



FACULTADE DE FILOLOXÍA

Grao en Lingua e Literatura Inglesas

Traballo de Fin de Grao

**English phonetic and phonological
productions of English Philology fourth
year students at Universidad de
Santiago de Compostela (USC)**

Autora: Micaela Luz Cisneros Cruces

Titor: Juan Carlos Acuña Fariña

CURSO 2023–2024



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Resumo [na lingua en que se vai redacta-lo TFG; entre 1000 e 2000 caracteres]:

The purpose of this dissertation is to study the phonetic and phonological productions of fourth year students of English Philology at Universidad de Santiago de Compostela while speaking and reading in English in relation to the type of British Standard English pronunciation, also known as Received Pronunciation (RP).

In the course of this work, the concepts of phonetics and phonology together will be required in order to comprehend the use of sounds in English speech. Phonetics will be taken into account as the study of the interaction between speech organs in order to articulate a sound as well as the manner in which these sounds are received by students through their hearing organs. When talking about phonology, what matters now is the system elements (e.g. vowels and consonants) that impact meaning (*bit* differs from *pit* in just one phoneme, not sound precisely because the difference in the sound causes a difference in meaning), as well as the patterns of sounds of any particular language (in this case, English).

Moreover, we have to bear in mind that the English system of sounds is not a one-by-one correspondence between spelling and pronunciation. As a result, during this work, the International Phonetic

Alphabet including and representing the different forty-four sounds of English will be taken as a reference to describe the phonetic and phonological productions.

Methodology: Each student's sound production will be analyzed individually by listening to an audio recording of them reading and talking casually in English. While doing this, similarities as well as differences in relation to the English RP pronunciation will be separated and cataloged. It is hoped that by analyzing the students' production, realistic knowledge of their competence can be discerned and improved.

Santiago de Compostela, 7 de noviembre de 2022.

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Summary

The purpose of this dissertation is to study the phonetic and phonological productions of fourth year students of English Philology at Universidad de Santiago de Compostela while speaking and reading in English in relation to the type of British Standard English pronunciation, also known as Received Pronunciation (RP). In the course of this work, the concepts of phonetics and phonology together will be required in order to comprehend the use of sounds in English speech. Phonetics will be taken into account as the study of the interaction between speech organs in order to articulate a sound as well as the manner in which these sounds are received by students through their hearing organs. When talking about phonology, what matters now is the system elements (e.g. vowels and consonants) that impact meaning (*bit* differs from *pit* in just one phoneme, precisely because the difference in the sound causes a difference in meaning), as well as the patterns of sounds of any particular language (in this case, English). Moreover, we have to bear in mind that the English system of sounds is not a one-by-one correspondence between spelling and pronunciation. As a result, during this work, the International Phonetic Alphabet (IPA) including and representing the different forty-four sounds of English will be taken as a reference to describe the phonetic and phonological productions.

Key words

Phonetics, phonology, phoneme, English system of sounds, pronunciation, International Phonetic Alphabet, IPA

Resumen

El propósito de este trabajo de final de grado (TFG) es estudiar las producciones fonéticas y fonológicas de los alumnos de cuarto año de Lengua y Literatura Inglesas de la facultad de filología de la universidad de Santiago de Compostela al hablar y leer en inglés teniendo como base al tipo de inglés denominado estándar, conocido como “Received Pronunciation” (RP). A lo largo de este trabajo, los conceptos de fonética y fonología en conjunto van a ser requeridos para así poder comprender los sonidos del inglés hablado. En cuanto a fonética, ésta será comprendida como el estudio de la interacción entre los órganos del habla al articular un sonido, como también la manera en la que estos sonidos son percibidos por los estudiantes a través de sus oídos. Al referirse a fonología, lo que está involucrado es el sistema de elementos (es decir, vocales y consonantes) que impactan en el significado (por ejemplo, “bit” difiere de “pit” por solo un fonema, precisamente porque la diferencia en este sonido causa la diferencia de significado), así como también los patrones de sonido de cualquier idioma (pero en este caso, inglés). Sumado a esto, tenemos que tener en cuenta que el sistema de sonidos inglés no tiene una correspondencia de uno a uno entre la escritura y el habla. Como resultado, durante este trabajo, el alfabeto fonético internacional (IPA) el cual representa los diferentes cuarenta y cuatro sonidos del inglés va a ser utilizado como referencia para describir las producciones fonéticas y fonológicas.

Palabras clave

Fonética, fonología, fonema, sistema inglés de sonidos, pronunciación, alfabeto fonético internacional, IPA

Resumo

O propósito deste traballo de final de grao (TFG) é estudar as producións fonéticas e fonolóxicas dos alumnos de cuarto ano de Lingua e Literatura Inglesas da facultade de filoloxía da universidade de Santiago de Compostela ao falar e ler en inglés tendo como base o tipo de inglés denominado estándar, coñecido como “Received Pronunciation” (RP). Ao longo deste traballo, os conceptos de fonética e fonoloxía en conxunto van ser requiridos para así poder comprender os sons do inglés falado. En canto á fonética, esta será comprendida como o estudo da interacción entre os órganos da fala ao articular un son, como tamén á maneira na que estes sons son percibidos polos estudantes a través dos seus oídos. Ao referirse á fonoloxía, o que está involucrado é o sistema de elementos (é dicir, vogais e consoantes) que impactan no significado (por exemplo, “bit” difire de “pit” por só un fonema, precisamente porque a diferenza neste son causa a diferenza de significado), así como tamén os patróns de son de calquera idioma (pero neste caso, inglés). Sumado a isto, temos que ter en conta que o sistema de sons inglés non ten unha correspondencia dun a un entre a escritura e a fala. Como resultado, durante este traballo, o alfabeto fonético internacional (IPA) o cal representa ós diferentes corenta e catro sons do inglés vai ser utilizado como referencia para describir as producións fonéticas e fonolóxicas.

Palabras chave:

Fonética, fonoloxía, fonema, sistema inglés de sons, pronuncia, alfabeto fonético internacional, IPA

Declaración de originalidad

Yo, Micaela Luz Cisneros Cruces, estudiante del Grado en Lengua y Literatura Inglesas en la Universidad de Santiago de Compostela (USC) prometo que los contenidos de este trabajo son originales, haciendo referencia a aquellas ideas ajenas citando autor y obra, y no incurriendo en plagio.

En Santiago de Compostela, a 24 de junio de 2024.

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1. Introduction

The idea of this work started when, while looking for some information regarding phonetics and phonology specifically from students of the University of Santiago de Compostela, some information could be barely found. At this point is where the main idea of creating a database of sounds in English produced by the students of the faculty of philology started. In second place, once this database was made, evaluating the level of accuracy was quite important. However, not every student of English was going to be a perfect subject for this work if they were barely starting to study, so just fourth students of English and English Literature were asked to participate.

The main purpose of this work is to create a database of English sounds only integrated by students of the University of Santiago de Compostela. To do so, as many samples as possible to analyze were needed. This is where the creation of a synthetic text with specific content was created to fulfill this need. Because this work does not deal with stress, intonation nor explanation of the several varieties of English there are around the globe, simple features such as vowels, consonants and basic connected speech aspects were required.

In addition, this work is meant to set the ground for future analysis. That is the main reason why there are no ‘rights’ or ‘wrongs’ after every sound, what is going to be found in the different sections is number of accuracy, the average of performances and further explanations concerning sound replacements. In fact, meaning is the only mandatory feature to be preserved, and by producing poor quality productions, it is at risk. That is the reason why getting in touch with common sound replacements is crucial for further phonetics and phonology teaching methods.

2. Theoretical framework

To begin with, all the students that were evaluated in this work are *second language* users. This means that they are involved in learning a new language other than their mother tongue, their first language, the language that your family teaches you when you are growing up. In this process of learning a second language, the way and context in which this acquisition takes part deeply matters. This is the reason why from now on in this work this process will be referred to as SLA (Second Language Acquisition).

The acquisition of this second language is surrounded by different processes that directly affect the process of learning a new tongue. Among them there are age, first language interference, cognitive factors and sociocultural influences. They do not only affect the grammatical and syntactical structures of a language but also the phonetic and phonological one.

The first factor that affects acquisition and that is mentioned in the previous paragraph is *age*. Biologically speaking, it is believed that the brain has a limit of time to incorporate a bunch of new information in the form of a system, this is known as the *Critical Period Hypothesis* that goes hand in hand with the anatomy of the brain. As Flege and Bohn (2021) explain:

Many accepted the hypothesis by Lenneberg (1967) that a critical period (CP) exists for speech learning and that it closes at about the age of 13 years as the results of normal neurological maturation. Lenneberg (1967, p. 176) also suggested that following the close of a CP, learners cannot make "automatic use" of L2 input from "mere exposure" to the input as children do when learning their LI. (p. 5)

At an early age, our family talked daily in our mother tongue, so we heard it first. During those years of early life, it is believed that our brain is like a sponge that absorbs every new piece of information by grabbing it, processing it and then incorporating it forever. Then, when the time to go to school arrived, we gradually learnt how to write and how to read in that mother tongue that we had been hearing for more than five years. However, when someone wants to learn a second language, the information of this does not always come independently written from spoken, it comes in chunks of both aspects together. And, usually, the users of a second language are not kids at all. So, how does the brain adapt and grab this whole new information when we are not kids anymore?

Research began to focus on providing an explanation for differences observed for early and late learners. Flege (1991) compared VOT in stops produced by groups of NS adults differing in age of arrival in the United States (means = 2 vs. 20 years). These early and late learners also differed in percentage English use (means = 82 vs. 66 percent). The early learners produced English stops with native-like VOT values, both individually and as a group. The average values obtained for late learners, on the other hand, were intermediate to the values observed for Spanish and English monolinguals. This finding suggests that the speech learning ability of the late learners may have been partially compromised, perhaps due to the closing of a critical period. (Flege and Bohn, 2021, p. 6-7)

In addition, when it comes to phonetics and phonology, the Critical Period Hypothesis and its implications are also relevant.

Also by hypothesis, the efficacy of implicit learning mechanisms would be reduced following the close of a critical period because it would cause L2 learners to lose the ability to make "automatic" use of input from "mere exposure" to the sounds making up the L2 phonetic inventory (Lenneberg, 1967, p. 176). (Flege and Bohn, 2021, p. 11)

However, later on, this hypothesis could not explain every single case of successfully acquiring a second language after this "critical" time had passed, so,

Speech Learning Model (SLM-r) focuses on the learning of L2 vowels and consonants (or "sounds," for short) across the life-span (...) The primary aim of the SLM-r differs from that of its predecessor, which was to "account for age-related limits on the ability to produce L2 vowels and consonants in a native-like fashion" (Flege, 1995, p. 237). The SLM focused on differences between groups of individuals who began learning an L2 before versus after the close of a supposed Critical Period (CP) for speech learning (Lenneberg, 1967). Closure of the CP was regarded as an undesired consequence of normal neurocognitive maturation that arose from diminished cerebral plasticity and a reduced ability to exploit L2 speech input. The SLM-r offers an account for differences between "early" and "late" learners, but its primary aim is to provide a better understanding of how the phonetic systems of individuals reorganize over the life-span in response to the phonetic input received during naturalistic L2 learning. (Flege and Bohn, 2021, p. 3)

The SLM age hypothesis was meant as an alternative to the critical period hypothesis, which claimed that age-related effects in L2 speech learning arise from a reduction of neurocognitive plasticity. (Flege and Bohn, 2021, p. 14)

The main second aspect to take into account in SLA, is *first language interference*. When learning English as a Spanish or Galician native, phonemes are going to change from one language to another and do not always have a correspondence in the L2 language. For example, in the annex we find sounds 42-43, which are part of the pronunciation of the word ‘natural’, but completely differ from the Spanish pronunciation even though the spellings are exactly the same.

As Lado had already noted in 1957, not all individual speakers of a single LI make the same errors when speaking the same L2. Flege and Port (1981) showed that the distinctive features needed to distinguish LI phonemes cannot be recombined freely to produce an L2 sound that is not present in the LI. Most importantly, as noted in 1953 by Weinreich, the nature and extent of the mutual "phonic interference" between the sounds in a bilingual's two languages depends, in addition to phonological differences, on factors such as language dominance, demography (e.g., ethnicity, gender, age), years of use, and the domains in which the LI and LII are used (pp. 83-IIIO; see also Grosjean, 1998). In the 1970S research began examining purely phonetic aspects of L2 segmental production and perception. Much of this early work focused on the voice-onset time (VOT) dimension in the production and perception of word-initial English stops by native Spanish speakers. (Flege and Bohn, 2021, p. 5)

The third aspect is *cognitive factors*. It is believed that new sounds incorporated by L2, are going to be easily grasped by children and not so distinguished by grown ups. As it is explained by Flege and Bohn (2021),

The ability to make effective use of ambient language phonetic input is (he acknowledged prerequisite for LI speech acquisition (e.g. , Kuhl, 2000). According to a "cognitive change" hypothesis (DeKeyser & Larson-Hall, 2005), late learners fare well in early stages of L2 learning through the use of explicit learning mechanisms, but such mechanisms are

not well suited for the slow process of attunement to the language specific details defining L2 sounds and their differences from L1 sounds. Early learners, on the other hand, learn L2 phonetic details well but slowly via implicit learning mechanisms. (p. 11)

In addition, students not only have to learn these new sets of sounds, they have to understand them in order to own a successful acquisition.

The SLM proposed that L1 and L2 sounds are perceptually linked to one another through a cognitive process called "interlingual identification," which operates automatically and subconsciously. When first exposed to the L2, learners interpret the "full range" (Flege, 1995, p. 241) of L2 sounds they encounter on the phonetic surface of the L2 as being instances, some better than others, of existing L1 phonetic categories.

Moreover, this process of identification does not have a stipulated time, it is individual for every person. However, this aspect is not widely known. Working memory, the manipulation of information and the auditory abilities of discriminating sounds also affect the amount of time needed.

