An Analysis of Pronunciation Errors Made by Students of Spanish as a Foreign Language in the University of Jordan

تحليل الأخطاء اللفظية لدى طلبة اللغة الاسبانية كلغة أجنبية في الجامعة الأردنية

by

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Authorization

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Dedication

This thesis is dedicated to my husband Modhafar Al-Zoubi and to my precious kid Ziad. This work could not be done without the moral encouragement of everyone around me, specially my parents Dr. Ali Otoum and Dr. Reem Abu-Hmeidan. Moreover, I express my gratitude to my parents in law Dr. Ziad Al-Zoubi and Nawal Al-Zoubi. Special thanks go to my adored brother and sisters Zaidun, Hala, Hiba and Amani. Thanks are also extended to my sisters, brothers in law and to my friends for their support.

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List of Abbreviations

L1	Language 1 (Modern Standard Arabic)
L2	Language 2 (Standard American English)
L3	Language 3 (Standard Castilian Spanish)
MEU	Middle East University
NL	Native Language
TL	Target Language

An Analysis of Pronunciation Errors Made by Students of Spanish as a Foreign Language in the University of Jordan

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Abstract

The objective of this study was to account theoretically for the erroneous phonetic performances made by learners of Spanish as an L3 of the second year level in the department of Modern languages at the University of Jordan for the academic year 2008/2009 and 2009/2010. The study aimed at answering the following questions:

1. What are the pronunciation errors of consonants and vowels (i.e. vowels, diphthong, triphthong and hiatus) committed by the learners of Spanish as a foreign language?
2. Are the committed errors due to change of place of articulation or manner of articulation?
3. Do the committed errors happen because of interlingual and intralingual influence?
4. How do positive and negative transfer of errors take place?

The researcher selected a sample that consisted of (50) students. It was chosen randomly out of the total number of students who learn Spanish in the second year department of Modern Languages at the University of Jordan for the academic years 2008-2009 and 2009-2010. A formal test instrument was used to answer the questions of the

study. To achieve the goal of this study, the researcher referred to Corder's (1973 and 1981) and Dulay's, Burt's and Krashen's (1982) theoretical views of Error Analysis. The result of question (1) revealed that there were errors that took place in (i) consonants and (ii) vowels which include (a) diphthongs (b), triphthongs and (c) hiatuses. Results related to question (2) revealed that there were consonantal errors which were categorized on the basis of the manner and place of articulations. Some of the errors maintained their place and/or lost their manner of articulation; whereas, others, lost their place of articulation and/or gained new manner of articulation. Results related to question (3) showed that errors were classified whether they were interlingual and intralingual errors. The interlingual errors showed the influence not only of L1, i.e Arabic but also of L2, i.e English to L3, i.e Spanish phonetic system. The intralingual errors took place due to lack of knowledge that participants had in the Spanish phonetic system. Results related to question (4) illustrated that the source of transfer of segments was either due to positive or negative transfer. If the segments were available in L1, L2 and L3, then, participants produce correct pronunciations as a situation of a positive transfer; however, if the segments were different it is because the participants applied the same rules of L1 and L2 to L3 and thus they committed errors due to negative transfer.

تحليل الأخطاء اللفظية لدى طلبة اللغة الإسبانية كلغة أجنبية

في الجامعة الأردنية

إعداد فرح عتوم لطفـي

الدكتور المشرف عاطف جلابنـة

ملخـص

هدفت هذه الدراسة إلى تحليل الأخطاء اللفظية لدى طلبة اللغة الاسبانية كلغة أجنبية في الجامعة الأردنية في مستوى السنة الثانية في قسم اللغة الاسبانية للعام ال دراسي (2009/2008) و (2010/2009) ولتحقيق هذه الدراسة رجعت الباحثة إلى الأفكار النظرية في نظري ة تحليل الأخطاء التي نادى بها كوردر (1973 و 1981) وكذلك دوليه و برت و كراشن لعام(1982).

و التي هدفت للاجابة على الاسئلة التالية:

1–ما هي الاخطاء اللفظية للصوامت و الصوائت بما فيها الصوائت المركبة من صائت و شبه صائت او من شبه صائت و صائت و كذلك "الهياتس"المركب من صائت و صائت بحيث لا ينطبق عليه خاصية اطالة الصوت وهي ظاهرة تنفرد بها اللغة الاسبانية التي يرتكبها متعلمو اللغة الاسبانية كلغة اجنبية؟

2–هل يعود السبب في ارتكاب الاخطاء الى التغير في مكان مخرج الصوت او الطريقة في اخراج الصوت؟

3-هل تحصل هذه الاخطاء بسبب تاثير اللغتين العربية(اللغة الام) و الانجليزية (الاجنبية) على اللغة الثالثة الاسبانية (الاجنبية) او انها تعود الى عدم معرفة الطلبة بالنظام الصوتي للغة الثالثة المتعلمة ؟

4-كيف يحدث التحويل السلبي او الايجابي للفظ؟

اختارت الباحثة عينة عشوائية للدراسة مكونة من خمسين طالبا و طالبة و استعملت اختباراً رسمياً للاجابة على اسئلة الدراسة ، بينت نتائج السؤال الاول ان هناك عدداً لا بأس به من الاخطاء اللفظية لدى هذه العينة و التي صنفت على انها صوامت وكذلك صوائت بما فيها الصوائت المركبة من صائت وشبه صائت أو من شبه صائت و صائت وكذلك الهياتس المركب من صائت وصائت بحيث لا ينطبق عليه خاصية إطالة الصوت وهي ظاهرة تنفرد بها اللغة الاسبانية.

كما وبينت الدراسة في إجابتها على السؤال الثاني أن بعض أخطاء الأصوات الصامتة حصلت في مخرج الصوت نفسه محافظة على مخرجها وفاقدة لكيفية النطق، أما بالنسبة للأخطاء الأخرى فقد فقدت بعض الأصوات مخارجها واكتسبت كيفية جديدة.

أما فيما يتعلق بالإجابة على السؤال الثالث فقد صنفت الباحثة الأخطاء التي تعود الى تأثير اللغتين العربية (اللغة الأم) و الانجليزية (الأجنبية) على اللغة الثالثة الاسبانية (الأجنبية) أو الأخطاء التي تعود الى عدم معرفة الطلبة بالنظام الصوتي للغة الثالثة المتعلمة.

للإجابة على السؤال الرابع، عملت الباحثة على تتبع مصدر اختلاف الأصوات أي ان يكون ايجابياً أو سلبياً، فعلى سبيل المثال إذا تواجدت الأصوات نفسها في اللغات الثلاث كانت نتائج الطلبة ايجابية من حيث اللفظ وخالية من الأخطاء، أما إذا كانت هناك أصوات في اللغة الثالثة ولا يوجد لها نظير في اللغة الأولى أو الثانية كان التحول اللفظي لبعض الصوامت أو الصوائت سلبيا.

Chapter One
Introduction

1.1. Background of the Study

Steward (1999) claimed that Spanish is spoken by more than 400 million people throughout the world at the end of the twentieth century; thus, it is the fourth most widely spoken language in the world after Mandarin Chinese, English and Hindi. It is the official language in twenty-one countries such as Spain, Mexico, Argentina, Equatorial Guinea, Guatemala, Cuba…etc. In Spain, particularly, Spanish is spoken by approximately 40 million people of whom 40 per cent are bilingual as they speak other languages found in Spain such as Euskera, Catalan and Gallego. It is also spoken as a second language in a number of countries as the United States and Brazil. Though the Spanish language is basically associated with its country of origin Spain, the majority of its speakers live in Latin America and in the United States. Moreover, Spanish is spoken by a number of minorities in Africa, Asia and in the Middle East; however, such minorities do not constitute speech communities. There are creoles and pidgins of Spanish origins spread in the world. Spanish dialects are influenced by certain factors related to the speakers' geographical provinces, socio-economic groups, gender, ethnic groups, levels of education, rural or urban styles of life, generations and the styles of language (whether formal or informal). Such factors may explain variations in pronunciation not only between different speakers of the same speech community but also among other members of other groups. Steward (1999) argued that the word *pollo* ‘chicken’ is spoken in Spain while the same word is spoken as *poyo* in Latin America and in Andalusia.

Cano (2004) argued that it is evident that there were lots of languages used in Spain because of the people who occupied it; yet, these languages disappeared when conquerors left the area. However, these languages influenced the present pronunciation of the Spanish consonants and vowels. After the Arab conquerors left the area of Spain, the Castilian dialect was formed in Castile (Spain) and it was around the 13th century with the ruling King Alfonso X who had been called the Learned–King of Castile and Leon. The dominance of the Castilian dialect continued to grow as the Catholic kingdom took over most of the regions of Spain. The royals, Isabella and Ferdinand, declared Castilian Spanish as the official language. Castilian Spanish quickly became the official language for all educational institutions and official documents in all Spain and it is conserved until now. Cano (ibid) claimed that, in the 15th century, Christopher Columbus landed in America and brought the Castilian Spanish language and culture which was then called *hispanización* which refers to the process by which a place or person becomes influenced by Hispanic culture or a process of cultural and linguistic change in which something non-Hispanic becomes Hispanic. During the early stages of *hispanización*, there were many challenges facing the language as the local languages were somehow different; thus, making communication between the conquerors and the indigenous people it was a difficult asset. Before the Catholic Church came into America, it was unclear whether Spanish would survive in the region or not. Hence, the Catholic Church was a true instrument in the expansion of the use of Spanish in the region. In particular, the Jesuits and Franciscans established teaching institutions in Latin America to teach children Catholicism by using Spanish. As the children and adolescents grew, the Spanish language started to get spread and to expand more and more. Despite the efforts of the Spaniards in imposing Spanish on

the natives, there were difficulties because there were other languages used at the same time. Moreover, Mexican and Peruvian who were living there tried their best to spread out the languages in Latin America. Also, Spanish explorers who came from Andalusia helped to shape the pronunciation of Spanish. Such facts made the Castilian Spanish dialect differ from Latin American Spanish though they use the same spellings in the words.

Navarro (1985) argued that there are lots of different ways of pronouncing Spanish, not only outside Spain but also inside it. In bilingual regions in Spain such as Cataluña, Valence, Galicia and the Basque in which Catalan, Gallego, Euskera/ Basque are spoken; there is a direct influence in these languages while pronouncing Castilian sounds. In the Spanish provinces Aragon, Navarra, Asturias, Leon, Extremadura it is used the normal Castilian pronunciation since they are not bilingual provinces. Moreover, there is an important dialect in Spain which is the Andalusian which is spoken in southern Spain. The phonetic system of this Andalusian dialect was affected by the Arabic phonetic system of the Arabs when they conquered the area. Navarro also argued that there are some differences in the pronunciation of the formal and informal/colloquial languages.

Goldstein (2001) argued that there are Creoles and Pidgins of Spanish around the world. There are two Spanish Creoles, namely, (i) Chavacano and (ii) Palenquero. Chavacano is a Spanish-based language which has six dialects spoken in the Philippines and Malaysia. According to (2007) census, there are 2,502,185 speakers of this dialect. Palenquero is also a Spanish-based Creole spoken in Colombia. The ethnic group which speaks this Creole is of 2,500 people**.** The Spanish language was developed through

history by an institution called the Royal Spanish Academy (La Real Academia Española).

Alvarez (1995) argued that the Royal Spanish Academy establishment is the official institution responsible for regulating the Spanish language. It is located in Madrid; but, it is associated with the national language academies in the twenty-one other Spanish speaking nations through the Association of Spanish Language Academies. This institution is the major publisher of the Spanish dictionaries. It has also developed the Spanish grammatical structures and has a formal procedure for admitting articles to its publications. The Royal Spanish Academy founded in (1894). Since then, the institution has not been modified substantially in its organizations and assignments. However, it has been expanded permanently and its high degree of fidelity makes its objectives possible.

1.2. Statement of the Problem

Students who learn Spanish at the University of Jordan commit certain pronunciation errors while learning Spanish as a foreign language in classroom environment. The pronounced errors were produced due to interlingual and intralingual types of errors that L1 (Arabic) and L2 (English) might impose on Spanish learners as L3. Moreover, learners made errors due to a negative transfer from L1 and L2 to L3. However, if learners did not commit pronunciation errors, it meant that they were aware of what they pronounce which is a case of positive transfer.

