>Total</b>						
	Word		1	2	3	4	5	6	7	
1	Ciudad	Tuesday	✓	X	X	X	✓	X	✓	<b>57,14%</b>
2	Condensar	Rodeo	✓	✓	✓	X	X	✓	✓	<b>28,57%</b>

3	Cotidiano	Creditable	✓	X	X	✓	✓	X	X	<b>57,14%</b>
4	Hacendoso	Adore	✓	X	X	X	X	X	✓	<b>57,14%</b>
5	Sánduche	Modus	X	X	✓	X	✓	✓	X	<b>57,14%</b>
6	Ciudadano	Oxidation	✓	✓	✓	✓	X	X	X	<b>42,86%</b>
7	Ordenar	Condescending	✓	X	X	X	X	✓	X	<b>71,43%</b>
8	Predicar	Medical	✓	✓	✓	X	✓	✓	X	<b>28,57%</b>
9	Adobar	Abdominal	✓	X	✓	✓	✓	X	✓	<b>28,57%</b>
10	Deducir	Educative	✓	✓	✓	X	✓	X	✓	<b>28,57%</b>

*Note:* The chart shows the data collected by the seven student's pronunciation and the interference of the mother tongue in the pronunciation.

In this comprehensive analysis of pronunciation data, specific trends and challenges among students' pronunciation of various words have been highlighted. Starting with Item 1, it was noted that 57.14% of the students encountered difficulties in correctly pronouncing 'Tuesday', particularly in the /a/ vocalization, leading to phonetic deviations. Similarly, Item 2 draws attention to the word 'Rodeo', where 28.57% of students encountered issues due to its resemblance to the /d/ sound followed by the diphthong /i.oo/. Transitioning to Item 3, 'Creditable' proved problematic for 57.14% of the students due to errors in the pronunciation of the /d/. A similar pattern emerged in Item 4, where the word 'Adore' posed difficulties for 57.14% of students, particularly in vocalizing the /d/ followed by the vowel /o/. The challenges continued with Item 5, as 'Sanduche' displayed phonetic deviations for 57.14% of the students, primarily in relation to the vocalization of /d/. Additionally, 'Modus' shared similar pronunciation difficulties involving the /d/ sound. Notably, Item 6 revealed that 'Oxidation' was generally pronounced correctly by most students, although a significant 42.86% still made errors in the pronunciation of /d/.

Item 7 presented a higher level of complexity, with 'Sorting' leading to mistakes in the pronunciation of 'r' for 71.43% of the students. Furthermore, 'Condescending' was pronounced differently by 28.57% of students, particularly concerning the pronunciation of /d/. An interesting linguistic insight was shared regarding the aspiration of the /d/ sound at the beginning of words or syllables in English. Turning to Item 8, 'Medical' displayed phonetic deviations in the pronunciation for 28.57% of students. It was noted that the [d] phoneme followed by the vowel [e] in English tends to be more open and frontal than the [e] in Spanish. A similar observation was made in Item 9, where 28.57% of students struggled with the pronunciation of [d] in 'Abdominal', as the following vowel [o] in English differs from the [o] in Spanish. Concluding this analysis with Item 10, 'Educative' posed challenges for 28.57% of students in the pronunciation of /d/. This thorough examination underscores the nuanced phonetic difficulties that students face across a range of words, offering valuable insights into the specific areas where pronunciation improvement is needed.



**Figure 6** Mother tongue Interference, middle position

*Note:* The diagram shows the percentage of the mother tongue interference.

### **Category B: Discussion**

The pronunciation of the phoneme /d/ positioned in the middle of the words tend to have a less problem for the students, since four of the ten words proposed to the students, showed a percentage of 28, 7%, however, other four words percentage of mother tongue interference was above 57%.

Although in English, the phoneme /d/ in middle position is usually pronounced as a voiced occlusive consonant [d], in Spanish it happens the same, however it is important to take into account that this phoneme in English tends to have the presence of flapping, since in fast and casual speech, the phoneme /d/ can be pronounced as a tap or alveolar flap [ɾ] between two stressed vowels. This occurs when the /d/ is between two vowel sounds. In this case, the interference of Spanish in the pronunciation of the phoneme /d/ in middle position in these English words could be manifested in the pronunciation closer to variation [d] as realized in Spanish, instead of the sound similar to /d/ produced by the flapping characteristic of English.