We speculate that the amount of exposure needed to do so may depend on the complexity of various L2 sounds, operationalized by the sounds' frequency of occurrence in the world's languages and the time needed by monolingual children to learn them. (Flege and Bohn, 2021, p. 13)

Finally, the last factor that affects the acquisition of English phonetics is *sociocultural* factors. These include the exposure to L2 in several contexts, the social interaction that takes place in this L2 while learning it, the educational setting and the motivation to learn. In this section, teachers play a huge role because not every student has access to a certain type of

phonetic and phonological education. This means, there are some teachers who are natives and students have access to them, but most of the teachers of English were students of L2 themselves.

3. The English system of sounds: phonetics and phonology

This work deals with specific concepts regarding the principles that take a part when the act of speaking in English occurs. We as humans learn to speak by imitation from somebody else before we even learn how to write. And when people speak, we produce different sets of sounds. Every language, as the system they are, involves a specific set of sounds which its combination produces meaning. However, each sound individually also has an identity, and they are named 'phonemes'. As Peter Roach (2009) describes:

(...) the vowels in the words 'pin' and 'pen' are different **phonemes**, and so are the consonants at the beginning of the words 'pet' and 'bet'. Because of the notoriously confusing nature of English spelling, it is particularly important to learn to think of English pronunciation in terms of phonemes rather than letters of the alphabet; (...) (p. 2)

We also have to distinguish letters from sounds, because different letters can adopt different sounds. Letters are written, they are organized in an alphabet and their combination gives as a result a word. Sounds are spoken, they are also organized in an alphabet (the International Phonetic Alphabet) and their combination is also a word but a word people do not read but listen to. For example, people can have a conversation through a digital means,

such as any messaging app, and there are (among others) two main ways of communication: written texts (letters) and voice notes (sounds).

It is totally possible, however, to represent those sounds with ‘letters’, that is, a specific symbol that carries only the meaning of the sound. This is where the just mentioned International Phonetic Alphabet (IPA) takes place. The action of putting into symbols the sounds can make a combination of them is called transcribing. By transcribing, the result is a transcription that delimitates which sounds take place when pronouncing words. For example, the lexical word using letters is ‘water’, but the transcription, the representation of the sounds involved, in American English is supposed to be /'wɒtər/ and in British English /'wɔ:tə/. Even though there is a clear difference in the vowels, both transcriptions are represented in the lexical realm as ‘water’.

As just mentioned, there are different accents in every language. As Roach (2009) explains:

Languages have different accents: they are pronounced differently by people from different geographical places, from different social classes, of different ages and different educational backgrounds. (...) Differences of accent, on the other hand, are pronunciation differences only. (p. 3)

In this work, there are going to be two different accents evaluated and accepted: American (AmE) and the Received Pronunciation (RP, also known as BBC pronunciation) or British English (BrE). These two are the result of standardization, this means that in the United States and in the UK there is an accent that is imposed and tends to predominate in the school syllabuses and the media. Quoting Roach (2009) again:

In talking about accents of English, the foreigner should be careful about the difference between England and Britain; there are many different accents in England, but the range becomes very much wider if the accents of Scotland, Wales and Northern Ireland (Scotland and Wales are included in Britain, and together with Northern Ireland form the United Kingdom) are taken into account. Within the accents of England, the distinction that is most frequently made by the majority of English people is between northern and southern. (p. 4)

Moreover, these two accents predominate when teaching students of English as a second and foreign language.

Regarding the main elements analyzed in this work, it is essential to introduce some of them. The main constituents involved in the IPA are vowels and consonants. When it comes to the first ones, as Roach (2009) says “The most common view is that vowels are sounds in which there is no obstruction to the flow of air as it passes from the larynx to the lips.” (2009: 10). The system of English has twelve vowels, seven short and five long. In addition, their combination leads to combinations creating eight diphthongs and five triphthongs. The first ones are the combination of two vowels (quite frequent in every accent), and the triphthongs are the combination of three vowels which are not that common and tend to happen in accents related to the RP pronunciation (as those of the South of England and countries which used to be British colonies).

In respect of consonants, the IPA contemplates twenty two consonants and two semi consonants. All of them share at some point of their articulation an interruption of the air flow, totally the opposite of vowels. They are also divided in different categories depending on the manner and place of articulation they have, this means, the position the mouth takes in order to produce them. These categories, for example, have specific labels such as *plosive*, *nasal*, *fricative*, *affricate*, *lateral*, *approximant*. However, the crucial feature that divides the

whole bunch of vowels in two is whether they are voiced or voiceless. This last feature involves the vibration of the vocal cords, which makes them voiced, and if the vocal cords do not vibrate, they are voiceless. These criteria are key because sounds such as /p/ and /b/ do share the same manner and place of articulation in the mouth, but the only difference they have which makes them two different and independent sounds is the vibration of the vocal cords. This means, if they vibrate the sound is /b/ but if they do not, the sound is /p/. As an example, ‘pin’ and ‘bin’ are two different words which happen to contain the same vowel and final consonant sound, but the vibration of the vocal cords in the initial consonant involves the change in meaning from one to another. The same occurs with the pairs /t/-/d/, /tʃ/-/dʒ/, /k/-/g/, /f/-/v/, /θ/-/ð/, /s/-/z/ and /ʃ/-/ʒ/.

Now that some elements regarding phonetics and phonology have been introduced, a proper description of these disciplines should take place. First of all, Roach contemplates that “Only by studying both the phonetics and the phonology of English is it possible to acquire a full understanding of the use of sounds in English speech” (Roach, 2009, p. 35). Moreover, going a little deeper in this concept, Sánchez Roura and Gómez González (2016) describe:

(...) phonetics and phonology can be regarded as two further interrelated internal fields of linguistics in that, broadly, both explore the phonic or sound component of language (...) (Sánchez Roura and Gómez González, 44). (...) phonetics is an empirical science (based on the observation of facts) which studies the concrete characteristics of human sound-making, especially speech sounds (...) sounds are phenomena in the physical world and phonetics provide information on their physical properties (...) (p. 46)

To make these definitions a little bit clearer, phonology studies languages at a mental and social realm, this means, taking them as mental structures and systems. Otherwise,

phonetics deals with the way these abstract systems materialize through the human body, specifically, in the vocal track. This is the reason why phonology deals with phonemes and phonetics deals with allophones, this means, the different ways people actually say those phonemes in context.

4.1 Hypothesis and research questions

The main hypothesis in this work is that by creating a bank of data of fourth year students of English and English Literature (2022-2023) it will be possible to make a statement of the level of pronunciation of English in terms of accuracy. By any means this work tends to stigmatize or divide students in 'right or wrong', on the contrary, by getting to know the actual production of spoken English these students have, it will be easier in the future to help to solve inconveniences they may have regarding meaning.

In addition, the first language of these students is either *Spanish* or *Galician*, two languages whose root is Latin and the production of sounds changes radically from the Germanic one where English belongs. This fact is important because sounds from the first language are taken to the foreign one as if the phonetic structure were practically the same. For example, features such as the vibration of the vocal cords or how much air is involved in a vowel (if they are short or long) has a great impact in the system of spoken English. On the contrary, in Latin contexts meaning will not be affected by these aspects and some students are not aware of this crucial characteristic. Again, it would not be a concern how students pronounce words in English in this work if meaning were not involved.

Having said so, the main questions to be answered in this work are: are there more mispronunciations regarding vowels or consonants? Which are the sounds with higher and

lower accuracy of production? What is the level of accuracy regarding short and long vowels? Which are the sounds that are more affected by the first language? Are American English and British English accents clearly distinguished by the students such as Latin American Spanish and Peninsular Spanish? Are English connected speech features just as assimilation and linking 'r' taking place in the students' production?

4.2 Methodology

To begin with, this work deals with sounds produced by students, so it was essential to record them in order to have the chance to listen to them as many times as needed. This is the reason why most of the samples were taken in the faculty of philology at the Universidad de Santiago de Compostela between lessons. This fact was essential so the student's performance would be as spontaneous as possible. By doing so, most of the samples are genuine, a basic feature if evaluating sounds, as in this case. The interesting outcome is that because of this chosen method of getting samples, some of the recordings had such a background noise that eventually it was necessary to ask students to participate again. However, this time by sending a second audio recording by email or Whatsapp. This idea might seem not such a great decision if genuine responses were aimed. Of course, it is rational to believe that this issue could have affected some data or altered some results. However, it is essential to bear in mind that this work deals with sounds deeply acquired by students, and acquired and stored in the mind in a very specific way. So even though the context was not the same as the first sample taken, the results were valid. We can tell this because no student hit a hundred percent accuracy in any of these second samples. Moreover,

the ones did not change the previous data at any level, on the contrary, the material given confirmed the already existing one.

In second place, in order to create a bank of data that would be useful for the purpose of this work, it was crucial to take into account which piece of writing was going to be the focus from now on. The original idea was to ask the fifty students to read a medium length paragraph of a literary piece of writing. However, when searching for a piece that could contain every single aspect that was intended to be evaluated—such as certain vowels, most of the consonants which Spanish natives have problems to imitate and specific aspects of connected speech—, it was harder than thought. As a result, in order to take useful samples, the creation of a short text was needed. But it should not be any type of text if a determined set of sounds wanted to be evaluated, it had to be a synthetic one. This means that this short text was fixed to gather and include a set of sounds spread within different words, but at the same time, it must not lose coherence or cohesion.

The creation of this text was totally possible, and by doing so, the set of sounds produced by the students went from instances of assimilation (a connected speech feature believed to be acquired in a medium to advanced level of spoken English) to well-known words for them such as ‘so’ and ‘today’. In addition, the three different pronunciations of the suffix ‘-ed’ in the simple past tense are also included to be evaluated. It is important to highlight that towards the previous idea of what ‘well-known words’ are believed to be, these words can be easily found in English textbooks for foreign language students in the early stages of learning such as A1 and A2 in Common European Framework (CEFR) English levels or beginner and elementary, respectively. The fifty students who participate are supposed not to belong to any of these two stages of learning.

Another very important feature regarding the creation of the main text, is that it had to include some of those words in English that still keep the latin root in their spelling. This issue is crucial because these words, as a consequence of having similarities with the Spanish and Galician ones, when being pronounced in English are directly affected by the pronunciation of the students first language. This is the case of units such as ‘jersey’, ‘natural’, ‘especially’ and ‘torture’. As a matter of fact, later on in the evaluation of data, the results show how words such as ‘the’, ‘there’ or ‘key’ which do not possess a Latin root, have a higher range of accuracy in comparison with those words which in fact originated from Latin. It may not seem an aspect to be worried about at first, and some people may think that it is a matter of accents and not meaning, but it might occur that the meaning of a word in English is compromised if the word is mispronounced. Some students productions had few mistakes when pronouncing these words, but others had a hard time. For example, in the data we are able to check S7 and S31 having a production quite different from the stipulated one of the word ‘torture’, they do not even get to produce the root of the word in an accurate manner, so this is the main reason why including such words was essential.

4.2.1 The text

The next text is the source of information of this work, it is an essential part of the recordings which function as samples. It contains different items concerning phonetics and phonology such as short and long vowels, diphthongs, fricative voiceless consonants, plosives voiceless consonants, velar voiced consonants, weak and strong vowels and aspects of connected speech such as linking or assimilation. This is the text:

They talked and concluded that this spring was strange. Allergies were a torture, especially for singers. Only a very strong vitamin could help. So anticipation was the key. Today they didn't hesitate and grabbed a jacket for the night, they bought a brand new, light jersey and oranges for juice. Those are natural, cheaper and tastier than these vitamin pills.

Next, it was divided on purpose into fifty different items in order to analyze it quicker. Then, it was prudent to group the items into two groups. The first one consists of phonemes with a specific pronunciation within the context of a word functioning as segments. As Peter Roach says, "The word 'man' is pronounced with a first segment /m/, a second segment /æ/ and a third segment /n/." (2009, p. 31) This text contains a total of forty segments. Moreover, these ones might or might not be affected by the environment they are in, these means, the previous or the upcoming segments by means of clipping or lengthening.

The second group, on the other hand, includes ten items which deal with those aspects that occur in the use of English. One of them is the figure of connected speech which contains four aspects: rhythm, assimilation, elision and linking. As Peter Roach (2009) explains:

Assuming that we know how the phonemes of a particular word would be realised when the word is pronounced in isolation, in cases where we find a phoneme realised differently as a result of being near some other phoneme belonging to a neighbouring word we call this difference an instance of assimilation. (p. 110)

In this work, just assimilation and linking take place. According to Roach "they are more likely to be found in rapid, casual speech and less likely in slow, careful speech" (2009: 110). Because of this, the second group involves instances of linking involving the

approximant consonant /r/ and assimilation of sounds when the previous and the following segment is /s/.

Furthermore, group 2 also includes how students pronounce words which have two different accepted productions. In other words, which accent the students use, if American or the considered standard received pronunciation (RP). According to Roach “Languages have different accents: they are pronounced differently by people from different geographical places, from different social classes, of different ages and different educational backgrounds.” (2009: 3). The main reason for including a word such as ‘vitamin’ twice is in order to get the information if students stick to the same accent or not. It is important to establish that both pronunciations are globally accepted and there is absolutely nothing wrong with them, but the focus is not on right or wrong but on checking if this group of students mix them or not.

4.2.2 The chart

Due to the number of samples taken in this work -fifty in total- it was appropriate to organize the analysis in a chart. This one involved the different items asked to be produced by the students divided individually in a vertical list and both groups, one and two, were kept together. This was so, because the order in which the items appear in the text was unaltered. Concerning the organization of the analysis, it was necessary to number the items in a vertical list as well as to number the samples in the horizontal line, so in this way if a specific item was required, it could be easily found (see Annex 4.3). By doing so, the result was fifty samples divided into five groups of ten people each.