1.3. Objectives and Questions of the study

The objective of this research was to describe and analyze in detail the possible errors in the articulation of segments in Spanish and to trace the influence of L1 and L2 on such errors. The errors were analyzed with reference to Corder's (1973) and (1981), Dulay's, Burt's and Krashen's (1982) theoretical views on error and contrastive analysis. In the analysis, the researcher made use of Ladefoged's (2001) terms on phonetics in so far as the place and manner of articulation were concerned. This study tried to answer the following questions:

1. What are the pronunciation errors of consonants and vowels (i.e. vowels, diphthong, triphthong and hiatus) committed by the learners of Spanish as a foreign language?

2. Are the committed errors due to change of place of articulation or manner of articulation?

3. Do the committed errors happen because of interlingual and intralingual influence?

4. How do positive and negative transfer of errors take place?

1.4. Definition of Basic Terms

Consonants: they are speech sounds made by a closure or narrowing the vocal tract so that the airflow is either completely blocked, or so restricted that audible friction is produced. Consonant articulations are relatively easy to feel and as a result are most conveniently described in manner and place of articulation (c.f. Crystal, 1991, p.74).

Diphthong: is a term used in the phonetic classification of vowel speech sounds on the basis of their manner of articulation; it refers to a vowel where there is a single perceptual noticeable change in quality during the syllable. However, a diphthong of Spanish is a group of two vowels in the same syllable, in which the first vowel must be a semivowel (i.e. [j] or [w]) and the second a strong vowel (i.e. [a], [e] or [o]) or a semivowel with a weak vowel (i.e. [i] or [u]) (c.f. Crystal, 1991, p.105).

Hiatus: It is about a break in speech sound between two vowels that occur together without an intervening consonant, both vowels being clearly enunciated. The two vowels are within one word. Hiatus is the opposite of elision, the dropping or blurring of the second vowel; it is also distinct from diphthongization, in which the vowels blend to form one sound. As far as Spanish hiatus is concerned, the two vowels should be in two different syllables in the same word. Both vowels must be weak vowels ([i] and [u]) or both must be strong vowels ([a], [e] and [o]) (c.f. Britanica online encyclopedia).

Interlingual error: Interlingual errors are those errors that reflect the learner's L1 structure on the L2 (c.f. Dulay, Burt and Krashen, 1982, p. 101).

Intralingual errors: are those errors that happen due to the lack of knowledge of the language that is being learned, independent of the native language (NL) (c.f. Gass and Selinker, 2001, p. 103).

IPA: an organization founded in 1886 by a group of European phoneticians (Paul Passy (1859-1940) and others) to promote the study of phonetics. In 1889 it published the International Phonetic Alphabet which, in modified and expanded form, is today the most widely used system for transcribing the speech sounds of a language (c.f. Crystal, 1991, p.181).

Manner of articulation: It is the phonetic classification of speech sounds, referring to the kind of articulatory process used in a sound's production. Several articulatory types are recognized based on the type of closure made by the vocal organs. The segment is described after being articulated involving phonetic terms such as plosives, fricatives, affricates, nasal, liquids and semivowels (c.f. Crystal, 1991, p.211).

Negative transfer: Negative transfer refers to those instances of transfer which result in error because old, habitual behavior is different from the new behavior that is being learned. Therefore, it happens when a learner's first language interferes with his/her learning a second language and that it therefore comprises the major obstacle of the new language; thus, if L1 phonemes differ from those in the L2, errors that reflected the pronunciation of the L1 would be produced (c.f. Dulay, Burt and Krashen, 1982, p. 101).

Place of articulation: It is the phonetic classification of speech sounds, referring to where in the vocal apparatus a sound is produced. That is the use of articulators could be labial, labio-dental, inter-dental, dental, etc… (c.f. Crystal, 1991, p.265).

Positive transfer: It refers to the correct performance because the new behavior is the same as the old. Therefore, when phonemes in both languages are the same, there is an automatic use of L1 phonemes in L2 performance; thus, correct utterances will be produced (c.f. Dulay, Burt and Krashen, 1982, p. 101).

Triphthongs: is a term used in the phonetic classification of vowel sounds on the basis of manner of articulation; it refers to a type of vowel which has two noticeable changes in quality during the syllable. As far as Spanish triphthongs are concerned, they are composed of three vowels in which the first is a semivowel, followed by a strong vowel and the last is a weak vowel (c.f. Crystal, 1991, p.363).

Vowels: they are sounds articulated without closure in the mouth or a degree of narrowing which could produce audible friction. The air escapes evenly over the centre of the tongue. The vowels are classified by (i) the position of the lips; whether rounded, spread or neutral and (ii) the part of the tongue involved, and the height to which it moves. Moreover, the Spanish vowels are classified by weak vowels and strong vowels (c.f. Crystal, 1991, p.376).

1.5. Limitations of the Study

This study was confined merely to describe and analyze the articulated consonants and vowels (including diphthongs, triphthongs and hiatus) errors of Spanish. In other words, it avoided discussing the suprasegmental features, namely, stress and intonation of segments. It is also limited to the Modern Standard Arabic, Standard American English and the Standard Castilian Spanish.

1.6. Significance of the Study

This study tried theoretically to account for the articulated errors in the Spanish sound system committed by learners who studied this particular language at the Modern

Language Department in the University of Jordan. Errors were categorized into (i) interlingual errors, the influence of L1 and L2 on L3 phonetic system and (ii) intralingual to show if the produced errors were due to the lack of knowledge of L3. It is obvious that Spanish language in Jordan is not so much in use; however, due to the expansion of international trade, it is becoming in demand for merchandized and commercial purposes. Thus, a number of private schools started teaching it to equip learners with the best knowledge of the Spanish language and culture to fulfill the needs of the market.

The researcher intended to trace the new learners' source of the articulated errors in Spanish by recorded tests. This research is an attempt to help teachers of Spanish as well as learners to tackle such errors and posit a model as a reference to be used in the improvement of the style of pronunciation. The researcher also believed that teachers as well as L3 learners need to have knowledge of the basic phonetic patterns of the three languages at a time. These languages are L1 (Arabic) as a mother tongue, L2 (English) as the most spread one in the world and the L3 (Spanish). Having three kinds of sound systems, it would be an unproblematic task for the researcher to trace the positive as well as the negative transfer of errors. It is evident that learning a third foreign language, in Jordan, especially Spanish be not simple and need to be studied in a new manner. The researcher hoped that this kind of approach will be used for better understanding of the Spanish segments and open new areas of phonetics for further research. It was regarded as a diagnostic and prognostic study at the same time; it was diagnostic because the learner can have a clear picture of the reasons behind the errors of the learned language occurred during the course of learning and it was prognostic because it helps them predict possible errors and try to avoid them by knowing the suggested remedies. This study is unique because it compares and contrasts three languages.

Chapter Two
Review of Literature

2.0. Introduction

This chapter involves primarily four sections. Section (2.1) discusses the theoretical literature. (2.1.1) states the development of the theory of error analysis in general. Section (2.1.2) illustrates the contrastive analysis of Corder's (1973 and 1981) Dulay's, Burt's and Krashen's (1982). Part (2.1.3) shows the classification of phonetic errors and the views of theoretical literature and Ladefoged's (2001) views. Section (2.1.4) shows the place of articulation and the manner of articulations is seen in section (2.1.5). Section (2.1.6) conveys the types of errors, namely, interlingual and intralingual errors are seen in section (2.1.7). Section (2.1.8) discusses the concept of transfer whether positive which is found in section (2.1.9) or negative transfer which is found in section (2.1.10). Finally, section (2.2) involves the empirical studies.

2.1. Theoretical Literature

This section involves the development of the theory of error analysis and the evolvement of the contrastive analysis at a later stage.

2.1.1. The General Development of the Theory of Error Analysis

To find similarities and differences between languages that belong to the same language family was the main concern of a number of linguists at the beginning of the twentieth century. They started comparing and contrasting languages following the contrastive analysis theory. At a later stage, the point of analysis was directed to find errors of learners who learn two or more languages at a time and thus the theory of error analysis was the main concern. This section involves the significance of language as a means of communication and the theory of error analysis was emerged.

Fries (1945) maintained that learning a second language constitutes a very different task from acquiring L1. The basic problems are not out of essential difficulties in the features of the new language themselves, but primarily out of the special set of rules created by the first language habits. He said that "The most effective materials are those that are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the native language of the learner" (p. 9).

Lado (1957) stated "those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult" (p. 2). The quotation illustrated that the similar structures of L1and L2 are simple to be understood while different ones are not. Thus a teacher and learner have to recognize the structures of both languages and be able to identify the areas of influence of L1 on L2. As far as the process of teaching is concerned, it helps the learner of L2 to develop particular methods to rectify the interferences.

Newmark (1964) argued that teaching the sound system of a language before its grammatical and vocabulary rules, is preferred since it is more important to speak that language fluently than to have a good knowledge of its structural rules.

Richards (1971 and 1974) described the term interlanguage by the interference of the learner's mother tongue. Interlanguage is a very important linguistic process which accounts partly, for the phonetic errors committed by a learner. Certain instances of adult learners articulations are visible due to negative transfer from L1 to L2. If the sound system of L1 is somehow different from L2, errors take place. However, positive transfer occurs when the phenomena are the same, resulting in native-like articulations. The investigation of errors can be at the same time diagnostic and prognostic. It is diagnostic because it can

tell the reader the learner's state of the language at a given point of time during the learning process and prognostic because it can tell course organizers to re-orient language learning materials on the basis of the learners' current problems. However, there are errors of different natures regardless of the learner's language background. He called this kind of errors as intralingual. If the learner's knowledge of L2 is weak, then intralingual faults happen in a maximum number. He defined intralingual errors as "those which reflect the general characteristics of rule learning, such as faulty overgeneralization, incomplete application of rules, and failure to learn conditions under which rules apply"(c.f. Richards (1974, p.174)).

Lado (1972) recognized that there is a high importance of comparing features of L1 and L2 in research. He confirmed that not only their phonological, morphological and syntactic structures but also their cultural backgrounds must be compared. A comparison is used to determine the similarities and differences of all features found between the two languages. The learning process will be facilitated if L1 characteristics are similar to L2; but, it will be a difficult process if they are different. In that case, negative transfer of certain characteristics is visible.

Lococo (1976) reported that "intralingual errors occur when L1 does not have a rule which L2 has; the learner applies an L2 rule, producing the error" (p. 99).

Dweik (1986) argued that Arabic speakers perceive and produce consonant phonemes of the target language in terms of those of the first language. This occurs due to the absence of one or more phonemes from the phonemic inventory of any of the two systems.

Odlin (1989) argued that when a learner starts learning L2, there is a clash between the system of L1 and that of L2. So, it seems to be true that "there is no little doubt that native language phonetics and phonology are powerful influences on second language pronunciation" (p. 112).

Selinker (1992) made it clear that the most important new thing in the preparation of teaching materials is the comparison of native and foreign language in order to find out the barriers that happen to overcome them in the teaching process. The most efficient materials are those that are based on a scientific description of the language to be learned, precisely, as compared with an equivalent description of the native language of the learner. Transfer of L1 structure to L2 performance is negative if their structures are different. In this situation, errors occur; however, positive transfer happens if the structures of L1 and L2 are similar. Selinker also suggested that a number of devices to be followed in Contrastive Analysis Hypothesis are as follows: (i) Contrastive analysis is based on a theory of language that claims that language is habit and that language learning involves the establishment of a new set of habits, (ii) the major source of errors in the production and/or reception of a second language is the native language, (iii) one can account for errors by considering differences between the L1 and L2, (iv) the greater the differences are, the more errors will occur, (v) what one has to do in learning a second language is to learn the differences. Similarities can be safely ignored as no new learning is involved, in other words, what is dissimilar between two languages is what it must be learned and finally, (vi) difficulty and ease in learning are determined respectively by differences and similarities between the two languages in contrast (p. 60).

Dweik (2000) argued that the phonological interference is the method in which English/ Arabic bilinguals perceive and produce the phonemes of the target language. Interference occurs when the bilingual recognizes a phoneme of the target language with a phoneme of the mother language.

Gass & Selinker (2001) argued that phonology is a common place in which a second language speaker is identifiable by his or her accent. More work has been done in the area of syntax of the second language acquisition (SLA) than in the area of phonology. Phonology is both similar to and different from other linguistic area. The pronunciation of a new language is not as easy as its syntax. For example, if a learner wants to avoid passives, it is relatively easy to find a substitute structure to express the same concept. However, if a learner wants to avoid the sound [ð], as in *the* in English, it would be practically impossible. They also argued that phonology is a complex process. "An understanding of how a learner learns a new phonological system must take into account linguistic differences between the NL and the TL systems, universal facts of phonology, and sociolinguistic constraints" (c.f. Gass & Selinker (2001, p.178).