The pronunciation of the phoneme /d/ positioned in the middle of words tends to pose fewer problems for the students. Out of the ten words given to the students, four displayed a percentage of 28.7%, while the interference from the mother tongue exceeded 57% for another four words. However, an interesting dynamic emerges in this scenario. In English, the phoneme /d/ in the middle position is generally articulated as a voiced occlusive consonant [d], similar to its pronunciation in Spanish. However, it's important to note a significant distinction: the presence of flapping in English. Particularly in swift and informal speech, the phoneme /d/ can transform into a tap or alveolar flap [ɾ] between two stressed vowels. This occurrence is most noticeable when the /d/ falls between two vowel sounds. This points to a potential manifestation of Spanish influence, wherein the pronunciation of the phoneme /d/ in the middle position of these English words might lean more towards the variation [d], akin to its Spanish realization, rather than the sound closer to /d/ created by the characteristic flapping in English.

Phoneme elision, involving the /d/ phoneme in the middle position of English words, is a phonetic phenomenon where the /d/ sound is either omitted or not clearly enunciated

under certain circumstances or in specific contexts. This phenomenon can arise due to factors such as the pace of speech, relaxation of articulatory muscles, or simplification in pronunciation. Conversely, Spanish maintains a clearer and more distinct pronunciation of the /d/ phoneme in the middle position. It typically doesn't undergo elision to the same extent as it might in English. The influence of the Spanish mother tongue on the English phoneme /d/ in the middle position is unmistakable. While both languages usually articulate this phoneme as a voiced occlusive consonant [d], the differences in pronunciation are notable. In the middle position, the tendency toward deletion is a recognizable trait in English, yet the list provided doesn't strongly reflect this variation. Instead, the focus shifts to the phenomenon of flapping in certain words. Students encounter difficulties in pronouncing these words due to their perception of the /d/ phoneme being strongly influenced by the Spanish sound system. Unlike English, where flapping is prominent, Spanish maintains a more consistent and unaltered pronunciation of the /d/ phoneme in the middle position.

### **Category C: Mother tongue interference; Ending Position.**

**Table 6**

*English Words, ending position with standard pronunciation*

<b>Item</b>	<b>Word</b>	<b>Standard Pronunciation</b>
<b>1</b>	Abroad	/ə'brɔ:d/
<b>2</b>	Patented	/'peɪtəntɪd/
<b>3</b>	Paranoid	/'pærə,nɔɪd/
<b>4</b>	Avocado	/,ævəʊ'kɑ:dəʊ/
<b>5</b>	Antifraud	/,æn.taɪ'frɑ:d/
<b>6</b>	Undergrad	/'ʌn.də.græd/
<b>7</b>	Damaged	/'dæmɪdʒd/

<b>8</b>	Underpaid	/,ʌndə'peɪd/
<b>9</b>	Weirdo	/'wɪədəʊ/
<b>10</b>	Overcloud	/,əʊvə'klaʊd/

*Note:* The chart shows the words selected for the documentation of the category B, middle position, and its respective phonetic transcription.

**Table 7**

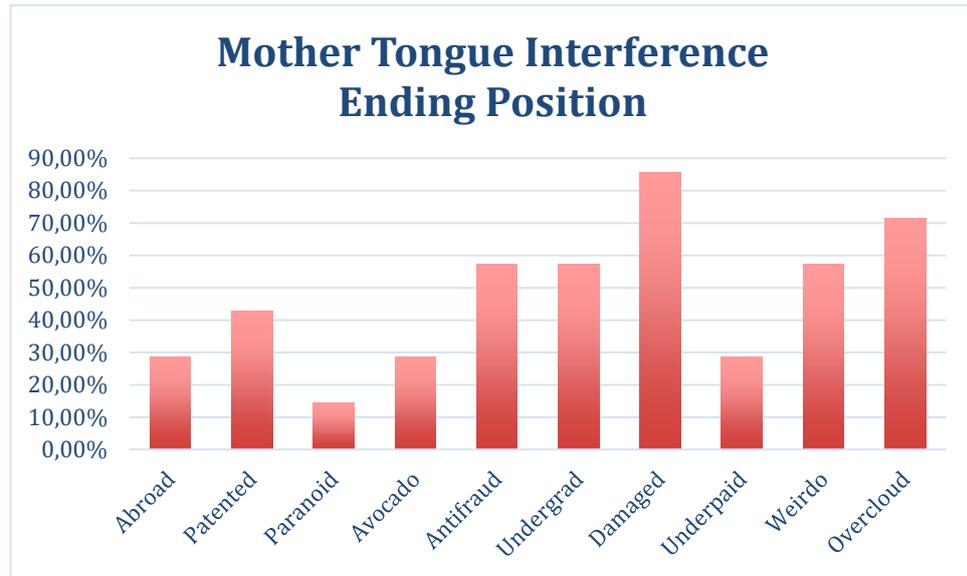
*Data collection of ending word's pronunciation*