Once these first steps of the chart were ready, when the moment of hearing and analyzing the samples arrived, it was helpful to set some values representing the results. This code is the following:

✓ = The sound was accurate

NP = No production of the sound

AmE = American pronunciation of English

BrE = British pronunciation of English

*/s/ = These samples pronounce the Spanish /s/

(s) = Omission of plural

(:) = Final consonant sound produced longer

NAPplv = No accurate production of plosive consonant

*/r/ = Production of the Spanish /r/

*/t/ = Production of the Spanish /t/

It is important to highlight that, as the first data was taken by hand, this code helped me to speed the analysis. It was later in the second round of hearing them that this information was available in an electronic device. This is the reason why these values had to be as simple as possible and the best of doing so was by using already existing nomenclatures.

4.2.3 Analyzing the audio recordings

The first round of hearing the audio recordings took three different sessions of two hours each. The place had to be quiet and headphones were mandatory in order to avoid as much extra noise as possible. Each sample was heard three to four times because the information was taken by hand in printed charts first, as mentioned before. Moreover, this is also the

moment where the notes regarding data that could not be captured by a voice recorder (such as vibration of the vocal cords to identify /v/ and /b/) were added as well.

Once all the data of the fifty samples was written, the audio recordings suffered a change to improve their quality. By using the website *noisereducer*, all the samples that had such a background noise that could lead to a misinterpretation were improved and analyzed again. This second phase took no more than two hours of work, because the amount of samples were not fifty but fourteen and most of the information was already taken. In terms of final results, just a few sound pronunciations were changed from the original analysis.

4.3 Evaluation of data

4.3.1 Individual performance

The main purpose of this work was to get to know the level of accuracy regarding spoken English in fourth year students of English and English Literature who attend the University of Santiago de Compostela. The selection of this specific group is not random. The main reason is that they are already in the last year of studies stipulated in order to get the degree. As a consequence, due to this advanced instance they are supposed to be in, a high level of accurate sounds is expected. As explained previously in the methodology, after the samples were heard one by one, the main procedure was to compare the transcription obtained from the oral production of the samples to the transcription that the accent RP requires. The criterion for a match was that there should be coincidence according to the manner of articulation, the place of articulation and if there is or there is no vibration of the vocal cords.

The total of items evaluated in this work were fifty as well as the total of students who participated. Once the samples were analyzed, the scale of accuracy that was considered in this work is the following:

Percentage	Level of accuracy
25% - 50%	Low
51% - 75%	Medium
76% - 90%	Medium-High
91% - 100%	High

This scale tries to emulate the University of Santiago de Compostela criteria for evaluation.

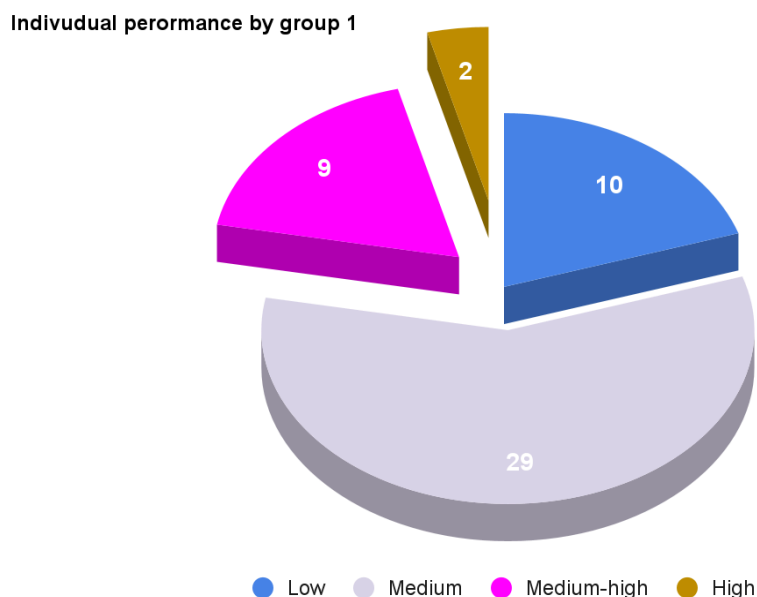
Also the purpose of this work is to create a database of sounds in English purely made by students of English philology of the University of Santiago de Compostela. In order to do so, there is the need of both, the individual and the collective performance. The section 4.3.1 demonstrates the individual performance of every single student, and further into this work, in section 4.3.2 the collective performance is being shown and analyzed.

It is important to highlight that section 4.3.1 will not enter into further explanations such as technical ones, but the purpose was to set the ground. The detailed explanation of students' productions and final results will be developed in 4.3.2.

4.3.1.1 Individual performance of group 1

These percentages were obtained under the following logic: if accurate production of fifty sounds represents a hundred percent accuracy, X sounds (X= the accurate production of each student) represents Y (Y= the individual percentage). As a result, in this graphic, which can

be read clockwise, students were divided into the scale of accuracy. Those people whose performance was below 50%, are tagged as *low*, this represents 20%. Those who obtained a score from 50% to 75% are the largest section representing the 58% involving twenty-nine people out of fifty, and they are tagged as *medium*. The third section concerns the 18% of students with almost the highest level of accuracy, this is the reason why they are tagged as *medium-high*. Finally, the last and smallest portion, concerns those students tagged as *high* and their accuracy is between 91% and 100%. It is crucial to mention that this last section is only involving two people out of fifty. In the annex, in section 4.3.1.1, there is a detailed table of the samples and their respective final percentages.



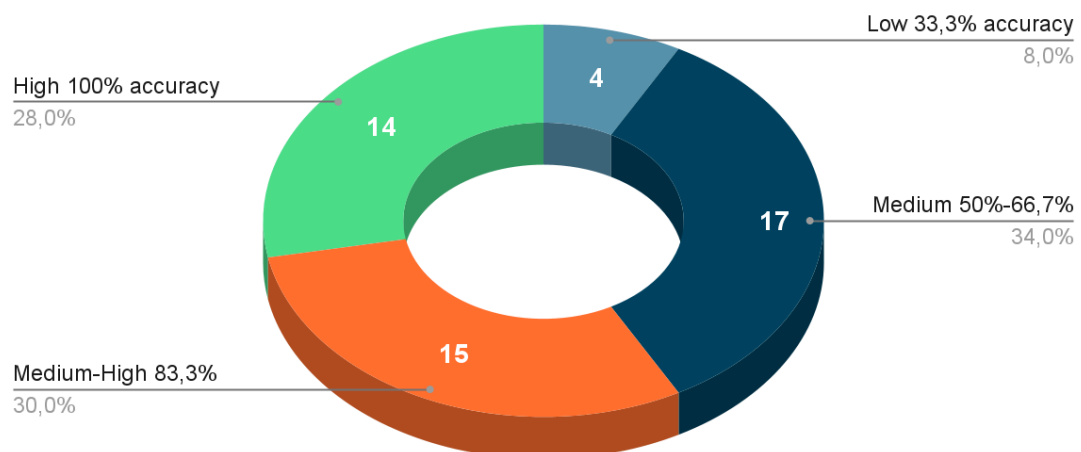
4.3.1.2 Individual evaluation of group 2

Within this group, items regarding connected speech, this means the form phonemes take whenever used in a real context and not isolated, are the main focus. In 4.3.2.2 technical

features will take place in order to provide a full explanation of every aspect included within this group. Nonetheless, in this section what it is intended to provide is some information to set the basis for a whole explanation afterwards.

The ten items analyzed in this section include one instance of weak ‘and’, one of weak ‘that’, one of weak ‘the’, one of weak ‘for’, one of assimilation of the phoneme /s/ in ‘this spring’ and two instances of linking r (one in ‘were a torture’ and one in ‘cheaper and’). This last one was not evaluated as right or wrong production, on the contrary, what it was intended to find was in which accent -if American English or Received Pronunciation- the production was affected by. This very same premise surfaced when analyzing the pronunciation of the spelling ‘i’ in ‘vitamin’, which happens to vary from /ɪ/ to /aɪ/ according to the accent that is being used. As both pronunciations are totally accepted, this feature is purely informative.

Individual performance by group 2



For this analysis the table in 4.3.1 is also used to list and classify the results. When it comes to low accuracy of production, group 2 owns 8,5%. When talking about medium, they reached 34% and medium-high is 29,8%, making both of them almost 64% of the total. The

last classification is high, which on the contrary to group 1, this time is bigger and it reached a 27,7%, almost a third of the total. In general terms, group 2 owns better numbers than group 1, this indicates that features of connected speech are properly acquired by these students. However, when it comes to distinguishing between accents, it changes completely. Further information is developed in 4.3.2.2.

4.3.2 Collective performance by sound

In order to have more information about what is the level of accuracy achieved, the collective performance by sound was also taken into account. This information is crucial when explaining the reasons why an unsuccessful production of the sound occurs. For example, by knowing which sound is more complicated to make by a non native speaker of English, teachers can focus on developing and provide students new alternatives of practicing in order to achieve a better production. In this section, technical issues are introduced.

4.3.2.1 Collective performance by sound of group 1

Short and long vowels

To begin with, *short* and *long vowels* were evaluated by themselves and, in the case of sound number 9 and number 46, they are strictly interrelated to each other concerning meaning. When talking about these vowels, Roach (2009) says:

English has a large number of vowel sounds; the first ones to be examined are short vowels. The symbols for these short vowels are: ɪ, e, æ, ʌ, ɒ, ʊ. Short vowels are only relatively short; as we shall see later, vowels can have quite different lengths in different contexts. (p. 13) and “(...) The first to be introduced here are the five long vowels; these are the vowels which tend to be longer than the short vowels in similar contexts. It is necessary to say “in similar contexts” because, as we shall see later, the length of all English vowel sounds varies very much according to their context (such as the type of sound that follows them) and the presence or absence of stress. To remind you that these vowels tend to be long, the symbols consist of one vowel symbol plus a length mark made of two dots.” (p. 16)

In this work, sound number 9 (the core short vowel of the word ‘this’) had an accuracy of 49 out of 50 students. S17 is the only one who produced /i:/ instead of /ɪ/. The high level of accuracy might be related to /ɪ/ in English is closer to /e/ in Spanish. As Sánchez Roura and Gómez González say:

By contrast, like most Romance languages, Spanish has a more simple vowel system with only five pure vowels /a e i o u/ that are usually symmetrically arranged in an inverted triangle as there is no front-back opposition at the open position. (p. 88) (...) None of the Spanish vowels exactly coincides with the area of articulation of English vowels. As already noted, four RP vowels /i: e ɔ: u:/ could be regarded as near equivalents of Spanish /i e o u/, even though English /i: u:/ are more centralised, while /e/ and /ɔ:/ are more open and closer than their Spanish counterparts, respectively. (p. 89)

However, concerning sound 46 (where the core vowel is long in the word ‘these’), the accuracy was 30 out of 50 even though its pronunciation is closer to Spanish /i/. Other long vowels evaluated were sounds number 3, 28 and 36. In the case of sound 3, it has an accuracy of 35 over 50, the ones who could not produce /ɔ:/ replaced it for /ɒ/. An explanation for this

could be that /ɔ:/ was clipped due to /k/ but still be considered as a valid long vowel. Nonetheless, the students produced a clear /ɒ/ because there was a lack of air release in the production for a clipped /ɔ:/.

Sound 28, involving /i:/, had an accuracy of 31 out of 50, the ones who were not accurate is because they replaced /i:/ with the short vowel /ɪ/. Again, as this sound is the end of a word, the lack of air when producing /i:/ is the main cause of the misproduction. The next one is sound 36, where even though /u:/ functions as the end of the word, it has an accuracy of 47 over 50 because it also functions as the end of a sentence. The three samples that did not match the accurate production of it were S13 by pronouncing /ʊ/, and S44 as well as S49 producing a combination of the American English /nʊ/ with the length of the RP pronunciation, resulting in /nu:/.

The last feature that takes part in this section is the analysis of sound 35, which is a short vowel represented in English with the letter ‘a’, in words like ‘mad’, ‘sad’ or ‘bad’. This letter can be represented by five different types of phonemes, so it is expected that some students may pronounce another type of sound similar to /æ/. Moreover, this specific type of vowel does not exist in Spanish or Galician. As Sánchez Roura and Gómez González explain, “For the articulation of /æ/, the lower jaw is in a closer position than for Spanish /a/, the tongue is more advanced and the lips are more spread and tense, producing a quality that is half-way between Spanish /a/ and /e/.” (2016: 108) This is the reason why the accuracy was 66%, the rest of the students did in fact pronounced the Spanish /a/ with the exception of S35 who make it longer releasing more air.

Diphthongs

As Roach (2009) says, *diphthongs* are:

(...) sounds which consist of a movement or glide from one vowel to another. A vowel which remains constant and does not glide is called a pure vowel (...) the most important thing to remember about all the diphthongs is that the first part is much longer and stronger than the second part; for example, most of the diphthong ai (as in the words ‘eye’, ‘I’) consists of the a vowel, and only in about the last quarter of the diphthong does the glide to i become noticeable. As the glide to i happens, the loudness of the sound decreases. As a result, the i part is shorter and quieter. Foreign learners should, therefore, always remember that the last part of English diphthongs must not be made too strongly. (p. 17)

The only diphthong that is part of this work is /əʊ/ which takes part at the beginning of the word ‘only’ and finishes the word ‘so’. This selection is intentional, because the pronunciation attached to the letter o in these two words differ completely from Spanish. In this last one, the pronunciation of the letter o is closer to the English /ɔ:/. This is the reason why the accuracy for sound 22 is just 15% and all of the samples that did not produce /əʊ/ replaced it for /ɔ:/. In the case of sound 25, only 7 students out of 50 had an accuracy on point. The rest of them, as in the case before, replaced it for a /ɔ:/. as a consequence of being native Spanish speakers. As Sánchez Roura and Gómez González explain in their book:

The pronunciation of RP /əʊ/ may be problematic for Spanish learners because [ə] does not form part of the Spanish vocalic system. Spanish speakers tend to produce this diphthong with an initial [o], thereby resembling the pronunciation of the Spanish diphthong [ou̯] found in the word bou [bou̯] (‘type of fishing’). This is an acceptable pronunciation in GA, in which the normal pronunciation of this diphthong is [oʊ] instead of [əʊ]. But in RP such pronunciations have a strong foreign accent. (p. 133)

Plosives

These types of sounds are quite important to analyze because they are not used in Spanish nor in Galician. As Roach (2009) explains:

A plosive is a consonant articulation with the following characteristics: a) One articulator is moved against another, or two articulators are moved against each other, so as to form a structure that allows no air to escape from the vocal tract. The structure is, then, total. b) After this structure has been formed and air has been compressed behind it, it is released - that is, air is allowed to escape. c) If the air behind the stricture is still under pressure when the plosive is released, it is probable that the escape of air will produce noise loud enough to be heard. This noise is called plosion. d) There may be voicing during part or all of the plosive articulation. (p. 26)

In English we find six plosives and they can be divided in three pairs: /p/ and /b/, /k/ and /g/, /t/ and /d/. These pairs share the same place and manner of articulation with each other but the first one is *unvoiced* (no interaction of the vocal cords) and the second one is *voiced* (there is interaction of the vocal cords). They might seem similar to Spanish in spelling, but the result in their production is different due to the existence of a louder plosion in English, a feature that Spanish lacks.