Calvo (2006) argued that there had to be a distinction between the influences of mother tongue on the target language while learning the articulations of the latter and when the learner has less awareness of L2 articulated rules. The former is called inter-language influence since it refers to the influence that one language has on another and the latter is referred to as intra-language influence, since the influence takes place within the same language itself.

2.1.2. Contrastive Analysis

Corder (1973) affirmed that the easiness or difficulty of learning something is not simply related to the nature of the task but has components of motivation, intelligence, aptitude, quality of teaching and teaching materials; it also depends on the learners'

expectations to achieve something. Corder (1973) argued that to determine the formal similarities and differences among languages, it is something that has been central to linguistic studies in the past. It is possible that languages which are unrelated may resemble each other in respect of some features; however, genetically related languages may differ in having the same features. Thus, a classification of features is to be done in order to assign languages which are not genetically related from those which are genetically related. This theoretical issue is confined to elaborate features related to articulation of phonetic segments as it is in the target of the study. To achieve the goal of analysis, a sample of study is to be selected. It is a very useful aspect for teachers, learners and scholars to conduct a comparison on the pronunciation of phonemes of the studied language as the content of the study. For instance, the segment [x] in *loch* 'available' in Scottish is pronounced [k] by native speakers of English. It is spoken so not only to distinguish between *lock* and *loch*, but also to produce this sound in the articulation of the voiceless stop [k] that occurs between vowels in the initial position of an unstressed syllable as in the word 'worker'. Such results lead scholars to think whether the error takes place due to the nature of segment in articulation or due to the influence of Scottish on English speakers.

Corder (1973) argued that errors made by learners are important parts of the data on which the comparison is to be done. The process of comparison is of a two- step operation: (i) an attempt to describe the errors that take place due to the language itself and/or the other relevant dialects. And, (ii) a comparison must be made of the phonemes and their articulations between SL and TL are to be conducted.

Corder (1973) mentioned that a learner's errors of phonemes are significant because they provide evidence of how phonemes of the language study are learned by foreign

learners and what procedures a learner uses to discover the actual pronunciation of a language. The study of phonetic errors in teaching and learning any language's sound system is significant in applied linguistics. The theory of error analysis sheds the light on the fact that the types of errors reflect a gap on the learner's competence acquisition, sequence of acquisition and accuracy of pronouncing phonetic features. The phonetic features cannot be studied by a researcher without having good knowledge of the speech sounds of the language study. To discuss such type of errors produced by a learner in a language, the researcher is advised to follow the following steps: (i) we identify certain features of the second language as different from those of the mother language, to classify the errors, consonants and vowels, (ii) to trace the source of errors whether they are interlingual or intralingual and (iii) to specify the type of transfer whether they are positive or negative. They are explained theoretically as follows:

2.1.3. Classification of Phonetic Errors

Corder (1981) argued that the distinction between systematic and non systematic of phonetic pronunciation is essential for the theoretical perspective. The systematic phonetic errors are those which occur in learning a second language regardless of the number of languages learned by a learner. However non-systematic phonetic errors are those which are made by the native speaker of a language. The focus is on the systematic because they are significant in three ways: (i) to the teacher as he/she discovers the student's progress, (ii) to the researcher as he/she sees how a language is learned and what strategies a learner uses and how a learner can learn from committing phonetic errors and (iii) to the learner as he/she discovers that errors are regarded as guides to correct himself/herself (c.f. Corder (1981, p. 11)).

Corder (1973) argued that for a learner to produce the phonemes of a language is a matter of motor-perceptual skill which is taught by drill and repetition conjoined by practice. Thus, there is a syllabus for teaching pronunciation. It is an important issue for a learner to learn the articulation of phones while learning some other aspects of the same language. It is convenient if a researcher divides the problems of pronunciation into two tasks: (i) the learning of motor-perceptual skill of articulation of phonemes, and (ii) The rule-learning. The apparent process is to teach all the phonemes of a language before passing on to the rules for grouping them. This would be logical according to the linguistic theory. Unfortunately, once again, the researcher is up against the problem of the psychological status of linguistic categories because some linguists choose to describe phonetic components of a language in a particular way. For instance, it starts with listing the phonemes in a systematic relation; then categorizing such phonemes into classes on the basis of their pronunciation. A Spanish speaker who has difficulty in distinguishing between the pronunciation of *ship* and *sheep* in English is not only a question of his ignorance of the phonological rules of English but it is also a question of an articulatory problem of making the perspective vowel sounds. It seems legitimate to regard phonological structures and articulatory processes essentially as habits for the learner. A learner has to overcome a mother-tongue habit of never doing so and follow the rule of articulation of the learned language. Certainly, a learner has to discover the rule and then apply it into a new articulatory habit. The learning of pronouncing the phonemes of language requires a restricted practice, particularly, when there are speech sounds in the target language which are not available in the range of the learner's mother tongue. This superficial classification of errors is only a starting point for systematic analysis of errors.

This is the way a researcher classifies and states how phonetic errors are committed. In order to study the consonants of a language, place and manner of articulation must be covered.

Ladefoged (2001) agued that consonants are primarily classified according to the place of articulation and manner of articulation based on certain phonetic features; while, vowels are classified according to their nature of articulation in relation to the position of the tongue. They are specified in terms of the position of the highest point of the tongue and position of the lips. Thus, in their production, the articulators do not come together and the passage of the air stream is relatively unobstructed. The articulation of consonants implicates greater constriction of the moving airstream usually resulting in either friction (which produces a "hissing" noise) or complete stoppage of the air. Therefore, they usually have less sonority than vowels.

2.1.4. Place of Articulation

Ladefoged (2001) made very clear that it is the place where the primary articulators can cause obstruction. Actual articulators are the lips, the tongue, teeth, alveolar ridge, hard palate…etc. The following are the English segments according to the place of articulation:

(i) Bilabial: when the place of articulation is at the upper and lower lips. The bilabial sounds are; [p] as in [bʌd] ‘bud’, [b] as in [bai] ‘by’, and [m] as in [mai] ‘my’.

(ii) Labio-dental: when the point of articulation is at the upper set of the teeth and the lower lip. The labio-dental sounds are: [f] as in [flai] ‘fly’, and [v] as in [veil] ‘veil’.

(iii) Dental: when the point of articulation is at the tip of the tongue and the inside of the upper front teeth. The dental sounds are: [θ] as in [θiŋ] ‘thing’ and [ð] as in [ðai] ‘thy’.

(iv) Alveolar: when the point of articulation is at the tongue tip and on the alveolar ridge. The alveolar sounds are: [n] as in [nʌn] ‘none’, [t] as in [tɔi] ‘toy’, [d] as in [bid] ‘bid’, [s] as in [si:n] ‘seen’, [z] as in [zu:] ‘zoo’, [r] as in [ru:t] ‘root’ and [l] as in [laud] ‘loud’.

(v) Palato-alveolar: when the place of articulation is in the front position of the tongue (or in the middle) and in the hard palate position. The palato-alveolar sounds are: [ʃ] as in [ʃu:] ‘shoe’, [ʒ] as in [beiʒ] ‘beige’, [tʃ] as in [tʃu:z] ‘choose’ and [dʒ] as in [eidʒiŋ] ‘ageing’.

(vi) Palatal: when the point of articulation is at the tongue in middle position and in the palate. The palatal sound is: [j] as in [jɛs] ‘yes’.

(vii) Velar: when the point of articulation is at the tongue is back and in the velum (soft palate). The velar sounds are [k] as in [kɔin] ‘coin’, [g] as in [gʌt] ‘gut’ and [w] as in [wai] ‘why’.

(viii) Glottal: when the point of articulation is at the glottis (in the throat). The glottal sound is [h] as in [haus] ‘house’. (c.f. Ladefoged, 2001, p. 5-8)

2.1.5. Manner of Articulation

Ladefoged (2001) argued that there are some basic means in which an articulation can be produced. The articulators may close off the oral tract for a moment or some how for

a long period; they may simply modify the shape of the tract by approaching each other. Speech sounds can be described on the bases of how they are articulated. Such description is necessary if the researcher wants to be able to differentiate between some sounds to be put in categories. For instance, [t] and [s] are both voiceless alveolar sounds. They are equal in their place of articulation but they differ in their manner of articulation, that is, in the way they are pronounced; thus, the [t] sound is one of many sounds called stops and the [s] sound is one of a set called fricatives. The manners of articulation of English phonemes are classified as follows:

(i) Nasals: these are the sounds which are produced with the air going through the nasal cavity. There are three nasals: [m] as in [eimiŋ] 'aiming', [n] as in [nain] 'nine' and [ŋ] as in [mi:niŋ] 'meaning'.

(ii) Stops: these are sounds which are done by stopping the air somewhere in the oral cavity and then releasing it. The word stop refers to stopping air. The stops are: [p] as in [pik] 'pick', [b] as in [klʌb] 'club'.

(iii) Affricates: these are the sounds which are made up by two parts; a stop and a fricative. There are two affricates: [tʃ] as in [tʃip] 'chip' and [dʒ] as in [dʒʌdʒ] 'judge'.

(iv) Fricatives: these are the sounds which are produced by having the air rub against some surface in the oral cavity causing a friction. The fricatives are: [f] as in [seif] 'safe', [v] as in [veil], [θ] as in [θin] 'thin', [ð] as in [ðai] 'thy', [s] as in [sit] 'sit',

[z] as in [zu:] ‘zoo’, [ʃ] as in [fiʃ] ‘fish’, [ʒ] as in [beiʒ] ‘beige’, [h] as in [hænd] ‘hand’.

(v) Approximants: these are sounds which are considered half consonants and half vowels. They are like consonants in their structural behavior; and they are like vowels in their phonetic quality. There are two approximants: [w] as in [wai] ‘why’, [j] as in [jɛs] ‘yes’.

(vi) Laterals: these are sounds which are produced by having the air go out of the mouth from both sides of the tongue. The English lateral sound is the [l] as in [pu:l] ‘pool’.

(vii) Trill: these are the sounds in which the tongue makes a single tap against the alveolar ridge; it occurs initially such as [r] in [rais] ‘rice’ in many forms of American English. (c.f. Ladefoged, 2001, p. 8-12)

Ladefoged (2001) argued that vowels are studied in the way they are articulated with regard to the following aspects:

(i) The position of the tongue; front, central, back and high, mid and low. The front vowels are [i:]as in [hi:d] ‘heed’, [i] as in [hid] ‘hid’, [ɛ] as in [hɛd] ‘head’, [æ] as in [hæd] ‘had’; the central vowels are [ɜ:] as in [bɜ:rd] ‘bird, [ʌ] as in [ʌp] ‘up’; and the back vowels are [*a:*] as in [h*a:*t] ‘hot’, [ɔ:] as in [bɔ:d] ‘bawd’, [u] as in [hud] ‘hood’, [u:] as in [smu:θ] ‘smooth’. The high vowels are [i:], [i], [u] and [u:]; the mid vowels are [ɜ:], [ɛ] and [ɔ:]; the low vowels are [æ], [ʌ] and [*a:*].

(ii) The shape of the lips; rounded as [o], unrounded as [i:]

(iii)The openings of the jaw; close as [u:] and open as [æ].

(iv)The length of the vowel; long as [i:], [ɜ;], [*a*:], [ɔ:], [u:]; and short as [i], [ɛ], [æ], [ʌ], [u]. (c.f. Ladefoged, 2001, p. 29).

In short, in the production of vowel speech sounds, the articulators may come very close together and the passage of airstream is quite unobstructed.

2.1.6. Interlingual Errors

Corder (1973) argued that the term interlanguage which is commonly known as a contrastive comparison is the procedure of comparing different phonetic aspects of two or more different languages. The languages which are involved in the process are the learner's mother tongue and the second language or other languages known, namely, foreign. The process of comparison is to account for the differences of all features including phonological phonemes and their pronunciation between L1 and L2. It is significant to notice that what concerns the learner while acquiring the systems of articulations of the second language is to figure out the differences between the articulation of mother tongue and the second language. It is said that if a learner starts studying the speech sounds of a language other than L1, it is the influence from the habits of the mother tongue on L2 that makes the difference. A learner has to study the systems of L2 as a foreign language. A large number of interlingual phonetic errors of L2 are related to the phonetic habits of the learner's mother tongue. It is not a mixture of L1 and L2 although certain elements of one

or the other or certainly both may be there. He also stated that a learner's phonetic errors are systematic; they are precisely regular and show that a learner is following a set of standard phonetic rules of pronunciation. The systems are not those of the target language but transitional forms of language similar in many respects to the target language; but, also similar to his mother tongue, or indeed any other language he/she may already command. The interlingual phonetic errors are part of the learner's data on which the description of the transitional language is based. The process of comparing is a two step operation. By the study of the learner's pronunciations, the researcher tries to describe the transitional pronunciation of the segments of a language or interlanguage and then this description is compared with the description of the target language. Learners of L2 cannot by any means correct themselves because they lack knowledge of rules of articulation of L2.