Item	Spanish Word	English Word	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7	Total
1	Suavidad	Abroad	✓	X	✓	X	✓	✓	✓	<b>28,57%</b>
2	Pared	Patented	✓	X	✓	✓	✓	X	X	<b>42,86%</b>
3	Prendí	Paranoid	✓	✓	✓	X	✓	✓	✓	<b>14,29%</b>
4	Resultado	Avocado	✓	✓	✓	X	✓	X	✓	<b>28,57%</b>
5	Gratitud	Antifraud	X	X	✓	✓	X	✓	X	<b>57,14%</b>
6	Visibilidad	Undergrad	X	✓	X	✓	X	X	✓	<b>57,14%</b>
7	Césped	Damaged	✓	X	X	X	X	X	X	<b>85,71%</b>
8	Comprendí	Underpaid	X	✓	✓	✓	✓	✓	X	<b>28,57%</b>
9	Determinado	Weirdo	✓	X	X	✓	X	X	✓	<b>57,14%</b>
10	Plenitud	Overcloud	X	X	X	X	X	✓	✓	<b>71,43%</b>

*Note:* The chart shows the data collected by the seven student's pronunciation and the interference of the mother tongue in the pronunciation.

In this comprehensive examination of pronunciation data, distinct patterns emerged across a range of words that encompassed students' pronunciation challenges. Starting with Item 1, it became evident that 28.57% of students encountered difficulties in pronouncing 'Abroad'. Notably, the vocalization of the 'a' emerged as a noteworthy point of struggle. Similarly, Item 2 delved into the word 'Patented', revealing that 42.86% of students exhibited phonetic deviations, particularly in the enunciation of the 'e'. Moreover, the pronunciation of the 't' also posed difficulties for this subset of students. Switching to Item 3, the word 'Paranoid' was generally pronounced correctly by most students. However, a discerning 14.29% made mistakes in pronouncing the /d/, rendering it nearly imperceptible. Item 4 highlighted 'Avocado', where the pronunciation of the /d/ exhibited phonetic deviations in 28.57% of students. In this case, the phoneme [d] was occasionally substituted with a soft [r] sound. A notable 57.14% of students encountered challenges in Item 5, 'Antifraud', primarily concerning the pronunciation of the /d/. A subgroup of these students neglected to articulate the phoneme, resulting in phonetic deviations. Continuing this trend in Item 6, phonetic deviations were apparent in the pronunciation of the /d/ among 57.14% of students. For some participants, the enunciation of this phoneme was barely perceptible.

Item 7 introduced 'Damaged', proving to be a significant challenge for 85.71% of students. The enunciation of the final /d/, notably, was barely detectable in their pronunciation. Shifting to Item 8, 'Underpaid' exhibited different pronunciation patterns among 28.57% of students. The vocalization of the /d/ created difficulties, leading some to replace the phoneme [d] with a [t] sound. In Item 9, 'Weirdo' further showcased variations in the enunciation of the /d/. Here, 57.14% of students grappled with this phoneme, with some articulating it as a voiced alveolar stop consonant, akin to its pronunciation in other positions within words in the Spanish language. However, in specific instances, the final /d/ was pronounced distinctly. The analysis culminated with Item 10, 'Overcloud', where 71.43% of students faced phonetic deviations, primarily related to the almost imperceptible pronunciation of the /d/.



**Figure 7** Mother tongue Interference, ending position

*Note:* The diagram shows the percentage of the mother tongue interference.