The three words that are evaluated in this part are ‘talked’, ‘grabbed’ and ‘concluded’. The selection of these words is not random because the final plosive of each of them represents a different manner of pronouncing the past in English, so it is crucial to own an accurate production of it. In other words, when we pronounce the word ‘talked’, it involves /t/, /ɔ:/, and the consonant cluster /kt/. As mentioned before, /k/ and /t/ are unvoiced, so it is easier to produce them together. As a result, in this context, when applied to the root /tɔ:k/,

the sound /t/ represented by the spelling 'ed' marks the past. In this analysis by evaluating sound 2, there is data about how many students in fact can produce this rule. The result is just 32 over 50, leaving 18 people not producing nor replacing this final marking sound at all.

Exactly the same rule of marking the past occurs in the word 'grabbed', but this time it is formed by the sequence /g/, /r/, /æ/, and the consonant cluster /bd/ because both of them are voiced, so it is easier to place the articulators in the mouth for their production. Sound number 33 had an accuracy of 31 out of 50, almost the same rate as sound 2, but in this instance sixteen people did not produce the sound at all and S8 replaced it for /pt/, S14 pronounced the whole word as /greɪb/, and S40 ended the word in /ft/.

As every rule in English, there might be an exception, so when a verb already ends in /t/ or /d/, the easier way to mark the past is by adding a vowel sound, in this case /ɪ/, and -as all vowels are voiced- it is easier to produce /d/ rather than /t/ to mark the past. This is the case of sound 7, where the accuracy was 33 students out of 50. Among the students who could not make an accurate production, fourteen of them did not produce a plosive sound at all at the end of the word and the other three replaced /dɪd/ for /dɛd/. It is expected to replace /ɪ/ for /ɛ/ because both are front vowels, but the first one is high and the second one is mid.

A very clear example of the difference between English plosives and consonants in Spanish is by hearing some samples of sounds 30 and 31 where some students produce the Spanish version of /t/ and /d/ sticking to the spelling of 't' and 'd' instead of the English one. As Sánchez Roura and Gómez González (2016) explain:

In addition to being unaspirated, RP /t/ tends to be pronounced as dental (instead of alveolar) to match Spanish /t/. For the same reason, dental realisations of /d/ are also frequent, causing confusion with (and replacement by) [ð]. (p. 158) A common pronunciation problem of SSLE

is the confusion of the place of articulation /t d/, which is alveolar in RP, the tip of the tongue being in contact with the alveolar ridge, but dental in Spanish, the closure being made between the tip of the tongue and the upper teeth. This is an extremely noticeable error due to the high frequency of these two sounds. In order to master their fluent use in connected speech, SSLE should practice the alveolar stricture, whose recognition and production should not be difficult as it is the same one used to pronounce Spanish /n/. (p. 175)

In this work, sound 30 representing the consonant /t/ had an accuracy of 34 out of 50, where fifteen people did not produce the main characteristic of a plosive consonant by not making a little explosion of air when pronouncing it, and just one person replaced sound 30 for the affricate /tʃ/. Regarding sound 31, just fourteen people could not produce an accurate sound, half of them due to the absence of air explosion when pronouncing /d/ and the other seven people due replacing /d/ for Spanish [ð] as Sánchez Roura and Gómez González say. This is also represented in sound 29 which involves the vowel Schwa /ə/ in the first syllable of the word ‘today’, a sound which only had 50% of accuracy. One of the main reasons for this number is that most of the students place their speech organs to produce the Spanish [ð] instead of the English one, which leads to previously having setting the speech organs closer to a high back tense Spanish /u/ rather than to a mid central lax Schwa.

Fricatives and affricates

In this section both types of consonants are explained together because they are strictly related to each other. In order to understand *affricates*, *fricatives* must be explained. As Peter Roach (2009) describes:

Fricatives are consonants with the characteristic that air escapes through a narrow passage and makes a hissing sound. Most languages have fricatives, the most commonly found being something like s. Fricatives are continuant consonants, which means that you can continue making them without interruption as long as you have enough air in your lungs. Plosives, which were described in Chapter 4, are not continuants. (p. 39)

The pairs of fricatives can be divided into unvoiced-voiced: /θ/-/ð/, /f/-/v/, /s/-/z/ and /ʃ/-/ʒ/. In addition to these pairs, there are the lateral /l/ and the approximant /r/, which are going to be analyzed later in this section. Regarding the analysis, sound 1 and sound 45 are the dental fricative unvoiced /θ/, and it was analyzed occupying the beginning of a word in both cases ('they' and 'these' respectively). The accuracy was 100% in both cases. Its pair /θ/ was not evaluated because this is a sound that already exists in Spanish from Spain and Galician.

Next in line, in the pair of labio-dental fricatives /f/-/v/, just the voiced one was evaluated due to this consonant sound usually being replaced by the bilabial plosive /b/ affected by the Spanish influence. In this case, sound 23 takes the initial part in a word frequently used in English as 'very' is. This sound had an accuracy of 33 over 50, which is almost half of the students not being able to make an accurate production of it leading to a misunderstanding in meaning, because /'veri/ is not the same as /'beri/ <berry>. In the case of sound 48, just twenty five percent of students pronounce /v/ and not /b/ in the word 'vitamin', however, there is no consequence in meaning. As Sánchez Roura and Gómez González (2016) describe in their book:

The /b/ – /v/ contrast that exists in English can be problematic. Whereas in English /b/ is always a stop, SSLE tend to pronounce [β], the approximant allophone of /b/, between voiced sounds, and also very frequently in replacement of RP /v/, especially in word-initial position.

(p. 158)

Regarding the alveolar fricatives, the unvoiced phoneme is /s/ and its pair voiced is /z/, a sound that does not exist in Spanish nor in Galician. Sound 10 achieves an accuracy of a hundred percent pronouncing the end of the word ‘this’. Nonetheless, there is an exception due to a Peninsular Spanish feature. As Sánchez Roura and Gómez González (2016) explain in their book:

Although the RP /s/ and the Andalusian and Latin American variety of [s] may be regarded as acceptable equivalents, both being made with the blade of the tongue raised towards the alveolar region, the type of [s] produced in the rest of Spain is apical: the stricture is made between the tongue tip and the alveolar ridge. Since apical [s] has a slight [ʃ] quality, the [s]-[ʃ] contrast should be practised. Besides, it should be noted that [s] is usually dropped and replaced by [h] in pre-consonantal and final positions in Latin-American Spanish (Argentina, Chile, Central America) and in Andalusian and Canary Spanish, which does not occur in RP. (p. 196)

This is the case of S7, S13, S16, S18, S26, S30, S31, S40, S41, S42 y S44, which make a total of 20% of students in this work who, indeed, produce apical [s] taking it to a slight [ʃ] due to the contact of upper and lower teeth. In these cases meaning is not lost, but as Sánchez Roura and Gómez González say, it can result in a foreign accent.

Sound 47, on the other side, had an accuracy of 12 out of 50, thirty eight students did not produce /z/. Due to the Spanish influence, they replaced it for /s/, so the low accuracy was expected. As Sánchez Roura and Gómez Gonzalez clarify “RP /z/ is frequently pronounced as a voiceless fricative [s], or even as [θ] if pronunciation is misled by the common grapheme <z>.” (2016: 158). The main reason that these words were introduced in the text to be

evaluated is that when describing nouns ‘this’ refers to singular and ‘these’ to plural. Then, if students mix short and long vowels in addition to these consonant sounds, meaning is at risk.

Moreover, as explained before, due to the mother tongue the fifty samples have, either Galician or Spanish, when producing the phoneme /s/ at the beginning of a word in English, it is frequent to hear /ɛs/. This occurs because in latin languages there are no words starting just with a consonant sound followed by another consonant, as in the case the word ‘strange’, a situation evaluated in this work represented by sound 13. The range of accuracy in this case is 21 students out of 50, the ones who did not make an accurate production did, in fact, added /ɛ/ before /st/. As Sánchez Roura and Gómez Gonzalez also notice “Speakers of Spanish should also avoid the addition of a vowel before any of the clusters beginning with /s/ (scale /skel/). A good practice in this case is to pronounce a long [sss] before the adjacent consonant.” (2016, 196).

In order to introduce the last pair in this section /ʃ/-/ʒ/, it is necessary to describe them, as Peter Roach (2009) says:

ʃ, ʒ (example words: ‘ship’ (initial ʒ is very rare in English); ‘Russia’, ‘measure’; ‘Irish’, ‘garage’). These fricatives are called **post-alveolar**, which can be taken to mean that the tongue is in contact with an area slightly further back than that for s, z (see Fig. 20). If you make s, then ʃ, you should be able to feel your tongue move backwards (41)

In this work, sound 19 involves /ʃ/ in the onset of the third syllable of the word ‘especially’, with an accurate production of 90% even though its Spanish counterpart ‘especialmente’ does not involve this sound. The other 10% made the following productions instead of /ʃ/: /s/, /səli/, /sɪli/, and two students said /ʃɪə/. The sound /ʒ/ was not evaluated in this analysis.

The glottal fricative /h/

There is a consonant that is represented in Spanish and English with the letter ‘h’ but, whereas in Spanish is not pronounced at all, in English it is in fact a very commonly used phoneme and it has its own rules. Peter Roach (2009) describes it as:

The place of articulation of this consonant is **glottal**. This means that the narrowing that produces the friction noise is between the vocal folds, as described in Chapter 4. If you breathe out silently, then produce h, you are moving your vocal folds from wide apart to close together. (...) One way of stating the above facts is to say that *phonetically* h is a voiceless vowel with the quality of the voiced vowel that follows it. Phonologically, h is a consonant. It is usually found before vowels. As well as being found in the initial position it is found medially in words (...). It is noticeable that when h occurs between voiced sounds (as in the words ‘ahead’, ‘greenhouse’), it is pronounced with voicing - not the normal voicing of vowels but a weak, slightly fricative sound called **breathy voice**. (p. 42)

In this analysis, /h/ is evaluated at the beginning of two different words: help and hesitate. Before explaining the result, it is useful to state a piece of information regarding this vowel by Sánchez Roura and Gómez González, “RP /h/ may be dropped, or otherwise it may be pronounced with a hissing sound or be replaced by Spanish [x].” (2016: 158). This occurs due to the proximity /h/ and /x/ have in the place and manner of articulation. However, this analysis led us to a lower percentage of not accurate samples than expected. In sound 24 just nine students had a mispronunciation of /h/, eight of them replacing it by Spanish [x] and just one did not pronounce a beginning consonant at all. In the case of sound 32, just three

people did not produce with accuracy the sound expected by not pronouncing it or replacing it by Spanish [x] just as in the results of sound 24.

Affricates

This is a type of consonant very particular, because it is the combination of features of two consonants creating a new one. As Peter Roach (2009) describes:

Affricates are rather complex consonants. They begin as plosives and end as fricatives. A familiar example is the affricate heard at the beginning and end of the word ‘church’. It begins with an articulation practically the same as that for *t*, but instead of a rapid release with plosion and aspiration as we would find in the word ‘tip’, the tongue moves to the position for the fricative /ʃ/ that we find at the beginning of the word ‘ship’. So the plosive is followed immediately by fricative noise. Since phonetically this affricate is composed of *t* and *ʃ* we represent it as *tʃ*, so that the word ‘church’ is transcribed as *tʃɜːtʃ*. (Roach, 39) Although *tʃ*, *dʒ* can be said to be composed of a plosive and a fricative, it is usual to regard them as being single, independent phonemes of English. (p. 40).

Affricates also have their pair of unvoiced and voiced consonants: /tʃ/ and /dʒ/. In this analysis, regarding the unvoiced option, the word evaluated which contains this sound is ‘torture’. This selection is due to the similarity of spelling with the Spanish version ‘tortura’ but their pronunciation is extremely different. This is the case of sound 17 with an accuracy of almost 80%. Among the other 20%, there are these productions of the second syllable of the word ‘torture’: /trɔr/, /t/ and /tjuːr/. Moreover, S7 made an interesting production: /tʃɜːrtʃrə/. The affricate occupying the onset of the second syllable is well done, but the rest of

the word lacks meaning. That is not the case of S14 and S40 who produced the American version of the word by saying /tʃʊr/.

In the case of the voiced affricate /dʒ/, there are several words to analyze: sound 14 involves /dʒ/ as the end of the word ‘strange’, sound 15 as the onset of the last syllable of the word ‘allergies’, in sound 34 as the beginning of the word ‘jacket’, in sound 39 as part of the final consonant cluster of ‘oranges’ and at the very beginning of ‘juice’. The analysis of data of sound 14 provides an accuracy of just 42%, most of the students replaced /dʒ/ for its unvoiced partner of place and manner of articulation even though this word is set as the end of a sentence.

In sound 15 the accuracy raises to a 74%, creating a whole new set of options to replace /dʒ/: /tʃ/ (three times), /j/ (four times), /ɪ/ (one time), /g/ (one time), /ʃ/ (three times) and /jɪs/ (one time). In sound 34, /dʒ/ is placed at the beginning of the word and the accuracy was 52%, which makes twenty two people pronouncing the semivowel /j/, S19 producing /tʃ/ and S39 /ʃ/.