Corder (1981) argued that phonetic interlanguage segments have been extensively studied as they show features related to the phonetics of the mother tongue. At this level, there is a clear interference in the articulation of segments of the mother tongue with the interlanguage since the interlanguage phonetic system created by the learner, is influenced by his/ her phonetic habits of L1.

Dulay, Burt and Krashen (1982) stated that interlingual phonetic errors refer to L2 errors that reflect the native language speech sound system, regardless of the internal processes or external conditions that generate them. They conducted certain studies on the speech sounds of English as a second language and revealed that the majority of non-phonological errors observed for adults do not reflect the first language. They conducted another study in which they found out that approximately 8% to 23% of adult's errors are classified as interlingual errors (c.f. Dulay, Burt and Krashen (1982). This proportion is

larger among adults than children. They also argued that interlanguage errors are where articulations of phonemes of L1 differ from those of L2. Errors of these types are due to the influence of the learner's L1 phonetic habits on L2 production. Through their available empirical data, they indicate that L2 learners do not automatically use their L1 rules when attempting to produce phonemes of L2. Dulay, Burt and Krashen (1982) argued that what cause the small number of interlingual phonetic errors to happen are the environmental factors: in which conditions that result in a premature way of pronunciation of L2 phonemes are due to the pressure to perform. Learners who have pressure to pronounce phonemes of L2 will encourage consciously the rules of L1. This is where the atmosphere of the phonemes of a language is being learned. It could be due to the absence of the instructors who speak the language natively having the right pronunciation and to the severely limited and often artificial conditions under which the language may be learned as for example spending a lot of time memorizing the dialogue and ignoring the important facts such as the proper pronunciation of phonemes.

2.1.7. Intralingual Errors

Corder (1973) argued that the intralingual comparison occurs when determining the data which a researcher aims to integrate in a syllabus and then one must compare the varieties of the language to be taught. The result of this form of comparison gives data about the whole segments of a language and its dialects. He (1973) also argued that sometimes when learners have no counterparts of some foreign sounds in his/her own mother language, intralingual errors occur. Thus, unawareness of the relevant features of the sounds in certain contexts leads to committing errors. If a researcher knows the whole phonetic description of segments of a language and its varieties, he/ she must have a full

knowledge of the sound system of a language. One is able to give the appropriate weight to a whole range of linguistic items; this clearly has relevance to both the selection of material for the syllabus and its sequencing in the syllabus.

Dulay, Burt and Krashen (1982) described intralingual error as a part of the developmental errors. They (ibid) argued that in view of the fact that children acquire their first language before having experienced learning a previous one, the errors they make cannot be possible due to having no interference from another language. Then they explained that "when errors are made by second language learners, it would be reasonable to hypothesize that mental mechanisms underlying general language development come into play, not the rules and structures of the learner's native language" (p. 165).

2.1.8. Transfer

Corder (1973) argued that "learners transfer what they already know about performing one task to performing another similar task" (p.132). Thus, the term transfer is an important mechanism used by learners to facilitate the learning process of L2. In it, a learner uses either a proper or improper rules of mother tongue in his/her performance of articulations of segments in the target language. So, a learner transfers what is known about pronouncing a segment in L1 to be used for the similar segment in L2. Transfer is classified by two prominent categories; positive transfer and negative transfer.

2.1.9. Positive transfer

Corder (1973) also named this phenomenon as facilitation which is the nature of two tasks that take place to be the same; this inclination to transfer is an advantage. Thus, positive transfer is a kind of phenomenon that happens if L1 and L2 carry similar phonetic characteristics. Dulay, Burt and Krashen (1982) agreed that positive transfer in phonetics

might occur when two languages are genetically related. A learner is able to pronounce the same segment in some other language of the same family because they carry almost the same symbols since languages belong to the same type of language family. Phonological errors exhibit more L1 influence on L2 than other types errors.

2.1.10. Negative transfer

Dulay, Burt and Krashen (ibid) argued that negative transfer, which is known as interference, is the production of phonetic errors while speaking the second language. It is obvious if a learner's first language interferes with his/her learning a second language; therefore, it comprises the major obstacles of the new language. Thus, if L1 phonemes differed from those in the L2, errors that reflected the pronunciation of the L1 would be produced. Negative transfer is visible in the pronunciation of the plural morpheme [s] as in (i) after voiceless consonants, such as [p], [t], and [k] 'cats', [z] after voiced consonants such as [b], [d], [g] 'bags' and [iz] after affricates and other sibilant segments as [s], [z], [tʃ] and [dʒ]. Native Spanish speakers acquire the phoneme [-s] and [-z] before the [-iz]. If a transfer from Spanish to English happens, the order of acquisition is [s] only first, then [z] and [iz]. This is because Spanish plurals are all voiceless and voicing takes place of English as L2 (c.f. Dulay, Burt and Krashen, 1982, p.104-105).

To sum up, the above theoretical analysis shed the light on the influence of L1 on L2 in the pronunciation of speech sounds. If L1 belongs to the same language family of L2 then less phonetic errors will take place: however, if L1 is of different family type, then possible phonetic errors have to take place due to negative transfer. The former is called interlanguage influence since it refers to the influence that one language has on another; whereas, the latter is referred to as intralanguage influence, since the influence takes place

in L2 itself, in which the learner has less awareness of the articulation rules of L2. The researcher concentrates on the field of articulation of segments involving consonants and vowels without giving attention to the suprasegmental features namely, stress, intonation, accent, etc. The researcher tries to distinguish the errors that result from the interference of L1 (Arabic) as a mother tongue and L2 (English) as a foreign language on Spanish which is regarded in this work as L3 foreign language. So, this study takes care of the articulation process in Spanish learned language by Jordanian students.

In short, a researcher has to make a comparison between the three languages and to identify certain features of the second language as different from those of the L1and predicts that the learner finds them difficult. Thus, the study of errors is a part of an experiment to confirm or disprove the theory of transfer. Error analysis is a comparative/contrastive process; one has to compare the learner's articulations of a language and contrasts it with the articulations of mother tongue and other languages namely, the second language. In this respect, it is a special case of contrastive analysis which makes it a starting point to distinguish phonetic errors made by a learner. The first step in the process of describing the articulated errors is to (i) detect them, (ii) categorize, compare/ contrast them with same class and (iii) analyze the errors on a theoretical perspective.

2.2. Empirical Studies

There are a number of studies that have been conducted in the field of errors in the Spanish pronunciation where researchers described the phonetic error types made by learning students of Spanish from different mother language backgrounds.

Carcedo (1999) conducted a study on the influence of the Finnish phonetic system on the Spanish phonetic system, namely interlanguage, made by Finnish learners of Spanish. The researcher chose a sample of (78) Finnish learners of Spanish. The participants were tested through the material that they have been using in their Spanish classes. They were tested before handling the High-school exam. For instance, he argued that the velar voiced stop [g] was confused with the voiceless [k] as in the word *gallina* 'hen' which was pronounced as [*kaʎina] instead of [gaʎina] and the word *calle* 'street' as [*gaʎe] instead of [kaʎe]. The bilabial voiced stop [b] was confused with the voiceless [p]. Finnish learners pronounced the word *barrio* 'neighborhood' as [*parjo] instead of the actual form [barjo] and they pronounced the word *campo* 'field' as [*cambo] instead of [kampo]. The uvular voiceless fricative [x] was pronounced wrongly as [h] in j*amón* 'ham' as [*hamon] instead of [xamon]. The palato-alveolar voiceless affricate [tʃ] was pronounced wrongly in many ways as in the word *pecho* 'breast' [*petso] or [*petθo] or [*peθo] instead of [petʃo]. Finally, the voiceless alveolar stop [t], which is in the intervocalic position, was pronounced as [d] in *zapatos* 'shoes' [*θapados] instead of the correct form [θapatos]. He argued that their errors were interlingual due to the participants' L1 influence on Spanish language.

Poch (1999) performed a study on the reasons why learners of Spanish from different language backgrounds commit pronunciation and the kind of errors. Moreover, she stated if

learners can eliminate the error. She cited a number of errors in the articulation of Spanish consonants and vowels made by English and French speakers learning Spanish. English learners of Spanish had an error in the wrong pronunciation of the alveolar trill [r] for the alveolar tap [ɾ] and vice versa as in the specimen *perro* 'dog' wrongly pronounced as [*peɾo] instead of [pero] and the word *cara* 'face' as [*kara] instead of [kaɾa] respectively. For instance, French speakers produced both sounds as the French uvular [ɣ] as in the words *perro* 'dog' as [*peɣo] instead of [pero] and *cara* 'face' as [*kaɣa] instead of the correct form [kaɾa]. Similar examples of the study are visible in the wrong articulation of the uvular voiceless fricative [x] in the word *jamón* 'ham' as [*hamon] instead of [xamon]. It was obvious that this error was committed by English and French speakers since [x] is not found in their L1. Insofar as the articulations of vowels were concerned, she (1999) showed a number of errors. For instance, the vowel [o] in the word *no* 'no' was pronounced incorrectly as [*nou] instead of [no]. Another instance was the wrong articulation of the mid front [e] as [i] as it was illustrated in the specimen *cero* 'zero' as [*θiɾo] instead of [θero]. Errors took place because of the influence of the participants' mother language phonetic system on the Spanish phonetic system; thus, students substituted L1 sounds instead of articulating L2 sounds.

Goglova (2001) offered a study on the reasons why Russian learners of Spanish commit errors while using Spanish language. She described the phonetic errors made by Russian learners of Spanish. She classified these errors as negative transfer from Russian language into Spanish. One of these errors was that the phoneme [b] which is changed to

[v] in articulation. Learners also changed the phoneme [θ] into [s]. Another problem was visible with the Spanish phoneme [λ] in different environments. As for the vowels, they pronounced the phoneme [o] as [a] in the word *sonora* 'voiced' as [*sanoɾa] instead of [sonoɾa] and the vowel [e] for [i] as in *bebida* as [*bibida] instead of [bebida].

Cortes (2002) examined a study on Chinese learners of Spanish. The aim of his study was to present and explain the most common difficulties and errors that Chinese learners of Spanish have. The instrument of the study selected was through a game; all the participants were divided into four groups; each group had a sheet that contains a list of phonetic errors collocated in different boxes. These boxes were put in order. Each student was represented by a small object and played with a dice. When the student lay on a box, he/she had to correct the error and moved three stages foreword, if he/she did not know how to correct the error; he/she stayed in the same box. The investigator made a contrast on the sounds of both languages, namely Spanish and Mandarin. There are five similar vocalic phonemes, nine similar diphthongs and four similar triphthongs. He realized that Chinese learners were confused while pronouncing the alveolar voiceless fricative [s] and the inter-dental voiceless fricative [θ]. This [θ], of course, does not exist in Mandarin phonetic system. They were also confused in the articulation of the Spanish alveolar tap [ɾ] and the alveolar trill [r]. Other frequent visible problem was in the pronunciation of the alveolar lateral [l] and the alveolar trill [r], where [r] does not exist in Mandarin phonetic system; thus, [l] was wrongly pronounced as [r]. Chinese learners were confused with the voiced stops [b], [d] and [g] and the voiceless stops [p], [t] and [k] because Mandarin phonetic system does not

have voiced plosives. He stated that not all errors were due to the interference of L1 (Mandarin) into L2 (Spanish), but errors occurred due to intralingual errors.