### Category C: Discussion

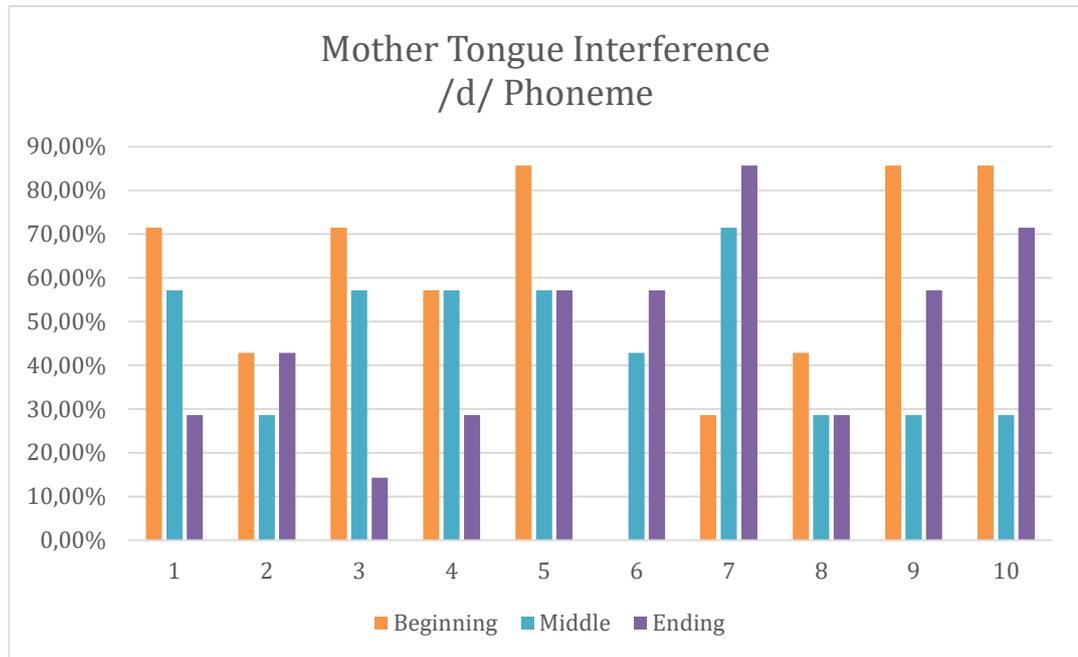
The pronunciation of the final /d/ in Spanish and English can present challenges and problems for non-native speakers due to differences in phonetics and pronunciation rules between the two languages. Speakers from languages where the final /t/ is similar to /d/ may confuse the pronunciation of words ending in /d/ or /t/ in Spanish. In English, especially in colloquial and fast pronunciation, the final /d/ in words can disappear or become weaker. In both languages, the pronunciation of the final /d/ is influenced by phonetic, phonological, and intonation factors.

The pronunciation of the final /d/ in Spanish and English poses challenges for non-native speakers due to disparities in phonetics and pronunciation rules. This discrepancy is particularly noticeable when comparing the two languages. Speakers originating from languages where the final /t/ mirrors /d/ might find themselves grappling with pronunciations of words concluding in /d/ or /t/ in Spanish. Conversely, in English, especially within casual and swift enunciations, the final /d/ in words can either fade or weaken. This dynamic pronunciation of the final /d/ is shaped by an interplay of phonetic, phonological, and intonation factors common to both languages. Notably, while the sound /d/ in Spanish tends to maintain its voiced quality, English exhibits certain variations in its pronunciation. The /d/ phoneme in English can evolve into a voiceless form.

Strikingly, numerous instances arose where students' pronunciation closely resembled [t], or in some cases, entirely omitted the phoneme.

The interference of Spanish in the pronunciation of the /d/ phoneme in the final position of English manifests as a divergence in voicing. In English, this phoneme typically transitions to a voiceless state. However, Spanish influence can lead to an inclination for voicing or maintaining voicing in words where, in English, the /d/ phoneme should acquire a voiceless attribute. This contrast arises because, in Spanish, the final position /d/ maintains its voiced nature and is articulated distinctly. Consequently, certain Spanish speakers may apply the voicing principle from their native language to English, resulting in voiced pronunciations of final /d/ in cases where English would expect it to be voiceless. This phenomenon can lead to variations or non-standard enunciations in English. For instance, words such as 'bad' or 'hard' in English typically culminate in a voiceless /d/, yet Spanish-influenced pronunciation might incorporate a voiced /d/, echoing Spanish conventions. In essence, this dynamic of phonemic interference underscores how the final /d/ becomes a site for phonetic discrepancies and the application of native-language rules in the context of English pronunciation.