In sound 39, the accuracy is 80%, one of the highest, it might have to do with ‘orange’ being a well-known word by foreign language learners of English. The replacements of /dʒ/ were /tʃ/ in six samples, /j/ in one and two of the samples did not produce a consonant sound at all. There were also two peculiarities, just as in S25 by replacing /dʒ/ for /ʃ/ but in addition to eliminating the final /s/ marking the plural. A similar situation shows up in S28, where not only the plural is eliminated but also /dʒ/ transformed to its unvoiced version /tʃ/.

At last in this section, sound 40 involves the beginning of the word ‘juice’, and accuracy is down once more to 54%, where 21 people out of 50 changed /dʒ/ for /j/ and S4 and S5 devoiced the original consonant sound for /tʃ/. This whole analysis of this section of

affricates is valid to reinforce the statement “RP /dʒ/ tends to be confused with and replaced by [j], [ʌ] and [j], or even by [ʃ].” (Sánchez Roura and Gómez González, 2016: 158)

Nasals and other consonants

Sounds can be also distinguished between those in which the air flows through the mouth, and those in which the air flows through the nose. These last ones are tagged as *nasals* and Roach (2009) says about them:

The basic characteristic of a nasal consonant is that the air escapes through the nose. For this to happen, the soft palate must be lowered; in the case of all the other consonants and vowels of English, the soft palate is raised and air cannot pass through the nose. In nasal consonants, however, air does not pass through the mouth; it is prevented by a complete closure in the mouth at some point. If you produce a long sequence dndndndndn without moving your tongue from the position for alveolar closure, you will feel your soft palate moving up and down. The three types of closure are: bilabial (lips), alveolar (tongue blade against alveolar ridge) and velar (back of tongue against the palate). This set of places produces three nasal consonants - m, n, ŋ - which correspond to the three places of articulation for the pairs of plosives p b, t d, k g (p. 46)

Now that nasals have been introduced, there is a specific type of nasal that Roach (2009) emphasizes in:

The consonants m, n are simple and straightforward with distributions quite similar to those of the plosives. There is in fact little to describe. However, ŋ is a different matter. It is a

sound that gives considerable problems to foreign learners, and one that is so unusual in its phonological aspect that some people argue that it is not one of the phonemes of English at all. The place of articulation of η is the same as that of k , g ; it is a useful exercise to practise making a continuous η sound. If you do this, it is very important not to produce a k or g at the end - pronounce the η like m or n . (p. 46)

This is the reason why $/\eta/$ is evaluated in two instances in this work. The first one in sound 12 as the end of the word 'spring', and the second one, involves $/\eta/$ as the end of the word 'sing' but the suffixes 'er' and 's' is added to turn this verb into a noun referring to people who sing. As Peter Roach describes:

The important difference is in the way the words are constructed - their morphology. The words of column B can be divided into two grammatical pieces: 'sing' + '-er', 'hang' + '-er'. These pieces are called morphemes, and we say that column B words are morphologically different from column A words, since these cannot be divided into two morphemes. 'Finger' and 'anger' consist of just one morpheme each. (p. 47)

In sound 12, the accuracy was less than 40%. Among the 62% who did not produce $/\eta/$, we find S8 devoicing the consonant to $/k/$, S35 and S46 produce a clear combination of $/n/$ and $/g/$ and S38 and S39 make $/n/$ longer instead of making it velar instead of alveolar. The rest of them, twenty four students, pronounced a clear alveolar $/n/$ instead of velar $/\eta/$.

However, in sound 21 the average accuracy was higher reaching 54%. From the rest of the samples who could not produce $/\eta/$ - a total of twenty three people-, five of them did replace it again by making $/n/$ longer, other five people made a combination of $/n/$ and $/g/$ and thirteen pronounced a clear alveolar $/n/$ instead of velar $/\eta/$ just as in the previous sound. As a

result, in both cases, most of the students who can not produce the nasal sound the word requires, fit into this last group mentioned. Again, the result of this nasal consonants analysis supports Sánchez Roura and Gómez González information provided in their book:

English /n/ and /ɲ/ pose a problem for speakers of Spanish as regards their phonemic status. In Spanish [ɲ] occurs as an allophone of [n] before velars (e.g. hongo ‘fungus’ [ˈoŋgo]). Its occurrence without an intervening velar is only registered in Central American Spanish, as well as in South American Spanish (Peruvian, Ecuadorian), where [ɲ] is used as a common realisation of /n/. The most common error for SSLE is to produce [n] instead of [ɲ], and so English gerunds, for example, such as linking [ˈlɪŋkɪŋ], watching [ˈwɒtʃɪŋ], playing [ˈpleɪɪŋ] and coming [ˈkʌmɪŋ], may be pronounced with a final [n], as in *[ˈlɪŋkɪn], *[wɒtʃɪn], *[pleɪɪn] and *[ˈkʌmɪn], which may cause intelligibility problems derived from the loss of the [ɲ] – [n] phonemic contrast that exists in English (ran /ræn/ – rang /ræŋ/). (p. 213)

Similar spellings in English and Spanish/Galician

In this section words which share similar spelling in English and Spanish will take place. They were added in the text because it is necessary to own in the database if students are able to distinguish between pronunciations between the two languages.

1. Concluded/Concluir

To begin with, sound 5 and sound 6 represent two segments in the same word: ‘concluded’. Sound 5 involves a weak syllable, this means, the syllable that is not stressed in a word. Usually, the vowel that is weak is represented by /ə/ and this is the case. As ‘concluded’ is

similar to the Spanish ‘concluir’, 22% of the samples did pronounce the first syllable with the vowel /ɒ/ instead of /ə/. Sound 6, on the other side, is the stressed syllable in the word, that is the reason why the vowel of this segment is pronounced /u:/. The percentage of accuracy in this case improved, due to less than 20% of mispronunciations. Sánchez Roura and Gómez González (2016) own an answer for this matter:

/u:/ is longer and has more tension and correspondingly more lip-rounding and a closer realisation than PSp /u/. To produce English /u:/, Spanish speakers should utter a lengthened Spanish [u], as the vowel of the word uva ‘grape’, whereas the quality of English [u] (in unstressed syllables) is similar to that of Spanish [u]. (p. 119)

2. Especially/Especialmente

Both words look exactly the same but the suffix is different: in English it is ‘-ly’ and in Spanish ‘-mente’. However, they belong to different languages where they happen to have quite different pronunciations. Sound 18 represents /ɪs/ at the beginning of the word ‘especially’, but in Spanish the pronunciation is /espeθjalmente/, and, as a result, 80% of the students who were evaluated did pronounce /es/ instead of /ɪs/.

3. Anticipation/Anticipación

In this analysis, sound 26 representing /ʃn/ at the end of the word ‘anticipation’ takes part in the text due to the similarity between the ending ‘ción’ and ‘sión’ in Spanish. Whereas in English it involves a dental fricative unvoiced consonant, a weak vowel barely heard and a final alveolar nasal, in Spanish there are several ways to pronounce this suffix. The two most commonly used are /θi’on/ and /si’on/, in English the vowel spot in the last syllable of the

word is weak, so it should be barely pronounced. This is the reason why sound 26 happens to possess just 32% of accuracy, the rest did replaced /ʃn/ for /ʃɒn/.

4. Jersey/Jersey

As with many words across languages, there are some loans and borrowings of words from English to Spanish. One loan word that has not been translated and is used frequently in Spanish from Spain is ‘jersey’ with the pronunciation /xersej/. This is the reason why sound 37 with /dʒ/ at beginning the word just has an accuracy of 52%, the 48% left did indeed pronounce /j/, just as Sánchez Roura and Gómez González (2016) explain:

(...) for most SSLE, who do not have it in their native Spanish accents, it may be hard to reproduce. As a consequence, the English voiced palatal affricate (jet /dʒet/) may be mispronounced as a as a palatal lateral approximant (*[ˈʎet]), as a voiced palatal fricative (*[ˈjet]), or affricate (*[ˈtʃet]), or very frequently by a palatal approximant (*[jet], enjoy *[ɲjoɪ], just *[jʌst]), based mainly on the wrong assumption that spellings have to be pronounced as [j]. These mispronunciations create communication problems that result from the neutralisation of the /dʒ/ – /j/ contrast that exists in English between such words as jet /dʒet/ – yet /jet/ and jot /dʒɒt/ – yacht /jɒt/. (p. 208)

In the case of sound 38, involving the ending of the same word being pronounced /zi/, the accuracy was a little bit higher, regarding 58%. The rest of the productions were divided in four groups: the diphthong /ei/ (twelve people), /si/ (five people), /seɪ/ (four people) and one person pronounced /i:/. This occurs due to the Spanish pronunciation which affects the English one directly.

5. Natural/Natural

The analysis of sound 42 is particular because the spelling is exactly the same in English, Spanish and Galician. However, they differ in their pronunciation not only regarding vowels but also consonants. When it comes to these last ones, the English RP pronunciation of 'natural' involves an affricate sound represented by 't' in the beginning of the second syllable. This sound, although it exists in Spanish, is never spelled with 't' but 'ch'. As a result, nineteen students did not pronounce /tʃ/ but, instead, ten of them replaced it for the plosive /t/, eight of them pronounced the Spanish 't' and S8 produced a the unvoiced fricative dental /f/ instead.

It is important to mention that some other words that are part of the text evaluated could have been part of this section just as 'strange', 'torture' and 'jacket'.

4.3.2.2 Collective evaluation of group 2

In this section, we will be dealing with some features that just appear when *conversational speech* as well as *connected speech* take place. As Roach (2009) says:

I would like to emphasise how valuable an exercise it is for students and teachers to attempt to analyse some recorded speech for themselves. For beginners it is best to start on slow, careful speech - such as that of newsreaders - before attempting conversational speech. One can learn more about intonation in an hour of this work than in days of reading textbooks on the subject, and one's interest in and understanding of theoretical problems becomes much more profound. (p. 144)

As Roach (2009) explains regarding the difference between sentences in isolation versus while interacting with people:

Each sentence could be studied in isolation and be analysed in terms of grammatical construction, lexical content, and so on. But it is clear that the sentences form part of some larger act of conversational interaction between two speakers; (...) (p. 156)

As well as sentences can not be studied in isolation, there are some sounds in this work that were included in the evaluated text that can not either. It is essential to remember that the previous sound affects the following, so some phonemes are going to be adapted in the mouth in order to prepare the speech organs for the following sound. These are some of those cases.

The lateral approximant and ‘dark l’

Most students are able to pronounce /l/ in English because this sound already exists in Spanish and Galician, and in the three languages it is represented with the letter ‘l’. As Peter Roach (2009) says:

The l phoneme (as in ‘long’ lɒŋ, ‘hill’ hɪl) is a lateral approximate. This is a consonant in which the passage of air through the mouth does not go in the usual way along the centre of the tongue; instead, there is complete closure between the centre of the tongue and the part of the roof of the mouth where contact is to be made (the alveolar ridge in the case of l). Because of this complete closure along the centre, the only way for the air to escape is along the sides of the tongue. (p. 48)

Due to the similarity between the mother tongue of the students and English, what I was interested in evaluating was the production of *dark l*, a feature that occurs in *connected speech*. This last one is the way in which humans speak, this means that previous sounds will affect the quality and quantity of next ones. This is what occurs from a ‘clear /l/’ a lateral approximant /l/ which is the onset of a word versus ‘dark /l/’ that, on the contrary, finishes a unit:

In addition, to pronounce dark [ɫ] the back of the tongue is raised in the direction of the soft palate, producing a velarised resonance close to that of back vowels, ranging in closeness from [ʊ], [ö] or [ɤ] to [ɔ] or [ʌ]; whereas the clear [l] variant is characterised by a front vowel resonance, which results from raising the front of the tongue in the direction of the hard palate. (Sánchez Roura and Gómez González, 2016, 218)

Peter Roach (2009) also provides us a quite clear explanation:

The sound in ‘lea’ is what is called a “clear l”; it resembles an [i] vowel, with the front of the tongue raised (we do not normally use a special phonetic symbol, different from l, to indicate this sound). The “dark l” is also found when it precedes a consonant, as in ‘eels’ i:lz. We can therefore predict which realisation of l (clear or dark) will occur in a particular context: clear l will never occur before consonants or before a pause, but only before vowels; dark l never occurs before vowels. (p. 49)

In this analysis, sound 43 has an accuracy of 72%, the rest 28% might not produce this sound due to Spanish or Galician influence or, perhaps, due to not having practiced enough this sound within a chain of sounds in connected speech. This last one is the natural way of

native speakers to talk, and easier ways to do so appear over time, so it is a living ‘way’ of speaking. In addition, a feature that will be important information in the next section, is this one:

Other segmental differences are phonetic: the ɫ phoneme, which was introduced in Section 2 of Chapter 7, is almost always pronounced as a “dark ɫ” in American English: the sound at the beginning of ‘like’ is similar to that at the end of ‘mile’. (Roach, 2009, p. 164)

The approximant /r/

This consonant is quite known for Spanish and Galician natives, the spelling is even shared by using the letter ‘r’, however there are some differences. Regarding the articulation of this consonant:

(...) there is really only one pronunciation that can be recommended to the foreign learner, and that is what is called a post-alveolar approximant. An approximant, as a type of consonant, is rather difficult to describe; informally, we can say that it is an articulation in which the articulators approach each other but do not get sufficiently close to each other to produce a “complete” consonant such as a plosive, nasal or fricative. (...) The important thing about the articulation of **r** is that the tip of the tongue approaches the alveolar area in approximately the way it would for a **t** or **d**, but never actually makes contact with any part of the roof of the mouth. (Roach, 2009, pp. 49-50)

This sound is quite important regarding the two main different accents (and widely known) in English: American and British.