Gospodaric (2004) examined the pronunciation of Slovenian foreign learners of Spanish. The aim of his study was to investigate the problems that Slovenian learners of Spanish have in the pronunciation of Spanish. The investigator achieved the results by giving (80) minimal pairs, to see if learners perceive the difference in the phonemes. There were three words for each minimal pair. Then, the investigator examined the learners by giving them (35) two syllable words and three syllable words and then (24) phrases were selected and read by the students. The highest error percentage was on the articulation of the nasal consonant [ɲ] which was pronounced as [m] or [n]. Other phonemes that learners could not distinguish were the plosives; the bilabials [b] with [p], the alveolars [t] with [d], the velars [k] with [g] and finally, [g] with [x]. Additionally, participants could not differentiate between the pronunciation of the following fricatives: the alveolar [s] with the inter-dental [θ], [θ] with the uvular [x], [θ] with the stop [t], the labio-dental [f] with [θ], [f] with the stop [b] and [f] with the stop [p]. Moreover, they could not differentiate between the alveolar trill [r] and the alveolar tap [ɾ]. And finally it was a problem for them to mix the pronunciation of the palatal lateral [λ] with the alveolar [l] and [λ] with the palatal fricative [j̟]. Insofar as vowels were concerned, she found out that students could not differentiate between the vowels [e] and [i], and [o] with [u] or [wo]. As for diphthongs, participants pronounced the diphthongs [je] as [e], [ja] as [a], [ei] as [e], [ai] as [ei], [ai] as [a], [wi] as [i] and finally [we] as [e]. As for the triphthongs, participants could not differentiate [jai] with [jei] and [wei] with [wai].

Yates (2005) performed a study on the most common errors committed by the learners of Spanish. He showed that there were a wrong pronunciation in consonants, vowels and diphthongs. One of the most common error was the phoneme [s] which is in the middle of the word *Susana* 'Susana' was pronounced as [z] in [*suzana] instead of [susana]. With regard to vowels, the low front vowel [a] was pronounced as the diphthong [au] in the word *taco* 'taco' as [*tauco] instead of [taco]. The mid-high back [o] was pronounced by learners as the diphthong [ou] as in the Spanish word *fino* 'thin' [*finou] instead of [fino]. The other kind of error was the wrong pronunciation of the high back vowel [u] in which it was pronounced as [ju] in the word *Cuba* [*kjuba] instead of [kuba]. The diphthong [we] was pronounced by the learners as [wa] in the specimen *bueno* 'good' as in [*bwano] instead of [bweno].

Otto (2006) investigated a study on (15) Maltese students who learn Spanish. She made an analysis to know the errors that took place in the pronunciation of certain Spanish segments. She discovered that errors occurred due to the interference of Maltese, Italian and English segments into the Spanish segments. The sample was taken from three different groups of (15) Maltese students who have (16-18) years old with a high-medium level of Spanish. Those errors were taken from an oral test in the years (2000-2003). She started by determining the errors in consonants. The Spanish bilabial [b] which was erroneously pronounced as the inter–dental [v] due to Maltese, Italian and English interference. Moreover, the consonant [x] was incorrectly pronounced as [dʒ] in the word *general* 'general' as [*dʒeneɾal] instead of [xeneɾal] due to the Maltese, Italian and English interference since [x] does not exist in either of these languages; however, [dʒ] exists in the

three. Moreover, Maltese learners of Spanish cannot distinguish between the phoneme [x] and [g]. Similarly, the glottal fricative English [h] was articulated instead of the phoneme [x] as *joven* 'young' as [*hoben] instead of [xoben] due to the interference of the Italian and English language since the Maltese <h> is not articulated as in Spanish language. Participants cannot recognize the actual pronunciation of [θ]; for instance, participants were confused with [θ] and [s] in which the word *zapato* 'shoe' was wrongly pronounced as [*sapato] instead of [θapato]. The phoneme [θ] was also pronounced as [ʃ] as in the word *sustitución* 'substitution' as [*substituʃjon] instead of [substituθjon] a cause of English interference. Moreover, [θ] was incorrectly articulated as [tʃ] or [dʒ] because of the Maltese or Italian interference. However, when [θ] was pronounced as [z] in the word *institución* 'institution' as [*instituzjon] instead of [instituθjon] it was due to the Maltese and Italian interference. And finally, the trill [r] was pronounced as [ɾ] by the same learners in the sense that it was an interference of the three languages, namely, Maltese, Italian and English.

Sanchez (2006) investigated a study on the spelling and pronunciation of errors committed by Filipino learners of Spanish. The aim of his study was to investigate the difference in the errors that Filipino learners of Spanish commit with the native speakers of Spanish. Moreover, he investigated what are the most abundant errors, the reasons why they are produced and if there is influence of the native language into the language they are being learned. He found out that the errors committed by Filipino learners were due to the interference of the Filipino and the English language. He tested (258) learners of Spanish by (18) tests. The participants were divided into three different knowledge levels of

Spanish, that is, beginner, intermediate and advanced. The tests were composed of paragraphs. The errors took place in consonants, vowels, diphthongs and hiatus; for example, the phoneme [ɲ] was confused with the phoneme [n] in the word *piña* 'pineapple' as [*pina] instead of [piɲa]. Moreover, learners cannot recognize the difference between the nasal [n] and the lateral [l] and [n] with [ɾ] as the word *contemporánea* 'contemporary' was wrongly spoken as [*kontempoɾaɾea] instead of [kontempoɾanea]. Another mistake was that learners could not recognize the correct pronunciation of the phoneme [θ] in the word *cinco* 'five' in which it was pronounced incorrectly as [*ginco] instead of [θinko]. Furthermore, they committed a mistake in the articulation of the phoneme [g] as [k] in the word *haga* 'make' as [*aka] instead of [aga]. Learners pronounced [ɾ] for the trill [r] and vice versa as in the word *guitarra* 'guitar' being pronounced as [*gitaɾa] for [gitara] and in the word *ahora* 'now' being pronounced as [*aora] instead of [aoɾa]. The Spanish phoneme [b] was pronounced as the English phoneme [v]; for example, the word *vena* 'vein' was spoken as [*vena] instead of [bena]. There were words used in Spanish language but originally taken from other languages such as the English word *rap*, which was pronounced as [*rab] instead of [rap], that is, [p] was spoken as [b]. Likewise, the sound [k] was pronounced as [x] in the word *porque* 'because' as [*poɾxe] instead of [poɾke]. Finally, the phoneme [l] was pronounced as [λ] in the specimen *levantarme* 'I wake up' as [*λebantaɾme] instead of [lebantaɾme]. With regard to the committed errors in vowels, learners were confused between the phoneme [e] and [i] as in the word *ordenador* 'computer' which was wrongly pronounced as [*oɾdinadoɾ] for [oɾdenadoɾ] and the word *diecisiete* 'seventeen' as [*djeθesjete] for [djeθisjete]; the vowel [o] turned [u] and vice versa in the word *miércoles* 'wednesday' wrongly articulated as [*mjeɾcules] for [mjeɾcoles] and *política* 'politics' as [*pulitika] instead of [politika]. Moreover, there was an error in the pronunciation of the phoneme [a] as [u] and [o] as the word *gafas* 'glasses'

as [*gufas] or [*gofas] instead of [gafas]. Additionally, the phoneme [o] was wrongly articulated as [i] in the word *violinista* 'violinist' as [*bjolonista] instead of [bjolinista]. As far as diphthongs were concerned, [ai] became [a] in the word *vainilla* 'vanilla' which was pronounced as [*baniʎa] instead of [bainiʎa]. The diphthong [au] was articulated as [u] as in the word *aumento* 'increase' [*umento] instead of [aumento]. The diphthong [je] was pronounced as [i] in the word *riesgo* 'risk' as [*risgo] instead of [rjesgo]. The diphthong [eu] was produced as [u] in the word *eucalipto* 'eucalyptus' [*ucalipto] instead of [eucalipto]. The diphthong [ei] was produced as [ai] in *reina* 'queen' as [*raina] for [reina]. The hiatus [ee] was pronounced as [e] in the word *proveedores* 'fitting room' [*probedoɾes] instead of [probeedoɾes].

Madonati (2007) argued that there were a high number of Spanish language learners that have confusions in the pronunciation of certain consonants and vowels. One kind of these errors took place in the pronunciation of the phoneme [ʎ] as [ʝ] as in the word *llevo* 'get' [*ʝebo] instead of [ʎevo]; some of the learners pronounce the word *llama* 'call' [*ʝama] instead of [ʎama]. Moreover, learners tend to pronounce the bilabial stop [b] as English labio-dental fricative [v]. With regard to vowels, foreign learners were confused while pronouncing the vowels [e] with [i], on one hand, and the vowels [o] with [u] on the other. For instance, they pronounced the word *Perú* as [*piru] instead of [peru]; and they pronounce the word *bola* 'ball' as [*bula] instead of [bola]. Another example of the category was when they said *rosa* 'rose' as [*rusa] instead of [rosa].

Abril & Hernández (2008) performed a study on a sample of French learners of Spanish to reach results on the consonantal errors committed by them. They found that the participants were of different Spanish knowledge levels, i.e. beginners, intermediate and advanced. For instance, the uvular fricative [x] was pronounced as [ʒ] in the name *Julio*

‘Julio’ as [*ʒuljo] instead of [xuljo]. The alveolar trill [r] was pronounced as [ɾ] in the word *perro* ‘dog’ as [*peɾo] instead of [pero]. The phoneme [s] was pronounced as [z] in the word *casa* ‘house’ [*kaza] for [kasa]. The phoneme [θ] was wrongly articulated as [s] as *lección* ‘lesson’ as [*leksjon] instead of [lekθjon]. And finally, the phoneme [x] was wrongly articulated as [s] in the Spanish city *Guadalajara* as [*gwadalasaɾa] instead of [gwadalaxaɾa].

Amador and Rodriguez (2008) investigated a study on Arab participants who learn Spanish to find out the difficulties in articulating certain consonants and vowels. They made a contrastive analysis of the Arabic and Spanish phonetic segments and then analyzed the errors. One of the confusions was the pronunciation of the voiceless bilabial plosive [p] and the voiced bilabial plosive [b] and vice versa. They have such problem since the phoneme [p] is not found in the Modern Standard Arabic phonetic system. Another prominent problem that Arab learners encountered was that they pronounced the bilabial Spanish [b] as the English inter dental [v]. Moreover, the participants’ production of the voiceless inter-dental fricative [θ] was a difficult and made it [t]. Learners also were confused in the production of the phonemes [s] and [θ] which were pronounced as [θ] and [s] respectively. As far as the vowels were concerned, the Arab learners could not distinguish between the phonemes [e] and [i], [o] and [u].

Sossouvi (2009) conducted a study on a hundred African French aging (13-20) while learning Spanish. The objective of his study was to find out the phonetic errors that occur while learning Spanish language in a classroom environment. Moreover, he meant to analyze the source of these errors whether due to the interference of the mother tongue phonetic system or the Spanish one itself. The instrument of the study was by giving (94) words to be read orally by the participants and the readings were recorded. He found out that there were errors in the pronunciation of consonants, vowels and diphthongs. One of

the consonantal errors was the phoneme [x] which was wrongly pronounced as [ʒ] in the word *imagen* ‘image’ as [*imaʒen] for [imaxen]. Likewise, the word *general* ‘general’ was spoken as [*dʒeneɾal] instead of [xeneɾal]. The lateral palatal phoneme [λ] was pronounced as [l] in the word *collar* ‘necklace’ [*kolaɾ] instead of [koλaɾ]. The phoneme [θ] was spoken as [s] and [z] in the words *vicepresidente* ‘vice-president’ as [*bisepɾesidente] instead of [biθepɾesidente] and *trashumancia* ‘transhumance’ as [*trasumanzja] instead of [trasumanθja]. Insofar as the vowels were concerned, learners committed mistakes in the pronunciation of the vowel [u] which was pronounced as [i] in the word *fruta* ‘fruit’ as [*frita] instead of [fruta]. They also could not pronounce the phoneme [e] in which it was pronounced as [ə] or [ɛ] as in the specimen *pena* ‘sorrow’ as [*pəna] or [*pɛna] for [pena]. They also committed errors in the articulation of diphthongs as the segment [ei] in the word *peine* ‘comb’ which was spoken as [*pɛne] for [peine]. They also changed the diphthong [oi] into [wa] in the example boina ‘beret’ as [*bwana] for [boina].

In short, the empirical literature examined different studies in different languages. The cited errors were to be compared and contrasted in chapter four with the findings of this study. Moreover, the researcher referred to Corder’s (1973) and (1981) Dulay’s, Burt’s and Krashen’s (1982) various theoretical views on error analysis in the sense that they discussed the interlingual influence, intralingual influence and transfer.

Chapter Three
Methods and Procedures

3.0. Introduction

This chapter consists of five sections; (3.1) talks about the population and the sample of the study, (3.2) talks about the instrument of the study, (3.3) talks about the validity and the reliability, (3.4) states the data collection and analysis and (3.5) talks about the procedures.