## DISCUSSION OF THE RESULTS



**Figure 8** Mother tongue Interference of the /d/ phoneme in three sections

*Note:* The diagram shows the percentage of the three variations of the [d] phoneme pronunciation of the students.

The mother tongue interference of the /d/ phoneme in English pronunciation can have several notable effects, both linguistically and pedagogically. This phenomenon arises due to the differences in how the /d/ phoneme is realized and pronounced in the native language (Spanish) and the target language (English). These effects impact language learners' ability to accurately reproduce English sounds and can influence their overall linguistic competence. The study's findings reveal that students encounter difficulties when pronouncing words beginning with the phoneme /d/. Many of these students struggled to achieve accurate pronunciation, with interference levels exceeding 28%. This signals a significant departure from the established standard pronunciation identified by the researcher.

The interference of the mother tongue in the pronunciation of the /d/ phoneme's initial position arises from the transfer of phonetic and articulatory patterns from Spanish to English. Students inadvertently apply Spanish tongue positions and aspiration tendencies to the English /d/ sound, leading to pronunciations that deviate from the established English norms. On the other hand, in the context of the middle-positioned phoneme /d/,

students encountered varying degrees of difficulty. Four out of ten words displayed a relatively manageable 28.7% interference rate, while the remaining four words exhibited more significant mother tongue interference, surpassing 57%. The middle-positioned phoneme /d/ presented fewer difficulties for students, although varying levels of mother tongue interference persisted. The analysis emphasized the impact of Spanish phonetic patterns, particularly in relation to flapping and elision tendencies in English. This underlines the complexities students face when adapting to the nuances of English pronunciation influenced by their native language.

Finally, challenges arise in pronouncing the final /d/ due to language differences, with mother tongue interference causing Spanish-influenced voicing in English words. In the pronunciation of the final /d/ in English can result in voicing where English would have voiceless consonants. Spanish, with its clear voiced /d/ in final position, influences some Spanish speakers to pronounce English final /d/ as voiced, even when English dictates voicelessness.

## **9. RESEARCH IMPACTS**

The research titled "L1 Interference in English Major Students' Pronunciation at Technical University of Cotopaxi" promises to have profound impacts both at an educational and societal level. With its central objective of determining the level of interference of the mother tongue (Spanish) on the pronunciation of the [d] phoneme in seventh-semester students at the Technical University of Cotopaxi, this research positions itself as a valuable resource for enhancing the teaching and learning of English as a second language in that academic context. The specific objectives, which include identifying fundamental differences between the Spanish and English phonetic systems, collecting data on interference patterns in pronunciation, and comparing students' pronunciation of the [d] phoneme in English to standard English, have the potential to inform educational practices and generate a positive impact on intercultural communication.

In the educational realm, this research could lead to a more informed curriculum review and the development of specific teaching strategies. Understanding the phonetic

differences between native languages and English would allow educators to address specific pronunciation challenges and adapt their instructional approaches to facilitate more effective communication. Additionally, the identification and analysis of interference patterns and phonetic errors would provide a solid foundation for creating customized educational materials and teacher training programs.

At a societal level, the findings of this research could contribute to a greater understanding and appreciation for linguistic diversity. By demonstrating how the mother tongue influences the pronunciation of a second language, greater understanding between native English speakers and non-native speakers could be promoted. Moreover, an improvement in English pronunciation could have an impact on job opportunities and intercultural communication, underscoring the social and global relevance of this research. Ultimately, the research would not only benefit students and educators at the Technical University of Cotopaxi but could also serve as a model for similar investigations in other institutions and educational contexts.

## 10. CONCLUSIONS AND RECIOMENDATIONS

### Conclusions:

In conclusion, the foundation upon which this research is built comprises a comprehensive theoretical framework that draws from various crucial concepts within the fields of phonetics, phonology, and second language acquisition. Through an intricate examination of these foundational principles, such as the Contrastive Analysis and the Interlanguage Theory, the study delves into the complex interplay between the students' native language, Spanish, and their journey toward acquiring proficient English pronunciation skills. This conclusion reflects not only the synthesis of the various threads of knowledge woven throughout the study but also highlights the significance and implications of the theoretical underpinnings.