Those accents which have r in final position (before a pause) and before a consonant are called rhotic accents, while accents in which r only occurs before vowels (such as BBC) are called non-rhotic. (Roach, 2009, p. 50)

In this analysis, in the annex, there is information regarding this difference, because the way in which the accents were analyzed was through the presence or absence of this consonant sound. Due to this, eleven people were identified as keeping the American rhotic accent and eighteen people were spotted using the RP pronunciation. The rest of the students mix them. The reason behind this is that during the L2 process of learning, different teachers and professors take part. Unless there is a conscious selection by the student in training themselves in a specific accent, mixing will occur. Of course, this does not mean that not speaking RP is wrong, on the contrary, this shows the many faces that English has for a L2 learner.

Another example of mixing accents is the way in which students pronounce ‘vitamin’, either the RP version /'vɪtəmin/ or the American English one /'vɪtəməɪn/. As the analysis shows in table 4.3.2.2., not every student who pronounces the American version of vitamin sticks to it while pronouncing the units of the text “were a torture” and “cheaper and tastier”. As the table also shows, there are plenty of combinations possible to pronounce regarding this word in addition to the *linking r*. As Peter Roach say,

BBC speakers often use r in a similar way to link words ending with a vowel, even when there is no “justification” from the spelling, as in:

‘Formula A’ ‘fɔ:mjələɹ ə

Australia all out’ əs'treɪliəɹ ɔ:l

‘media event’ ‘mi:diə r’veɪnt

This has been called intrusive r; some English speakers and teachers still regard this as incorrect or substandard pronunciation, but it is undoubtedly widespread.

“Linking r” and “intrusive r” are special cases of juncture; we need to consider the relationship between one sound and the sounds that immediately precede and follow it. (Roach, 2009, p. 115)

In this case, it is clear how while speaking, when a unit ends in a vowel and the next one starts with a vowel as well, by adding a quick but useful “linking r”, meaning is not compromised. In this analysis, the results for sound 16 and sound 44 can be found in the annex regarding this feature.

Syllabic consonants

It has been already analyzed the word ‘natural’ and its ending with a ‘dark l’. However, there is another aspect that could be applied to that ending of the unit: *the syllabic consonant*.

One of the most noticeable features of English pronunciation is that some of its syllables are strong while many others are weak; (...) When we compare weak syllables with strong syllables, we find the vowel in a weak syllable tends to be shorter, of lower intensity (loudness) and different in quality. For example, in the word ‘data’ ‘deɪtə the second syllable, which is weak, is shorter than the first, is less loud and has a vowel that cannot occur in strong syllables. In a word like ‘bottle’ ‘bɒtəl the weak second syllable contains no vowel at all, but consists entirely of the consonant l. We call this a syllabic consonant. (...) Syllabic l is perhaps the most noticeable example of the English syllabic consonants, although it would be wrong to expect to find it in all accents. It occurs after another consonant, and the way it is produced

depends to some extent on the nature of that consonant. If the preceding consonant is alveolar (...) is quite simple. The sides of the tongue, which are raised for the preceding consonant, are lowered to allow air to escape over them (this is called lateral release). The tip and blade of the tongue do not move until the articulatory contact for the l is released. The l is a “dark l”. (Roach, 2009, p. 64-68)

In addition to syllabic lateral, there are *syllabic nasals* and the most important one is evaluated in this work. As Roach describes,

Of the syllabic nasals, the most frequently found and the most important is *n*. When should it be pronounced? A general rule could be made that weak syllables which are phonologically composed of a plosive or fricative consonant plus an are uncommon except in initial position in the words. So we can find words like ‘tonight’ təˈnaɪt, ‘canary’ kəˈneəri, ‘fanatic’ fəˈnætɪk, ‘sonata’ səˈnɑːtə with ə before *n*, but medially and finally - as in words like ‘threaten’, ‘threatening’ - we find much more commonly a syllabic ɫn: ‘θreɪtɫn ‘θreɪtɫnɪŋ. To pronounce a vowel before the nasal consonant would sound strange (or at best over-careful) in the BBC accent. (2009, p. 69)

Sound 4 involves this nasal syllabic consonant and the accuracy was almost perfect. Only two people did a different production: one of them placed an Spanish ‘a’ in addition to a full pronunciation of /d/, and the other one added a long ‘a’ before pronouncing the consonant cluster /nd/. The example in the text was ‘They talked **and** concluded that this spring was strange.’ and its analysis can be found in the annex as ‘sound 4’.

Weak forms

When talking, people tend to adapt the pronunciation of speech connectors in order that sounds involved in different words match with each other and become easier to produce. This happens in every language at a certain level, mainly to maintain the meaning involved intact. They are named *weak forms* and some of them have been asked to be pronounced in this work.

Almost all the words which have both a strong and weak form belong to a category that may be called function words - words that do not have a dictionary meaning in the way that we normally expect nouns, verbs, adjectives and adverbs to have. These function words are words such as auxiliary verbs, prepositions, conjunctions, etc., all of which are in certain circumstances pronounced in their strong forms but which are more frequently pronounced in their weak forms. It is important to remember that there are certain contexts where only the strong form is acceptable, and others where the weak form is the normal pronunciation. (Roach, 2009, p. 89)

Of course, there are thousands of millions of combinations of words, but there are always specific ones that carry no meaning and function as *linkers*. These are some of them:

1 'the'

Weak forms: ðə (before consonants)

 'Shut the door' ʃʌt ðə dɔː

 (before vowels)

 'Wait for the end' 'weɪt fə ði end

(...)

3 'and'

Weak form: an (sometimes ʌn after t, d, s, z, ʃ)

‘Come and see’ kʌm ən si:

‘Fish and chips’ fɪʃ ʌn ʧɪps

(...)

5 'that'

This word only has a weak form when used in a relative clause; when used with a demonstrative sense it is always pronounced in its strong form.

Weak form: ðət

‘The price is the thing that annoys me’ ðə praɪs ɪz ðə θɪŋ ðət əˈnɔɪz mi

(...)

16 'for'

Weak form: fə (before consonants)

‘Tea for two’ ti: fə tu:

fər (before vowels)

‘Thanks for asking’ ‘θæŋks fər ˈɑːskɪŋ

In final position: fɔ:

‘What’s that for?’ ˈwɒts ðət fɔ:

(Roach, 2009, p. 90-92)

Regarding the weak form of ‘and’, sound 4 was evaluated in this work and it has an accuracy of 48 out of 50 people, this occurs because even though students might have not been trained for this pronunciation, speech organs tend to adapt themselves. Sound 8, involving weak ‘that’, has more than 95% of accuracy, the only three students who said /ðæt/ were S6, S7, S8 and S27 replaced the weak form for a long ‘a’. Moreover, sound 20 involving the weak form of ‘for’, has an accuracy of just 50%, most of them replaced it for the strong form fɔ:, and only six of them not only said the strong form but also pronounced the final ‘r’. At last, sound 27 involves the weak pronunciation of ‘the’. which has an

accuracy of 95%, the only four people who could not pronounce the weak form replace the Schwa for the Spanish 'a'.

Assimilation

The last section in this group involves a feature that every native produces in addition to helping the speech organs to make the production of sounds easier when in rapid connected speech.

Assuming that we know how the phonemes of a particular word would be realised when the word is pronounced in isolation, in cases where we find a phoneme realised differently as a result of being near some other phoneme belonging to a neighbouring word we call this difference an instance of assimilation. Assimilation is something which varies in extent according to speaking rate and style: it is more likely to be found in rapid, casual speech and less likely in slow, careful speech. (Roach, 2009, p. 110)

In this analysis, sound 11 represents the assimilation of /s/ in 'this spring', involving the end of 'this' and the beginning of 'spring'. This feature also helps to distinguish who indeed says /ðis esprɪŋ/ instead of /ðis:prɪŋ/, which leads to know the accuracy of sound 11 as it was 58%. This occurs because in Spanish and Galician it is quite normal to add a vowel between two consonants, and in this case, the front close-mid /e/ is closer to the alveolar /s/ than any other vowel.

4.3.3 Collective performance: average accuracy of group 1 and 2

Here all the percentages of the individual performance were gathered and later divided by the total of the samples. By getting to know this number, we are answering one of the main purposes of this work which is to set the ground for both: the database and the level of accuracy of the students.

Regarding group 1, the average accuracy is 62,60%. This percentage in the table of 4.3.1 rates the total performance as ‘medium’. The sounds belonging to this group are, most of them, consonants which have no equivalence in Spanish nor Galician. Moreover, spelling does not help when two words are written quite similar and are pronounced totally in a different manner. What this shows is that there is a need for more conscious work from the students regarding these types of sounds if meaning is intended to be achieved.

On the contrary, the average production of group 2 is 76% and it is tagged as medium-high. One of the main reasons for this result is that in group 2 there were more vowels involved than consonants, and these types of free-air sounds are easier to grab from the native language than the last ones are. However, still a 24% (a quarter of fifty people) are not able to produce an accurate unit of simple vowel units which are not that far away in production from Spanish as students believe they are.

5. Conclusions

This piece of work had plenty of stages: the idea of creating a bank of data, the main purpose of setting a ground for future research, the creation of a text including all the features that were necessary, the gathering of the fifty samples and the analysis of them by hearing and organizing all that very useful and beneficial information, were totally worthy to do so because the results show that there are some crucial features that need to be worked on. Not only by the teachers and professors, but also from the students. Becoming aware of the manner we speak and pronounce words in a foreign or second language matters because meaning is at risk.

In addition, during this whole analysis just the basic points and features were in focus, providing us information about how there is still plenty of work to be done regarding phonetics and phonology for these students. If advanced features had taken place, the final numbers would have been, I believe, a lot lower. Once more, this is not a piece of work where the main purpose is to punish people for not producing the right sound, on the contrary, this work surfaced and was created to tackle these basic problems as well as to set ground for the future.

At last, I believe there is still work to be done because these students will be (most of them) teachers and professors in the future. Not being aware of how to pronounce words in English in order to not lose meaning, of which accent they are sticking to, of not being able to produce a proper assimilation, of replacing English consonants with Spanish or Galician ones, of adding vowels to consonant clusters, of exchanging /v/ and /b/ and, mostly, not becoming aware of that even though a word is written just as in Spanish happens to have a different pronunciation in English, will only perpetuate these issues and pass them on to future generations of learners.

6. References

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Annex

4.3 Evaluation of the data

The next five tables represent the five groups of ten people whose spoken production of English was analyzed for this work. In addition, this is the table of values used for the analysis of the audio-recordings:

✓ = The sound was accurate

NP = No production of the sound

AmE = American pronunciation of English

BrE = Received pronunciation

*/s/ = These samples pronounce the Spanish /s/

(s) = Omission of plural

(:) = Final consonant sound produced longer

NAPplv = No accurate production of plosive consonant

*/r/ = Production of the Spanish /r/

*/t/ = Production of the Spanish /t/

Note: the items in pink belong to **GROUP 2** which are being evaluated separately from **GROUP 1**.

		S1	S2	S3	S4	S5	S6	S7*/s/	S8	S9	S10
1	/ð/ they	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	/t/ talked	✓	✓	NP	NP	NP	✓	✓	✓	NP	✓
3	/ɔ:/ talked	✓	✓	/ɒ/	✓	✓	✓	✓	✓	/ɒ/	✓
4	/n/ and	✓	✓	✓	✓	✓	✓	✓	✓	/a/	✓
5	/kən/ concluded	✓	/ɒ/	✓	✓	✓	✓	✓	✓	✓	/ɒ/
6	/u:/ concluded	✓	/ʊ/	✓	✓	✓	✓	✓	✓	✓	/ʊ/
7	/dɪd/ concluded	✓	NP	✓	✓	✓	✓	NP	✓	NP	NP
8	/ðæt/ that	✓	✓	✓	✓	✓	/ðæt/	/ðæt/	/ðæt/	✓	✓

9	/ɪ/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	/s/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	/s/ assimilation	NP	✓	✓	✓	✓	NP	NP	✓	NP	NP
12	/ŋ/ spring	/n/	✓	/n/	/n/	✓	/n/	/n/	/k/	/n/	/n/
13	/s/ strange	✓	/es/	/es/	/es/	✓	/es/	✓	/es/	/es/	/es/
14	/dʒ/ strange	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	✓	/tʃ/	✓
15	/dʒ/ allergies	✓	/tʃ/	✓	✓	✓	✓	/j/	✓	/tʃ/	✓
16	Linking /r/ were a torture	AmE	AmE	AmE	AmE	AmE	AmE	AmE	AmE	AmE	BrE
17	/tʃ/ Torture	/trɔr/	✓	✓	✓	✓	✓	/tʃɜːrtʃrə/	✓	✓	/t/
18	/ɪs/ especially	✓	/es/	/es/	/es/	✓	/es/	/es/	/es/	/es/	/es/
19	/ʃə/ especially	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	/fə/ weak for	✓	/v/	/v/	✓	✓	/v/	/v/	/v/	/v/	✓
21	/ŋ/ singers	/n/	/n/	✓	✓	✓	/n/	/n/	/n/	/n/	✓
22	/əʊ/ only	/ɔː/	/ɔː/	/ɔː/	/ɔː/	/ɔː/	/ɔː/	/ɔː/	✓	/ɔː/	/ɔː/
23	/v/ very	✓	✓	✓	✓	✓	✓	/b/	✓	✓	✓
24	/h/ help	✓	/x/	/x/	NP	✓	✓	✓	✓	✓	✓
25	/əʊ/ so	/v/	/v/	/v/	/v/	/v/	/v/	/v/	✓	/v/	/v/
26	/ʃn/ anticipation	✓	✓	✓	✓	✓	✓	/ʃɒn/	/ʃɒn/	/ʃɒn/	✓
27	/ðə/ weak the	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	/iː/ key	✓	/ɪ/	/ɪ/	✓	✓	✓	/ɪ/	✓	✓	/ɪ/
29	/ə/ today	✓	/ʊ/	/ʊ/	✓	✓	✓	/ʊ/	✓	✓	/ʊ/
30	/t/ today	✓	NAPplv	NAPplv	NAPplv	NAPplv	✓	✓	✓	NAPplv	NAPplv
31	/d/ today	✓	✓	NAPplv	NAPplv	✓	✓	✓	✓	NAPplv	NAPplv
32	/h/ hesitate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
33	/d/ grabbed	✓	NP	✓	NP	✓	✓	✓	/pt/	✓	NP
34	/dʒ/ jacket	/j/	✓	/j/	/j/	✓	✓	/j/	✓	/j/	/j/
35	/æ/ brand	✓	✓	/əˈbræn/	✓	✓	✓	/əˈbræn/	✓	✓	✓

36	/u:/ new	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
37	/dʒ/ jersey	✓	✓	/j/	/j/	✓	✓	/j/	/j/	✓	/j/
38	/zi/ jersey	✓	/eɪ/	/eɪ/	✓	✓	✓	/eɪ/	/eɪ/	/eɪ/	/eɪ/
39	/dʒ/ oranges	/tʃ/	✓	/tʃ/	✓	✓	✓	✓	✓	✓	/tʃ/
40	/dʒ/ juice	✓	/j/	/j/	/tʃ/	/tʃ/	✓	/j/	/j/	/j/	/j/
41	/ð/ those	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
42	/tʃ/ natural	✓	✓	*/t/	✓	✓	✓	/t/	/ʃ/	✓	✓
43	/t/ natural	✓	NP	NP	NP	✓	✓	✓	✓	✓	✓
44	Linking /r/ cheaper and	AmE	AmE	AmE	AmE	AmE	AmE	AmE	BrE	AmE	BrE
45	/ð/ these	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
46	/i:/ these	/ɪ/	✓	✓	✓	✓	✓	✓	/e/	✓	✓
47	/z/ these	/s/	/s/	/s/	/s/	✓	/s/	/s/	/s/	/s/	/s/
48	/v/ vitamin	/b/	/b/	/b/	/b/	✓	✓	/b/	/b/	/b/	✓
49	vitamin	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/	/ɪ/	/ɪ/	/aɪ/	/ɪ/
50	vitamin	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/

Note: the items in pink belong to **GROUP 2** which are being evaluated separately from **GROUP 1**.