3.1. The Population and the Sample

The population consisted of all second year Jordanian students who study Spanish at the department of Spanish for the academic years (2008-2009) and (2009-2010) at the University of Jordan. The total numbers of students at the department of Spanish for academic year (2008-2009) was (123) and (99) for the academic year (2009-2010). The sample of this study was randomly selected form the total number of the population. To get better selection, the researcher registered all the names of the students on pieces of papers and then the sample was picked up by names. The sample consisted of (50) students; it involves the students who have passed fifteen credential hours of Spanish subjects out of the Spanish Language B.A. syllabus.

3.2. Instrument of the Study

The researcher followed the descriptive analysis as well as the instrumental approach to answer the questions of the study. It was theoretical because the pronounced performances made by the participants learning Spanish were analyzed on the basis of (i) interlingual errors (ii) intralingual errors and (iii) transfer (i.e. positive and negative) with

reference to Corder's (1973 and 1981) and Dulay's, Burt's and Krashen's (1982) theoretical views of the approaches. With regard to the instrument, the researcher provided an informal (pilot study) test to be read by the participants and a tape recorder was used to record the students' performances in order to trace the pronounced errors. On the basis of the results which are gained in the informal test, the researcher designed the formal test. It was designed to involve the following sections: (i) words, (ii) minimal pairs, (iii) sentences and (iv) paragraphs. The designation is meant to form the core of the test to elicit the committed errors. The first section consisted of (126) words, the second section consisted of (120) pairs, the third section involved (13) sentences and the fourth section consisted of two paragraphs. All of them were meant to find out the pronounced errors related to (i) consonants and (ii) vowels which include diphthongs, triphthongs and hiatuses. The segments were tested in the initial, medial, and final positions of the word. The researcher designed the formal test to look for every possible pronunciation error of consonants and vowels, namely, diphthongs, triphthongs and hiatuses of Spanish. As for the content of first section, the words were written by the researcher who is a native speaker of Spanish and she took the help of Miguel (a Spanish instructor) to check them. As for the sentences, they were written by the researcher herself. However, the paragraphs were taken from two different Spanish stories; the first paragraph was taken from a Spanish story named *Pepita Jimenez* written by the famous Spanish writer Juan Valera and the second paragraph was a sonnet taken from the most famous Spanish novel *Don Quijote De la Mancha*. The test involved very easy words, medium level words and a bit difficult words to match all levels of the sample.

The Spanish items of the test were checked by five professional instructors of Spanish in order to get an appropriate version of the test. The work involved a number of tables that were needed to illustrate statistical figures and to show the types of errors committed by students. IPA style was used for the standard (Castilian) Spanish, English (American) and Modern Standard Arabic (written in Roman script) in order to detect the source of errors and to figure out the kind of influence that was processed. The work involved a list of demographic information about the participants. They were (i) name, (ii) age, (iii) sex, (iv) level, (v) subjects, (vi) students' grades (vii) their mother tongue and second language and (viii) place of living as shown in appendix (I, p.158).

The data were elicited through a test re-test procedure as attached in appendix (II, p. 161), in which (25) students were pre-tested in an attempt to get errors to see whether it was appropriate for research or not; fortunately, it was found good area to be conducted in study. The formal test was provided to every student of the sample in order to have a precise data as in appendix (III, p. 165). The environment of the class which the test was held was very appropriate as it provided good light and comfortable chairs for all of them. The test was totally written in Spanish and was designed specifically to cover the questions of the study, i.e. to elicit the articulated errors.

3.3. Validity and Reliability

In order to maximize the validity of the test, it was revised by five instructors who teach Spanish language in various institutions as in appendix (IV, p. 170**).** Two of them were Jordanian professors namely Dr. Ziad Al-Gogazeh and Dr. Rinad Al-Momani at the University of Jordan who teach Spanish to Jordanian students for years. The test was also revised by three Spanish teachers of Spanish, namely, Ana, Teresa Simon Cabodevilla who

both teach Spanish at the University of Jordan and Miguel Angel Pelaez Navarrete who teaches Spanish at the Spanish Institute Cervantes and who had worked on a study of the pronunciation errors of foreign learners of Spanish. Miguel helped the researcher in creating the test. They read and checked the written data to find out whether the items of the test were appropriately written for this kind of research. The professors and the teachers of Spanish were kindly asked to check (i) that all Spanish consonantal and vocalic sounds were put in the initial, medial and final position of the word, (ii) every Spanish segment had to be implied in minimal pairs (iii) the sentences and paragraphs were appropriately chosen to match the participants' levels of proficiency in Spanish. Taking all these issues into consideration, professors and teachers of Spanish provided the researcher with their comments and recommendations; they agreed that the used material in the test was valid for this research. Their opinions and suggestions were highly considered.

The research is reliable because a test-retest was made first as pre step to the formal one. The students who participated in the sample were given an informal test before conducting the formal one. The duration of the test was (13) minutes for each student. After having the results of this test, it helped the researcher to design the formal test. The performances of the participants gave the researcher valuable and productive comments to initiate the research work. The selected place was in a calm lecture room and the researcher provided a friendly environment. The researcher used the elicitation task to get good amount of errors. Each student in the sample was asked individually to read the provided data in a close test form, then, the researcher recorded their responses separately.

The participants were scared at the beginning of the test, but the fear immediately disappeared after they started. However, no one showed objection taking the test; thus, the researcher didn't have any problem regarding the participants' attitudes.

3.4. Data Collection and Analysis

The data were recorded and analyzed in an objective manner. Then, errors were classified and tabulated to be analyzed as per the simple arithmetical procedures with the following headings (i) the manner and place of articulation, (ii) the process in which the pointed phoneme becomes incorrectly pronounced showing the error, (iii) the learner's performance, (iv) the number of students with wrong performance, (v) target performance in IPA Spanish Phonetic transcription, (vi) number of students of correct performance, (vii) spelling, (viii) meaning, (ix) total percentage of errors. The errors in consonants and vowels (that is, diphthongs, triphthongs and hiatus) were represented in tables and then analyzed. The articulated errors were classified and categorized into groups based on (i) interlingual errors due to the influence of L1 (Arabic) and L2 (English) on L3 (Spanish) and (ii) the intralingual errors which were due to the lack of knowledge of L3 phonetic system. Moreover, the pronounced segments by the participants were also classified by the types of transfer whether positive or negative. Wrong articulation of segments is normally expected as learners change either the place of articulation or manner of articulation.

The IPA charts were presented in order to trace the source of errors. The consonant chart of L1 is seen in appendix (V, p.171); whereas, the examples of all segments were put in appendix (VI, p.172). The consonantal chart of L2 was seen in appendix (VII, p.173); but the examples were put in appendix (VIII, p.174). L3 consonantal chart was seen in

appendix (IX, p.175). L1 vowel charts is seen in appendix (X, p.176); while, the examples were in appendix (XI, p.177). L2 vowels were shown in appendix (XII, p.178) but the examples were listed in appendix (XIII, p.179). L3 vowels were shown in appendix (XIV, p.181). L1 diphthong examples were put in appendix (XI, p.177); but, L2 diphthongs and triphthongs were put in appendix (XIII, p.179).

3.5. The Procedures

In the process of designing and writing this comprehensive research, the researcher followed the following procedures:

(i) The researcher attended a class in the Spanish institute "Cervantes" in order to observe the most common errors that students had while pronouncing Spanish segments during class time.

(ii) The researcher piloted a test-retest to (25) students who study at the Department of Spanish at the University of Jordan for the academic years 2008/2009 and 2009/ 2010 in order to elicit the most common errors that were made by participants.

(iii) After analyzing the data, the researcher found out that there were a number of errors committed by the participants while pronouncing Spanish segments of consonants and vowels (i.e. diphthongs, triphthongs and hiatuses).

(iv) Then, the researcher designed the formal test and administered it to the (50) students instead of the (25) to get better results and not to be biased in the work as shown in appendix (III, p.165).

(v) The test was checked by Spanish instructors for the purpose of achieving its validity. Their names were mentioned in appendix (IV, p.170).

(vi) The test was handled separately to every participant.

(vii) Participants were asked to read in an appropriate classroom environment.

(viii) Every student's speech was recorded and the pronounced words were transcribed directly into IPA symbols.

(ix) Errors were tabulated to distinguish them while they were being analyzed.

(x) Then a categorization of segments was made. The researcher classified the errors whether they were consonants, vowels, diphthongs, triphthongs or hiatuses.

(xi) A detailed descriptive was done.

(xii) The researcher found out the similarities and differences between all the segments in L1, L2 and L3 as seen in appendices (XV-XIX, p.182-187) in order to find out the source of error whether interlanguage or intralanguage.

(xiii) The interlingual and the intralingual errors made by the participants were classified, tabulated and then analyzed.

(xiv) The positive and negative transfer of the recorded sounds were tabulated and then analyzed.

(xv) The researcher referred to Corder's (1973 and 1981) and Dulay's, Burt's and Krashen's (1982) theoretical views for the analysis of the above issues.

(xvi) A statistical analysis was made with help of the professor Mohammad Al- Na'eymi.

(xvii) The questions of the study were answered.

(xviii) Thus, new results were presented.

Chapter Four
Results and Discussions

4.0 Introduction

This chapter consists of four sections: (4.1) involves a description of the Spanish segments as per IPA style. The described phonetic symbols are consonants, vowels, diphthongs, triphthongs and hiatus. As far as (4.2) is concerned, this part involves the theoretical and statistical analysis of phonetic errors. Thus, errors are classified according to the types of phonemes, showing the errors with their respective examples, determining whether the change has been from the manner or/and place of articulations, the percentage of errors and finally the errors are analyzed and compared with the empirical literature. In section (4.3), the researcher classifies the types of errors into interlingual errors and intralingual errors. Finally, the researcher categorizes the errors into transfer, whether positive or negative in (4.4).

4.1. Description of Spanish Phonemes as per IPA Style

The researcher used the IPA symbols for Spanish phonemes in order to make the research systematic and to avoid any confusion that might arise due to the different articulations of the various Spanish dialects. The used symbols represent the Standard Spanish pronounced in Spain. The following analysis shows the full description of such symbols to make it easy for the reader to understand the phonemes in a scientific manner.

4.1.1. Description of Consonants as per IPA Symbols

Spanish consonants were categorized on the base of manner of articulation starting with nasals, stops, affricate, fricatives, approximant, trill, tap and laterals. Moreover, the place of articulation of each phoneme was discussed, namely, bilabial, labio-dental, inter-dental, alveolar, palato-alveolar, palatal, velar and uvular. Furthermore, they were provided with examples.

No.	Phone-me	Phonetic Symbols	Description
1	**/m/**	[m]	It is the bilabial voiced nasal consonant. It occurs at the initial position of the specimen /**m**apa/ [**m**apa] *mapa* ‘map’ and in the medial position as in /ka**m**po/ [ka**m**po] *campo* ‘field’.
2	**/n/**	[n]	It is the alveolar nasal. It occurs in all positions as in the initial position of the example /**n**aɾiθ/ [**n**aɾiθ] *nariz* ‘nose’, in the medial position followed by alveolar consonants as in /e**n**seɾes/ [e**n**seɾes] *enseres* ‘appliances’ and in the final position as in /karto**n**/ [karto**n**] *cartón* ‘carton’. It has various allophones; for instance, if it is followed by the inter-dental voiceless fricative [θ], [n] becomes inter-dental [n+] as in /o**n**θe/ [o**n+**θe] *once* ‘eleven’. However, [n] becomes palatalized whenever followed by the palatal [j] as [n] in /co**nλ**ebaɾ/ [ko**n^{j}**λeβaɾ] *conllevar* ‘lead’. It also becomes velarized if followed by the velar [γ] as in /co**ng**a/ [ko**n$^{\gamma}$**a] *conga* ‘Conga dance’. Finally, it becomes nasal dental [n] when it is followed by a dental consonant as /a**n**da/ [a**n**da] *anda* ‘walk’.