The study's findings highlight pronounced challenges encountered by students in the pronunciation of words initiating with the phoneme /d/. The observed interference levels exceeding 28% indicate a notable divergence from standard pronunciation such is the case of the word *duck*. This interference of initial position /d/ stems from the transference of Spanish phonetic and articulatory patterns, leading students to unintentionally apply Spanish tongue positions and aspiration tendencies to the English /d/ sound producing the variation [d]. Similarly, middle-positioned /d/ phonemes exhibited varying levels of difficulty. This is the case of the word *condescending*, which had a high percentage of different pronunciation. Despite this, students tend to emphasize Spanish's influence on English flapping and elision tendencies. Lastly, the pronunciation of final /d/ stem from language differences, as Spanish-influenced voicing interferes with English voiceless consonants having a variation of [t] instead of the correct phoneme this is the case of *paranoid*.

The comparison between seventh semester students' pronunciation of the phoneme /d/ in English and standard English has clearly revealed how the mother tongue (Spanish) has an impact on the way students articulate this sound. The differences observed in phonetic interference have shown that students tend to face specific difficulties in the production of the phoneme /d/, due to the phonetic differences between Spanish and English. The mother tongue interference of the /d/ phoneme holds important

pedagogical and linguistic implications for language instruction and learning strategies. Moreover, the linguistic implications underscore the intricate relationship between native and target language phonetic systems, contributing to our broader understanding of phonetics, phonology, and language acquisition processes.

**Recommendations:**

It is recommended that educators and curriculum designers emphasize the integration of these theoretical concepts into English language teaching methodologies. By incorporating the principles of Contrastive Analysis and the Interlanguage Theory, language instructors can enhance their pedagogical approaches to address the challenges of L1 interference in pronunciation. This recommendation aims to foster a more comprehensive and effective language learning experience, ultimately aiding students in overcoming pronunciation difficulties stemming from their native language influence.

It is recommended that language instructors integrate targeted pronunciation exercises into their curriculum. Specifically, incorporating structured drills and activities focusing on the correct production of initial /d/ sounds, practicing middle-positioned /d/ phonemes with an emphasis on English flapping and elision rules, and providing exercises to differentiate the correct voicing of final /d/ from Spanish-influenced voicing can greatly aid students in improving their pronunciation accuracy.

By providing tailored pedagogical interventions that directly address the identified difficulties, educators can support students in achieving more accurate and standardized pronunciation of the phoneme /d/ in English. Considering both pedagogical and linguistic implications, it is recommended to implement tailored pedagogical interventions that specifically target the difficulties arising from mother tongue interference with the phoneme /d/ in English pronunciation. This approach aims to enhance students' pronunciation accuracy while fostering a deeper understanding of the phonetic contrasts between Spanish and English. It would also be recommended to develop targeted pronunciation exercises focusing on the phoneme /d/, emphasizing the contrast between English and Spanish articulation patterns. Integrate interactive speaking activities and provide feedback to enhance students' pronunciation accuracy and reduce phonetic interference.

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## 12. ANNEXES

### WORDS CHECKLIST FOR PRONUNCIATION DOCUMENTATION

**Objective:** To determine the interference aspects of mother tongue (Spanish) on the pronunciation of the phoneme /d/ different positions, in seventh semester students at the Technical University of Cotopaxi.

**Instruction:** Read the words by its position, start first with “BEGINNING” column switching one word in Spanish, and then, one word in English until you complete the list.

#### Words Checklist

ESPAÑOL		
BEGINNING	MIDDLE	ENDING
Dar	Ciudad	Suavidad
Dedo	Condensar	Pared
Dice	Cotidiano	Prendí
Dos	Hacendoso	Resultado
Dulce	Sánduche.	Gratitud
Dado	Ciudadano	Visibilidad
Decir	Ordenar	Césped
Diez	Predicar	Comprendí
Dólar	Adobar	Determinado
Duplex	Deducir	Plenitud
ENGLISH		
BEGINNING	MIDDLE	ENDING
Day	Tuesday	Abroad
Detect	Rodeo	Patented
Dime	Creditable	Paranoid
Door	Adore	Avocado
Duck	Modus	Antifraud
Date	Oxidation	Undergrad
Deep	Condescendin	Damaged
Diner	Medical	Underpaid
Doll	Abdominal	Weirdo
Dudes	Educative	Overcloud

*Elaborated by Pupiales Janeth.*