		S11	S12	S13*/s/	S14	S15	S16*/s/	S17	S18*/s/	S19	S20
1	/ð/ they	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	/t/ talked	✓	✓	NP	NP	NP	✓	NP	NP	✓	✓
3	/ɔ:/ talked	✓	✓	✓	/ɒ/	/ɒ/	/ɒ/	✓	✓	✓	✓
4	/n/ and	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	/kən/ concluded	✓	/ɒ/	/ɒ/	/ɒ/	✓	/ɒ/	✓	✓	✓	✓
6	/u:/ concluded	✓	✓	✓	/ʊ/	✓	/ʊ/	✓	✓	✓	✓
7	/dɪd/ concluded	✓	NP	NP	NP	✓	✓	✓	NP	✓	✓
8	/ðæt/ that	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	/ɪ/ this	✓	✓	✓	✓	✓	✓	/i:/	✓	✓	✓
10	/s/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	/s/ assimilation	✓	✓	✓	✓	NP	NP	✓	✓	✓	✓

12	/ŋ/ spring	/n/	✓	/n/	✓	/n/	/n/	✓	✓	/n/	/n/
13	/s/ strange	✓	/es/	/es/	✓	/es/	/es/	✓	/es/	✓	/es/
14	/dʒ/ strange	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	/tʃ/	✓
15	/dʒ/ allergies	✓	✓	✓	✓	✓	✓	/n/	/g/	✓	✓
16	Linking /r/ were a torture	BrE	AmE	/wersə/	BrE	AmE	AmE	AmE	AmE	NP	BrE
17	/tʃ/ Torture	✓	✓	✓	/tʃʊr/	✓	✓	✓	✓	✓	✓
18	/ɪs/ especially	/es/	/es/	/es/	/es/	/es/	/es/	/es/	/es/	/es/	/es/
19	/ʃə/ especially	✓	✓	✓	/s/	/səli/	✓	✓	/sɪəli/	✓	✓
20	/fə/ weak for	✓	/v/	✓	✓	/v/	/v/	/v/	/v/	✓	✓
21	/ŋ/ singers	✓	✓	/n/	/n/	/n/	/n/	/n/	✓	/n/	✓
22	/əʊ/ only	/ɔ:/	✓	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/
23	/v/ very	✓	✓	✓	✓	/b/	/b/	✓	/b/	✓	✓
24	/h/ help	✓	✓	✓	✓	✓	/x/	✓	✓	✓	✓
25	/əʊ/ so	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/
26	/ʃn/ anticipation	✓	✓	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/
27	/ðə/ weak the	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	/i:/ key	✓	/ɪ/	✓	/ɪ/	✓	✓	✓	✓	✓	✓
29	/ə/ today	✓	/ʊ/	/ʊ/	/ʊ/	/ʊ/	✓	✓	/ʊ/	/ʊ/	/ʊ/
30	/t/ today	✓	✓	NAPplv	NAPplv	✓	✓	✓	✓	✓	NAPplv
31	/d/ today	✓	✓	NAPplv	NAPplv	✓	✓	✓	✓	✓	NAPplv
32	/h/ hesitate	✓	✓	✓	/x/	NP	/x/	✓	✓	✓	✓
33	/d/ grabbed	✓	✓	✓	/greɪb/	NP	✓	✓	NP	✓	✓
34	/dʒ/ jacket	✓	✓	/j/	/j/	/j/	/j/	✓	/j/	/tʃ/	✓
35	/æ/ brand	✓	✓	✓	/a/	✓	/a/	/a/	/a/	✓	✓
36	/u:/ new	✓	✓	/ʊ/	✓	✓	✓	✓	✓	✓	✓
37	/dʒ/ jersey	/j/	✓	✓	/j/	✓	/j/	/j/	/j/	✓	/ʒesi/
38	/zi/ jersey	✓	/ei/	/ei/	/ei/	✓	✓	✓	✓	✓	/si/

39	/dʒ/ oranges	✓	✓	✓	NP	✓	✓	✓	✓	/ʃ/	✓
40	/dʒ/ juice	/j/	✓	/j/	✓	✓	/j/	/j/	/j/	✓	/j/
41	/ð/ those	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
42	/f/ natural	✓	✓	/t/	*/t/	*/t/	/t/	✓	/t/	✓	✓
43	/l/ natural	NP	✓	✓	NP	NP	NP	✓	✓	✓	✓
44	Linking /r/ cheaper and	AmE	AmE	AmE	AmE	AmE	AmE	NP	AmE	BrE	BrE
45	/ð/ these	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
46	/i:/ these	✓	✓	/ɪ/	✓	/ɪ/	✓	✓	✓	✓	✓
47	/z/ these	/s/	✓	/s/	✓	/s/	✓	✓	✓	✓	✓
48	/v/ vitamin	✓	✓	/b/	/b/	/b/	/b/	/b/	/b/	✓	/b/
49	vitamin	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/	/ɪ/
50	vitamin	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/	/ɪ/

Note: the items in pink belong to **GROUP 2** which are being evaluated separately from **GROUP 1**.

		S21	S22	S23	S24	S25	S26*/s/	S27	S28	S29	S30*/s/
1	/ð/ they	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	/t/ talked	✓	✓	✓	✓	NP	✓	NP	NP	✓	NP
3	/ɔ:/ talked	✓	✓	✓	✓	✓	✓	/ɒ/	/ɒ/	✓	/ɒ/
4	/n/ and	✓	✓	✓	✓	✓	✓	/a:/	✓	✓	✓
5	/kən/ concluded	✓	✓	✓	✓	/ɒ/	✓	/ɒ/	/ɒ/	✓	✓
6	/u:/ concluded	✓	✓	✓	✓	/ʊ/	✓	✓	/ʊ/	✓	✓
7	/dɪd/ concluded	/dɛd/	✓	✓	✓	NP	✓	✓	✓	NP	NP
8	/ðæt/ that	✓	✓	✓	✓	NP	✓	NP	✓	✓	✓
9	/ɪ/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	/s/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	/s/ assimilation	/ɛs/	✓	/ɛs/	✓	/ɛs/	✓	/ɛs/	/ɛs/	✓	/ɛs/
12	/ŋ/ spring	✓	/n/	/n/	✓	✓	/n/	/n/	/n/	✓	/n/
13	/s/ strange	/es/	✓	/es/	✓	✓	/es/	/es/	/es/	✓	/es/

14	/dʒ/ strange	/tʃ/	✓	/tʃ/	✓	/tʃ/	/tʃ/	/tʃ/	/tʃ/	✓	/tʃ/
15	/dʒ/ allergies	✓	✓	/j/	✓	/j/	✓	✓	✓	✓	/ʃ/
16	Linking /r/ were a torture	NP	AmE	AmE	AmE	AmE	AmE	AmE	BrE	AmE	AmE
17	/tʃ/ Torture	/t/	✓	✓	✓	✓	/t/	/t/	/tʃu:r/	✓	✓
18	/ɪs/ especially	/es/	/es/	/es/	/es/	✓	/es/	/es/	/es/	✓	/es/
19	/ʃə/ especially	✓	✓	✓	✓	✓	/ʃə/	✓	✓	✓	✓
20	/fə/ weak for	/v/	✓	/v/	✓	✓	/vɹ/	/v/	✓	✓	/vɹ/
21	/ŋ/ singers	✓	✓	/ŋg/	✓	✓	/ŋg/	✓	✓	✓	✓
22	/əʊ/ only	/ɔ:/	/ɔ:/	/ɔ:/	✓	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	✓	/ɔ:/
23	/v/ very	/b/	✓	✓	✓	/b/	/b/	/b/	✓	✓	/b/
24	/h/ help	✓	✓	✓	✓	✓	✓	✓	/x/	✓	✓
25	/əʊ/ so	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	✓	/ɔ:/	/ɔ:/	✓	/ɔ:/	/ɔ:/
26	/ʃn/ anticipation	/ʃɒn/	✓	✓	/ʃɒn/	✓	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/
27	/ðə/ weak the	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	/i:/ key	/ɪ/	/ɪ/	✓	✓	✓	✓	/ɪ/	✓	✓	/ɪ/
29	/ə/ today	/ʊ/	/ʊ/	✓	✓	/ʊ/	/ʊ/	/ʊ/	/ʊ/	/ʊ/	✓
30	/t/ today	✓	NAPplv	✓	✓	✓	✓	NAPplv	NAPplv	✓	✓
31	/d/ today	✓	✓	✓	✓	NAPplv	✓	NAPplv	NAPplv	✓	NAPplv
32	/h/ hesitate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
33	/d/ grabbed	✓	✓	NP	✓	✓	✓	NP	NP	✓	✓
34	/dʒ/ jacket	/j/	✓	✓	✓	/j/	/j/	/j/	/j/	/j/	✓
35	/æ/ brand	/a/	✓	✓	✓	/a/	/a/	✓	✓	✓	/a/
36	/u:/ new	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
37	/dʒ/ jersey	/j/	✓	/j/	✓	/j/	✓	/j/	✓	/j/	✓
38	/zi/ jersey	/seɪ/	✓	✓	✓	/seɪ/	✓	/si/	/seɪ/	✓	/si/
39	/dʒ/ oranges	/tʃ/	✓	✓	✓	/ʃ/(s)	✓	✓	/tʃ/(s)	/tʃ/	✓
40	/dʒ/ juice	/j/	✓	✓	✓	/j/	✓	/j/	/j/	✓	✓

41	/ð/ those	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
42	/tʃ/ natural	/t/	✓	✓	✓	*/t/	✓	*/t/	✓	✓	✓
43	/t/ natural	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
44	Linking /r/ cheaper and	NP	BrE	NP	BrE	AmE	AmE	AmE	BrE	BrE	AmE
45	/ð/ these	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
46	/i:/ these	✓	/ɪ/	✓	✓	/ɪ/	/ɪ/	✓	✓	/ɪ/	/ɪ/
47	/z/ these	/s/	✓	/s/	/s/	✓	/s/	/s/	/s/	/s/	/s/
48	/v/ vitamin	/b/	✓	/b/	/b/	✓	/b/	/b/	/b/	/b/	/b/
49	vitamin	/aɪ/	/aɪ/	/ɪ/	/aɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/
50	vitamin	/aɪ/	/aɪ/	/ɪ/	/aɪ/	/ɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/

Note: the items in pink belong to **GROUP 2** which are being evaluated separately from **GROUP 1**.