3	/ɲ/	[ɲ]	It is the palatal nasal. It occurs in the initial position as in /ɲudo/ [ɲuðo] *ñudo* ‘nod’ and in medial position of the word as in /kaɲa/ [kaɲa] *caña* ‘reed’.
4	**/p/**	[p]	It is the bilabial voiceless stop. It occurs in all positions as in the initial position of /**p**ɾosa/ [**p**ɾosa] *prosa* 'prose', in the medial position /ko**p**a/ [ko**p**a] 'cup' and in the final position /ra**p**/ [ra**p**] *rap* 'rap'.
5	**/b/**	[b]	It is the bilabial voiced stop. It occurs at the initial position of the word as in /**b**oske/ [**b**oske] *bosque* 'forest' and in the medial position as in /kam**b**jo/ [kam**b**jo] *cambio* ‘change’. It has allophonic variations such as [β], which is bilabial voiceless approximant and takes place in /a**b**soluto/ [a**β**soluto] *absoluto* ‘absolute’. Other allophone is [β] which is bilabial voiced approximant which happens in the initial position of the syllable after vowel or consonant (except nasal) such in /ka**b**a/ [ka**β**a] *cava* ‘dig'.
6	**/t/**	[t]	It is the alveolar voiceless stop. It occurs in all positions as in the initial position of /**t**ɾuko/ [**t**ɾuko] *truco* 'trick', in the medial position as in /kwa**t**ɾo/ [kwa**t**ɾo] *cuatro* 'four', and in the final position of /taɾo**t**/ [taɾo**t**] 'horoscope'. It has one allophone; for instance, it is dental when it is preceded by the fricative [θ] as in /aθ**t**e/ [aθ**t**e] *hazte* ‘make yourself’.

7	**/d/**	[d]	It is the alveolar voiced stop. It occurs in all positions as in the initial position of /**d**aɾ/ [**d**aɾ] *dar* ‘give’, in the medial position as /an**d**aɾ/ [an**d**aɾ] *anda* ‘walk’. It has allophonic variations such as [ð] in which it is dental and lies at the final position of the specimen /θjuda**d**/ [θjuda**ð**] *ciudad* ‘city’. It has one more allophone, which is the dental voiced approximant [ð] that lies in the medial position of the word after a vowel or after any consonant except a nasal or /l/ as /a**d**a/ [a**ð**a] ‘fairy’.
8	**/k/**	[k]	It is the velar voiceless stop. It occurs in all positions as in the initial position of /**k**ɾuθe/ [**k**ɾuθe] *cruce* 'cruise', in the medial position as in /impa**k**to/ [impa**k**to] *impacto* 'impact' and in the final position as in /komi**k**/ [komi**k**] *comic* 'comic'.
9	**/g/**	[g]	It is the velar voiced stop. It occurs in the initial position as **/g**ato/ [**g**ato] *gato* ‘cat’ and in the medial position after a nasal as in /an**g**aɾ/ [a**n**$^{\gamma}$aɾ] *hangar* ‘shed’. It has two allophones; one of them is the velar voiced approximant [γ] that occurs after a vowel or consonant (except nasal) as in /pa**g**a/ [pa**ɣ**a] *paga* ‘pocket money’. The other allophone occurs only in the final position of the syllable as /θi**g**θa**g**/ [θi**ɣ**θa**ɣ**] *zigzag* "zigzag".
10	**/t**ʃ/	[tʃ]	It is the palato-alveolar voiceless affricate. It occurs in the initial

position of the word as in **/tʃ**iko/ [**tʃ**iko] *chico* ‘boy' and in the medial position of the word /mu**tʃ**o/ [mu**tʃ**o] *mucho* ‘a lot’.

11 **/f/** [f] It is the labio-dental voiceless fricative. It occurs in the initial position of the word as in /fa**ʎ**o/ [fa**ʎ**o] *fallo* ‘failure’ and in the medial as /so**f**a/ [so**f**a] *sofa* 'sofa'.

12 /θ/ [θ] It is the inter-dental voiceless fricative. It occurs in all positions as in the initial position of /**θ**apato/ [**θ**apato] *zapato* ‘shoe’, in the medial position as in /ko**θ**eɾ/ [ko**θ**eɾ] *cocer* 'to cook' and in the final position of the word as in /be**θ**/ [βe**θ**] *vez* ‘occasion’. It has one allophone [θ] that is inter-dental voiced fricative. It occurs in final position followed by a voiced consonant as in /xu**θ**gaɾ/ [xu**θ**γaɾ] *juzgar* ‘to judge’.

13 **/s/** [s] It is the alveolar voiceless fricative. It occurs in all positions as in the initial position of /**s**al/ [sal] *sal* ‘**s**alt’, medial position as /pa**s**o/ [pa**s**o] *paso* 'step' and in the final position as in /to**s**/ [tos] *tos* ‘cough’. It has many allophonic symbols as the alveolar voiced fricative [z] as in /a**s**ma/ [a**s**ma] *asma* ‘Asthma’ that is followed by a voiced consonant (except /d/ or a voiced palatal). Another allophone is the dental voiceless fricative [s] that is followed by /θ/or /t/. Finally, it has the allophone dental voiced fricative [z] after /d/ as /de**s**de/ [de**z**ð**e**] *desde* ‘from’.

14	/ʝ/	[ʝ]	It is the palatal voiced fricative. It occurs in the initial position as in /**ʝ**eso/ [**ʝ**eso] *yeso* ‘gypsum’ and in the medial position of /ba**ʝ**a/ [ba**ʝ**a] *vaya* 'go'. It has one allophone [j] that is palatal voiced stop, which occurs after /n/ or /l/ as /kon**ʝ**uge/ [kon**ʝ**uɣe] *conyuge* 'spouse'.
15	**/x/**	[x]	It is the velar voiceless fricative. It takes place in all positions as it occurs in the initial position of /**x**amon/ [**x**amon] *jamón* ‘ham’, in the medial position of /ka**x**a/ [ka**x**a] caja 'box’ and in the final position of /relo**x**/ [relo**x**] *reloj* ‘watch’.
16	**/j/**	[j]	It is a palatal voiced approximant. It occurs as in the medial position of /b**j**olin/ [b**j**olin] *violin* 'violin'.
17	**/w/**	[w]	It is a velar voiced approximant. It occurs in the initial position as /**w**elga/ [**w**elga] *huelga* ‘strike’, and in the medial position of /b**w**ela/ [b**w**ela] *vuela* ‘fly’.
18	**/r/**	[r]	It is the alveolar voiced trill. It occurs in the initial position of /**r**opa/ [**r**opa] *ropa* ‘clothes’ and in the medial position of /ka**r**o/ [ka**r**o] *carro* ‘trolley’ .
19	/ɾ/	[ɾ]	It is the alveolar voiced tap. It occurs in the medial position of /aɾabe/ [aɾaβe] *Árabe* ‘Arab’, after the phonemes /b/,/p/,/t/,/k/,/g/,/f/ as in /bɾazo/ [bɾaθo] *brazo* ‘arm’ and in the

final position of /paɾ/ [paɾ] *par* ’pair’.

20	**/l/**	[l]	It is the alveolar voiced lateral. It occurs in the initial position of /limon/ [limon] *limón* 'lemon', in the medial position of /a**l**a/ [a**l**a] *ala* ‘wing’ and in the final position of /pweɾi**l**/ [pweɾi**l**] *pueril* 'childish'. It has many allophonic symbols such as the inter-dental lateral [l+] that is followed by an interdental as in /a**l**θa/ [a**l**θa] *alza* ‘rise’. Another allophone is the palatal lateral [lj] that is followed by a palato-alveolar as in /ko**l**tʃa/ [ko**l**tʃa] *colcha* ‘bedcover’. The last allophone is followed by a dental as /a**l**to/ [a**l**to] *alto* ‘tall’.
21	/ʎ/	[ʎ]	It is the lateral voiced palatal. It occurs in the initial position of /**ʎ**ama/ [**ʎ**ama] *llama* ‘call’ and in the medial position of /e**ʎ**a/ [e**ʎ**a] *ella* ‘she’.(c.f. Garrido and Machuca (1998, p.51))

In short, the above information describes the Spanish phonemic and allophonic sounds to give a comprehensive description for the readers, especially those who do not know about Spanish phonetic system.

4.1.2. Description of Vowels as per IPA Symbols

The Spanish vocalic phonemes are five. They are described on the basis of the position of the tongue (front, central, back and high, mid and low), its strength and in the positions in which they occur with examples.

No.	Phoneme	Phonetic Symbols	Description
1	/i/	[i]	It is a high front weak vowel. It occurs in the initial position as in /**i**ɾ/ [**i**ɾ] *ir* ‘to go’, in the medial position as in /θ**i**nko/ [θ**i**nko] *cinco* ‘five’ and in the final position as in /kas**i**/ [kas**i**] *casi* ‘almost’.
2	/e/	[e]	It is a mid-high front strong. It occurs in the initial position of /**e**ɾmoso/ [**e**ɾmoso] *hermoso* ‘beautiful’, in the medial position of /t**e**m**e**ɾ/ [t**e**m**e**ɾ] *temer* ‘to fear’ and in the final position of /kotʃ**e**/ [kotʃ**e**] *coche* ‘car’.
3	/a/	[a]	It is a low central strong. It occurs in the initial position as in /**a**maɾ/ [**a**maɾ] *amar* ‘to love’, in the medial position of /ɾ**a**bo/ [ɾ**a**bo] *rabo* ‘tail’ and in the final position as in /pen**a**/ [pen**a**] *pena* ‘sorrow’.
4	/o/	[o]	It is a mid-high back strong. It occurs in the initial position of /**o**ɾkestɾa/ [**o**ɾkestɾa] *orquestra* ‘orchestra’, in the medial position of /b**o**ske/ [b**o**ske] *b**o**sque* ‘forest’ and in the final position of /bur**o**/ [bur**o**] *burro* ‘donkey’.

5	/u/	[u]	It is high back weak. It occurs in the initial position of /**u**saɾ/ [**u**saɾ] *usar* ‘to use’, in the medial position of /k**u**kaɾatʃa/ [k**u**kaɾatʃa] *c**u**caracha* ‘cockroach’ and in the final position of /tɾib**u**/ [tɾib**u**] *tribu* ‘tribe’.

(c.f. Hualde (2005, p.54))

In short, these are the types of Spanish vowels. There are also stressed vowels as they are represented by a *tilde* (small mark above the vowel) such in the word *pánico* [paniko] ‘panic’. They are not analyzed since it should be studied for further research.

4.1.3 Description of Diphthongs as per IPA Symbols

Spanish has fourteen diphthongs. Diphthongs take place when two vowels are following each other, but must take place as follows: [semivowel + strong vowel], [semivowel + weak] or [strong vowel + weak vowel]. The two segments must be in the same syllable.

No.	Phoneme	Phonetic symbol	Description
1	/je/	[je]	The first segment is the semi-vowel /j/ and the second is the mid-high front strong /e/. It can occur in the initial position of /**je**ro/ [**je**ro] *hierro* ‘iron’, in the medial position of /t**je**ra/ [t**je**ra] *tierra* ‘land’ and in the final position of /p**je**/ [p**je**] *pie* ‘foot’.
2	/ja/	[ja]	The first segment is the semi-vowel /j/ and the second is the low central strong /a/. This diphthong can occur in the initial position of /**ja**to/ [**ja**to] *hiato* ‘hiatus’, in the medial position

of /p**ja**ɾ/ [p**ja**ɾ] *piar* ‘to spy’, and in the final position of /aθ**ja/** [aθ**ja**] *hacia* ‘towards’.

3 /jo/ [jo] The first semi-vowel is /j/ and the second is the mid-high back strong /o/. It occurs in the initial position of /**jo**niθaɾ/ [**jo**niθaɾ] *ionizar* **‘**iodine’, in the medial position of /oθ**jo**so/ [oθ**jo**so] *ocioso* ‘a person who likes leisure’ and in the final position of /rad**jo/** [ra**ðjo**] *radio* ‘radio’.

4 /ju/ [ju] The first semi-vowel is /j/ and the second is the high front weak /u/. It occurs in the medial position of /b**ju**da/ [b**ju**ða] *viuda* ‘widow’.

5 /ei/ [ei] The first vowel is the mid-high front strong /e/ and followed by the weak vowel /i/. It can occur in the initial position of /**ei**nstenjo/ [**ei**nstenjo] *einstenio* ’einsteinium’, in the medial position of /r**ei**na/ [r**ei**na] *reina* ‘queen’ and in the final position of /r**ei/** [r**ei**] *rey* ‘king’.

6 /eu/ [eu] The first vowel is the mid-high front strong /e/ and the second is the weak vowel /u/. It occurs in the initial position of /**eu**ɾo/ [**eu**ɾo] *Euro* ‘Euro’, in the medial position of the word /n**eut**ɾo/ [n**eu**tɾo] *neutro* ‘neutro’.

7 /ai/ [ai] It starts with the low central strong /a/ and the following segment is the weak vowel /i/. It occurs in the initial position as in /aiɾe/ [aiɾe] *aire* ‘air’, in the medial position of /baile/ [baile] *baile* ‘a dance’ and in the final position of **/ai**/ [**ai**] *hay*

’there is’.