		S31*/s/	S32	S33	S34	S35	S36	S37	S38	S39	S40*/s/
1	/ð/ they	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	/t/ talked	NP	✓	✓	NP	NP	✓	✓	✓	NP	✓
3	/ɔ:/ talked	/ɒ/	✓	✓	✓	✓	✓	✓	✓	/ɒ/	/ɒ/
4	/n/ and	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	/kən/ concluded	/ɒ/	✓	✓	✓	✓	✓	✓	✓	/ɒ/	✓
6	/u:/ concluded	✓	✓	✓	✓	✓	✓	✓	✓	/ʊ/	✓
7	/dɪd/ concluded	/ded/	✓	✓	✓	✓	✓	✓	✓	/ded/	✓
8	/ðæt/ that	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	/ɪ/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	/s/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	/s/ assimilation	/es/	✓	✓	✓	/es/	/es/	✓	/es/	/es/	/es/
12	/ɪŋ/ spring	✓	✓	✓	/n/	/ng/	/n/	/n/	/n(:)	/n(:)	✓
13	/s/ strange	/es/	✓	✓	✓	/es/	/es/	✓	/es/	/es/	/es/
14	/dʒ/ strange	/tʃ/	✓	✓	✓	/tʃ/	✓	✓	✓	✓	/tʃ/

15	/dʒ/ allergies	/ʃ/	✓	✓	✓	✓	✓	✓	✓	/tʃ/	/j/
16	Linking /r/ were a torture	AmE	AmE	BrE	AmE	AmE	NP	BrE	AmE	AmE	AmE
17	/tʃ/ Torture	/tʃɑːrtʃər/	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	/ɪs/ especially	/es/	/es/	✓	/es/	✓	/es/	✓	/es/	✓	✓
19	/ʃə/ especially	/ʃiə/	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	/fə/ weak for	/ər/	✓	✓	✓	/ɒ/	✓	✓	/ɒr/	/ɒr/	/ɒr/
21	/ŋ/ singers	/ŋg/	✓	✓	/ŋg/	/ŋg/	✓	✓	/n(:)/	/n(:)/	✓
22	/əʊ/ only	/ɔ:/	✓	✓	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/
23	/v/ very	/b/	✓	✓	✓	✓	/b/	✓	/b/	/b/	/b/
24	/h/ help	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	/əʊ/ so	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	✓	✓	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/
26	/ʃn/ anticipation	/ʃɒn/	✓	✓	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/
27	/ðə/ weak the	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	/i:/ key	/ɪ/	✓	✓	✓	✓	✓	✓	/ɪ/	/ɪ/	✓
29	/ə/ today	/ʊ/	✓	✓	/ʊ/	/ʊ/	✓	✓	✓	✓	/ʊ/
30	/t/ today	NAPplv	✓	✓	/tʃ/	✓	✓	✓	✓	✓	✓
31	/d/ today	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
32	/h/ hesitate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
33	/d/ grabbed	NP	✓	✓	NP	✓	✓	✓	✓	NP	/ft/
34	/dʒ/ jacket	✓	✓	✓	/j/	✓	✓	✓	/j/	/f/	✓
35	/æ/ brand	/a/	✓	✓	/ɑ:/	✓	✓	✓		✓	
36	/u:/ new	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
37	/dʒ/ jersey	✓	✓	✓	/j/	✓	/j/	✓	/jer/	✓	/j/
38	/zi/ jersey	/ei/	✓	✓	/i:/	/ei/	/ei/	✓	/si/	✓	✓
39	/dʒ/ oranges	✓	✓	✓	✓	✓	✓	✓	/j/	✓	✓
40	/dʒ/ juice	✓	✓	✓	/j/	✓	✓	✓	/j/	✓	/j/
41	/ð/ those	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

42	/tʃ/ natural	*/t/	✓	✓	✓	/t/	✓	✓	*/t/	/t/	*/t/
43	/t/ natural	NP	✓	✓	✓	✓	✓	✓	NP	NP	NP
44	Linking /r/ cheaper and	*/r/	AmE	BrE	NP	AmE	/ɛəɛ/	NP	AmE	AmE	AmE
45	/ð/ these	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
46	/i:/ these	/ɪ/	✓	✓	/ɪ/	✓	✓	✓	/ɪ/	/ɪ/	/ɪ/
47	/z/ these	/s/	✓	✓	/s/	/s/	/s/	/s/	/s/	/s/	/s/
48	/v/ vitamin	/b/	✓	✓	/b/	/b/	✓	/b/	/b/	/b/	/b/
49	vitamin	/aɪ/	/ɪ/	/aɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/aɪ/	/ɪ/	/ɪ/
50	vitamin	/aɪ/	/ɪ/	/aɪ/	/ɪ/	/ɪ/	/ɪ/	/aɪ/	/ɪ/	/ɪ/	/ɪ/

Note: the items in pink belong to **GROUP 2** which are being evaluated separately from **GROUP 1**.

		S41*/s/	S42*/s/	S43	S44*/s/	S45	S46	S47	S48	S49	S50
1	/ð/ they	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	/t/ talked	✓	NP	✓	✓	✓	✓	✓	✓	✓	✓
3	/ɔ:/ talked	/ɒ/	/ɒ/	✓	✓	/ɒ/	/ɒ/	✓	✓	✓	✓
4	/n/ and	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	/kən/ concluded	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	/u:/ concluded	✓	/ʊ/	✓	✓	✓	✓	✓	✓	/ʊ/	✓
7	/dɪd/ concluded	✓	NP	✓	✓	✓	✓	NP	✓	NP	✓
8	/ðæt/ that	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	/ɪ/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	/s/ this	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	/s/ assimilation	✓	✓	✓	✓	✓	✓	NP	✓	NP	✓
12	/ŋ/ spring	/n/(:)	/n/	/n/	/n/(:)	✓	/ng/	✓	✓	✓	✓
13	/s/ strange	/es/	✓	✓	✓	✓	/es/	✓	/es/	✓	✓
14	/dʒ/ strange	/tʃ/	✓	✓	✓	✓	/tʃ/	✓	✓	✓	✓
15	/dʒ/ allergies	✓	✓	✓	✓	✓	/jɪs/	✓	✓	✓	/ʃ/

16	Linking /r/ were a torture	AmE	AmE	BrE	AmE	AmE	AmE	AmE	AmE	AmE	AmE
17	/tʃ/ Torture	✓	✓	✓	✓	/tʃʊ/	✓	✓	/tʃʊr/	✓	✓
18	/ɪs/ especially	/es/	/es/	/es/	/es/	/es/	/es/	✓	/es/	/es/	/es/
19	/fə/ especially	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	/fə/ weak for	/vɜr/	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	/ŋ/ singers	/ŋg/	✓	✓	✓	✓	/ŋg/	/n/	✓	✓	/ŋg/
22	/əʊ/ only	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/
23	/v/ very	/b/	✓	✓	/b/	✓	✓	✓	✓	/b/	✓
24	/h/ help	✓	✓	✓	/x/	/x/	✓	✓	/x/	/x/	✓
25	/əʊ/ so	/ɔ:/	/ɔ:/	/ɔ:/	✓	✓	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/	/ɔ:/
26	/ʃn/ anticipation	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	/ʃɒn/	✓	✓	/ʃɒn/	/ʃɒn/	/ʃɒn/
27	/ðə/ weak the	✓	/a/	✓	✓	/a/	✓	/a/	✓	✓	/a/
28	/i:/ key	/ɪ/	✓	/ɪ/	/ɪ/	✓	/ɪ/	✓	/ɪ/	/ɪ/	✓
29	/ə/ today	/ʊ/	✓	✓	✓	/ʊ/	/ʊ/	/ʊ/	✓	✓	✓
30	/t/ today	NAPplv	✓	✓	✓	✓	✓	NAPplv	✓	✓	✓
31	/d/ today	NAPplv	✓	✓	NAPplv	✓	NAPplv	✓	✓	✓	✓
32	/h/ hesitate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
33	/d/ grabbed	NP	✓	NP	NP	✓	✓	NP	✓	NP	✓
34	/dʒ/ jacket	/j/	✓	✓	✓	✓	/j/	✓	✓	✓	/j/
35	/æ/ brand	✓	✓	✓	/a/	/a/	✓	✓	✓	/a/	✓
36	/u:/ new	✓	✓	✓	/nu:/	✓	✓	✓	✓	/nu:/	✓
37	/dʒ/ jersey	✓	✓	✓	✓	✓	/j/	/j/	/j/	/j/	✓
38	/zi/ jersey	✓	/seɪ/	✓	✓	✓	/si:/	✓	✓	✓	✓
39	/dʒ/ oranges	✓	NP	✓	✓	✓	✓	✓	✓	✓	✓
40	/dʒ/ juice	✓	✓	✓	✓	✓	/j/	✓	/j/	✓	✓
41	/ð/ those	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

4.3.1 Individual performance

4.3.1.1 Individual performance by group 1

The total score of every sample was obtained under the following logic: if the accurate production of forty sounds represents a hundred percent accuracy, X sounds (X= the accurate production of each student) represents Y (Y= the total score).

Individual performance of group 1 (G1)

Number of sample	Total score in %	Accurate production by student (X)
1	70	28/40
2	50	20/40
3	42,5	17/40
4	57,5	23/40
5	82,5	33/40
6	77,5	31/40
7	47,5	19/40
8	67,5	27/40

9	47,5	19/40
10	47,5	19/40
11	80	32/40
12	77,5	31/40
13	45	18/40
14	35	14/40
15	50	20/40
16	47,5	19/40
17	67,5	27/40
18	52,5	21/40
19	75	30/40
20	70	28/40
21	50	20/40
22	15	6/40
23	70	28/40
24	87,5	35/40
25	55	22/40
26	57,5	23/40
27	40	16/40
28	45	18/40
29	75	30/40
30	50	20/40
31	37,5	15/40
32	95	38/40
33	100	40/40
34	55	22/40
35	70	28/40
36	77,5	31/40

37	85	34/40
38	52,5	21/40
39	50	20/40
40	55	22/40
41	52,5	21/40
42	65	26/40
43	75	30/40
44	65	26/40
45	75	30/40
46	50	20/40
47	72,5	29/40
48	67,5	27/40
49	60	24/40
50	77,5	31/40

Percentages and amount of samples in detail:

Total of samples: 50

Total of samples graded as low (25% and 49% of accuracy): 10

Total of samples graded as medium (50% and 75% of accuracy): 29

Total of samples graded as medium-high (76% and 90% of accuracy): 9

Total of samples graded as high (91% and 100% of accuracy): 2

4.3.1.2 Individual performance by group 2

The total score of every sample was obtained under the following logic: if the accurate production of six sounds represents a hundred percent accuracy, X sounds (X= the accurate production of each student) represents Y (Y= the total score).

Individual performance of group 2 (G2)

Sample	Total score in %	Linking /r/	Pronunciation vitamin	X
1	83,3	AmE	BrE	5
2	66,7	AmE	BrE	4
3	66,7	AmE	BrE	4
4	83,3	AmE	BrE	5
5	100	AmE	AmE	6
6	50	AmE	AmE	3
7	33,3	AmE	BrE	2
8	50	AmE/BrE	BrE	3
9	33,3	AmE	AmE	2
10	83,3	BrE	AmE/BrE	5
11	83,3	BrE/AmE	BrE	5
12	83,3	AmE	BrE	5
13	100	<u>/wersə/</u> - AmE	BrE	6
14	83,3	BrE/AmE	BrE	5
15	50	AmE	BrE	3
16	50	AmE	BrE	3
17	83,3	AmE/NP	BrE	5
18	83,3	AmE	AmE	5
19	100	NP/BrE	AmE	6
20	100	BrE	BrE	6
21	66,7	NP	AmE	4
22	100	AmE/BrE	AmE	6
23	66,7	AmE/NP	BrE	4
24	100	AmE	AmE	6
25	66,7	AmE	BrE	4
26	83,3	AmE	BrE	5
27	33,3	AmE	BrE	2
28	83,3	BrE	BrE	5

29	100	AmE/BrE	AmE	6
30	66,7	AmE	AmE	4
31	50	AmE/*r	AmE	3
32	100	AmE	BrE	6
33	100	BrE	AmE	6
34	100	AmE/NP	BrE	6
35	66,7	AmE	BrE	4
36	83,3	AmE	BrE	5
37	100	BrE/NP	AmE	6
38	50	AmE	AmE	3
39	50	AmE	BrE	3
40	33,3	AmE	BrE	2
41	83,3	AmE	BrE	5
42	83,3	AmE	BrE	5
43	83,3	BrE/NP	AmE	5
44	100	AmE/NP	AmE	6
45	66,7	AmE/NP	AmE	4
46	100	AmE	AmE	6
47	66,7	AmE	AmE	4
48	100	AmE	AmE	6
49	66,7	AmE/NP	AmE	4
50	83,3	AmE	AmE	5

Total of samples: 50

Total of samples graded as low (25% and 49% of accuracy): 4

Total of samples graded as medium (50% and 75% of accuracy): 17

Total of samples graded as medium-high (76% and 90% of accuracy): 15

Total of samples graded as high (91% and 100% of accuracy): 14

4.3.2 Collective performance by sound

4.3.2.1 Collective performance by sound of group 1

In this collective performance by sound of group 1, forty items are being evaluated. The number which designates each item is kept in relation to the chart in section 4.3.

Collective performance by sound of group 1

N	Sound	Amount of students who were accurate
1	/ð/ they	50/50
2	/t/ talked	32/50
3	/ɔ:/ talked	35/50
5	/kən/ concluded	39/50
6	/u:/ concluded	42/50
7	/dɪd/ concluded	33/50
9	/ɪ/ this	49/50
10	/s/ this	50/50
12	/ɪ/ spring	19/50
13	/s/ strange	21/50
14	/dʒ/ strange	21/50
15	/dʒ/ allergies	37/50
17	/ʃ/ Torture	39/50
18	/ɪs/ especially	10/50
19	/ʃə/ especially	45/50
21	/ɪ/ singers	27/50
22	/əʊ/ only	6/50
23	/v/ very	33/50
24	/h/ help	41/50
25	/əʊ/ so	7/50

26	/ʃn/ anticipation	16/50
28	/i:/ key	31/50
29	/ə/ today	24/50
30	/t/ today	34/50
31	/d/ today	36/50
32	/h/ hesitate	47/50
33	/d/ grabbed	31/50
34	/dʒ/ jacket	26/50
35	/æ/ brand	33/50
36	/u:/ new	47/50
37	/dʒ/ jersey	26/50
38	/zi/ jersey	28/50
39	/dʒ/ oranges	39/50
40	/dʒ/ juice	27/50
41	/ð/ those	50/50
42	/tʃ/ natural	31/50
45	/ð/ these	50/50
46	/i:/ these	30/50
47	/z/ these	12/50
48	/v/ vitamin	10/50

4.3.2.2 Collective performance by sound of group 2

	Feature	Amount of students who were accurate
4	/n/ and	48/50
8	/ðət/ that	45/50
11	/s/ assimilation this spring	29/50
16	/fə/ weak for	25/50

20	/ðə/ weak the	46/50
43	/t/ natural	36/50

Collective performance by sound of group 2 (G2)

Linking /r/	Pronunciation vitamin	Amount of students who used this combination
AmE	BrE	18
AmE	AmE	11
AmE/BrE	BrE	1
BrE	AmE/BrE	1
BrE/AmE	BrE	2
<u>/wersə/</u> - AmE	BrE	1
AmE/NP	BrE	3
NP/BrE	AmE	1
BrE	BrE	2
AmE/BrE	AmE	2
AmE/*r	AmE	1
BrE	AmE	1
BrE/NP	AmE	2
AmE/NP	AmE	3
NP	AmE	1