8	/au/	[au]	It starts with the low central strong /a/ and it is followed by the high front weak /u/. It can occur in the initial position of /auɾa/ [auɾa] *aura* ’breeze’and in the medial position of /p**au**sa/ [p**au**sa] *pausa* ‘break.
9	/oi/	[oi]	It is the mid-high back strong /o/ and followed by the high front weak /i/. It can occur in the initial position of /**oi**go/ [**oi**go] *oigo* ‘I hear’, in the medial position of /s**oi**s/ [s**oi**s] *sois* ‘you are’ and in the final position of /s**oi**/ [s**oi**] ‘I am’.
10	/ou/	[ou]	The first vowel is the mid-high back strong /o/ and followed by the high back weak /u/. It can occur in the final position of /b**ou**/ [b**ou**] *bou* ‘seine fishing’.
11	/wi/	[wi]	It is the semivowel /w/ and followed by the vowel /i/. It occurs in the initial position of /**wi**ɾ/ [**wi**ɾ] *huir* ‘to escape’, in the medial position of /fl**wi**do/ [fl**wi**do] *fluido* ‘fluid’ and in the final position of /f**wi**/ [f**wi**] *fui* ‘I went’.
12	/we/	[we]	The first is the semivowel /w/ and the second is the mid-high front strong /e/. It can occur in the initial position of /**we**so/ [**we**so] *hueso* [bone], in the medial position of /f**we**go/ [f**we**ɣo] *fuego* ‘fire’ and in the final position of /ten**we**/ [ten**we**] *tenue* ‘thin’.
13	/wa/	[wa]	The first semivowel is /w/ and the following segment is the low central strong /a/. It occurs in the initial position of /**wa**sa/

			[**wa**sa] *huasa* ‘impolite’, in the medial position of /k**wa**dɾo/ [k**wa**ðɾo] *cuadro* ‘picture’ and in the final position of /oblik**wa**/ [oblik**wa**] *oblicua* ‘oblique’.
14	/wo/	[wo]	The first semivowel is /w/ and the following vowel is the mid-high back strong /o/. It can occur in the medial position of /k**wo**ta/ [k**wo**ta] *cuota* ‘quote’ and in the final position of /antig**wo**/ [antiɣ**wo**] *antiguo*‘old’. (c.f. Navarro (1985, p.65))

Moreover, the Spanish *tilde* can also be found in some diphthongs. It is normally found in the strong vowels such as in [e] or [a] or [o] such as in [diɾeis] *diréis* ‘you say’, [djalogo] *diálogo* ’dialogue’ and [saljo] *salió* ‘he went’.

4.1.4 Description of Triphthongs as per IPA Symbols

Spanish also has another phenomenon called triphthongs; it happens when three segments are following each other and they must be composed by [semivowel + strong vowel + weak vowel].

No.	Phoneme	Phonetic symbol	Description
1	/jei/	[jei]	The initial segment is the semivowel /j/, the medial is the mid-high front strong /e/ and the final is the high front weak /i/. A specimen of the situation is /l**jei**s/ [l**jei**s] ‘you bump’.
2	/jai/	[jai]	The initial segment is the semivowel /j/, the medial position is the low central strong /a/ and the last segment

			is the high front weak /i/ as in /f**jai**s/ [f**jai**s] ‘you trust’.
3	/joi/	[joi]	The initial segment is the semivowel /j/, the medial position is the mid-high back strong /o/ and the final is the high front weak /i/ as in /op**joid**e/ [op**joi**ðe] *Opioide* ‘Opioid’
4	/wei/	[wei]	The first segment is the semivowel /w/, the second is the the mid-high front strong /e/ and the last is the high front weak /i/ as in /b**wei/** [b**wei**] ‘ox’.
5	/wai/	[wai]	The first segment is the semivowel /w/, in the medial position is the low central strong /a/ and the last is the high front weak /i/ as in Paraguay **/**paɾag**wai/** [paɾaɣ**wai**] ‘Paraguay' (c.f. Navarro (1985, p. 65)).

Moreover, there are also other types of triphthongs in which are enclosed by *tilde.*

4.1.5 Description of Spanish Hiatus as per IPA Symbols

The term hiatus is a phenomenon found in Spanish. It is composed of two weak vowels (i.e. weak + weak) or two strong vowels (strong + strong). These vowels occur next to each other in different syllables. They are not regarded as gemination for the former or lengthening the vowel for the latter.

No.	Phoneme	Phonetic symbol	Description
1	/ii/	[ii]	This hiatus is composed of two identical vowels: high front weak /ii/. One example of this sound is found in the medial position of /tʃ**i**ita/ [tʃ**ii**ta] *chiita* ‘shiite’.
2	/ee/	[ee]	This hiatus is composed of the two identical strong vowels, namely, the mid-high front /e/. One example of this hiatus is in the medial position of the word /des**ee**/ [des**ee**] *desee* ‘you wish (formal form)’.
3	/ea/	[ea]	This hiatus is composed of the two strong vowels, i.e. the mid-high front strong /e/ and the low central strong /a/. One example of this sound is in the medial position of /l**ea**/ [l**ea**] *lea* ‘you read’.
4	/eo/	[eo]	This hiatus is composed of the two strong vowels i.e. the mid-high front strong /e/ and the mid-high back /o/. An example of this hiatus is in the final position of the word /teb**eo**/ [teβ**eo**] *tebeo* ’comic’.
5	/ae/	[ae]	This hiatus is composed of the two strong vowels i.e. the low central /a/ and mid high front /e/. An example of this kind of hiatus is in the medial position of /s**ae**ta/ [s**ae**ta] *saeta* ‘arrow’.
6	/aa/	[aa]	This hiatus is composed of the two identical strong vowels /a/.

			An example of such hiatus is in the initial position of /**aa**ɾon/ [**aa**ɾon] *Aaron* ‘Aaron’.
7	/ao/	[ao]	This hiatus is composed of two strong vowels, namely, the low central /a/ and the mid-high back /o/. An example of such hiatus is in the medial position of /k**ao**ba/ [k**ao**βa] *caoba* ‘mahogany’.
8	/oe/	[oe]	This hiatus is formed of the two strong vowels, namely, the mid-high back /o/ and mid-high front /e/. An example is in the medial position of the word /p**oe**ta/ [p**oe**ta] *poeta* ‘poet’.
9	/oa/	[oa]	This hiatus is formed of two strong vowels; the mid- high back phoneme /o/ and the low central /a/. An example of such hiatus is in the medial position of the word /t**oa**λa/ [t**oa**λa] *toalla* ‘towel’.
10	/oo/	[oo]	This hiatus is composed of the two identical strong vowels, i.e. the mid-high back strong phoneme /o/. An example of this hiatus is in the medial position of /θ**oo**loxiko/ [θ**oo**loxiko] *zoológico* ‘zoo’.
11	/uu/	[uu]	This hiatus is formed of the two identical weak vowels /uu/. An example of this hiatus is in the medial position of /d**uu**nbiɾo/ [d**uu**mbiɾo] *duunviro* ‘Duumvir’. (c.f. Navarro (1985, p.66-69)

In short, hiatuses occur in a small number of languages. Moreover, in Spanish, there are a very limited number of words formed by hiatus. To sum up, these are the Spanish consonants, vowels, diphthongs, hiatuses and triphthongs in which are the reference of the study in chapter four.

4.2. Theoretical and Statistical Analysis of Pronunciation Errors Committed by the Jordanian Learners of Spanish as Foreign Learners of Spanish

This section is meant to discuss the participants' committed errors with reference to the theoretical and empirical literature done in Chapter Two. In order to make the analysis clear, the researcher divided the errors of consonants, vowels, diphthongs, triphthongs and hiatuses in tables (1-5) and then each category is followed by its theoretical and statistical analysis respectively. Afterwards, the researcher categorized the types of interlingual errors in table (6) for consonants and (7) for vowels followed by the descriptive theoretical views of the L1 (Arabic) and L2 (English). As far as the intralingual errors are concerned, they are shown in table (8) for consonants and (9-11) for diphthongs, triphthongs and hiatuses respectively and then followed by the descriptive theoretical views to show the participants' real knowledge of L3 (Spanish) phonetic system. The researcher made the analysis merely comprehensive as she traced the source of errors. Thus, the researcher specifies the types of transfer whether positive as in table (12) for consonants or negative as in table (13) for consonants and (14-17) for vowels, diphthongs, triphthongs and hiatuses respectively. The following part (4.2) represents the charts and the subsequent analysis including the comments on the questions of the problems (1-2) in Chapter One. The following tables show the errors produced in the first part of the test. However, all the rest of the errors are seen in the appendices (XX-XIV). As far as the percentage is concerned, the percentage

does not only show the frequency of errors produced in the first part of the test, it also represents every examined phoneme found in the four sections of the test respectively.

4.2.1. Results and Analyses Related to Question (1) and (2)

4.2.1.1. The Spanish Consonants

It is obvious that the results and analyses for question (1) and (2) are intermingled; thus they are put under one heading as above. The participants made many errors in articulating different segments. The wrongly articulated Spanish consonants are seen in Table (1). This table shows the errors produced in the first part of the test. However, the rest of errors are shown in appendix (XX, p.188).

Table (1). Examples of the participants' committed errors in Spanish consonants

	Manner of articulation	Process	Learner's performance	No. of students with wrong performance	Target performance	No. of students with correct performance	Spelling	Meaning	Total percentage of errors (%)
1	Nasal	[ɲ]→[n]	[**no**ɲeɾja]	15	[ɲoɲeɾja]	35	*ñoñería*	'fussiness'	15.58%
			[ense**n**anθa]	8	[enseɲanθa]	42	*enseñanza*	'education'	
2	Stop	[p]→[b]	[basiλo]	13	[pasiλo]	37	*pasillo*	'corridor'	38.75%
			[gɾabe]	12	[gɾape]	38	*grape*	'staple'	
3	Stop	[b]→[p]	[puro]	25	[buro]	25	*burro*	'donkey'	30.92%
			[kompa]	20	[komba]	30	*comba*	'rope'	
4	Stop	[t]→[d]	[intendad]	12	[intentad]	38	*intentad*	'you try'	3.5%
5	Stop	[k]→[θ]	[komiθ]	8	[komik]	42	*comic*	'comic'	5.33%
6	Stop	[g]→[x]	[ponxo]	7	[pongo]	40	*pongo*	'I put'	6.17%
		[g]→[k]	[ponko]	3					
7	Affricate	[tʃ]→[k]	[kikle]	6	[tʃikle]	39	*chicle*	'gum'	13%
			[desinkado]	1	[desintʃado]	45	*deshinch-ado*	'deflate'	
		[tʃ]→[ʧ]	[ʃikle]	5					
			[desinʃado]	4					
8	Fricative	[θ]→[k]	[kinkwenta]	8	[θinkwenta]	38	*cincuenta*	'fifty'	14.75%
			[roke]	9	[roθe]	41	*roce*	'rubbing'	
		[θ]→[tʃ]	[tʃinkwenta]	2					
		[θ]→[s]	[sinkwenta]	2					
9	Fricative	[s]→[θ]	[poθa]	2	[posa]	48	*posa*	'pose'	1.83%
10	Fricative	[x]→[ʒ]	[ʒeogafja]	17	[xeogɾafja]	19	*geografia*	'geography'	22.56%
		[x]→[dʒ]	[dʒeogɾafja]	14	[kontaxjo]	42	*contagio*	'contagion'	
		[x]→[g]	[kontagjo]	8					
11	Fricative	[ʝ]→[dʒ]	[dʒugo]	18	[ʝugo]	18	*yugo*	'yoke'	60.5%

			[ʤodʒo]	14	[ʝoʝo]	24	*yoyo*	'yoyo'	
		[ʝ] → [λ]	[λugo]	14					
			[λoλo]	12					
12	Trill	[r] → [ɾ]	[ɾompekabeθas]	35	[rompecabeθas] [pora]	15 34	*rompeca-bezas porra*	'jigsaw puzzle' 'truncheon'	49.42%
			[poɾa]	16					
13	Tap	[ɾ] → [r]	[eroe]	8	[eɾoe]	42 36	*heroe ecuador*	'hero' 'equator'	23.83%
			[ekwador]	14	[ekwadoɾ]				
14	Lateral	[l] → [λ]	[λegalidad]	4	[legalidad]	46	*legalidad*	'legality'	1.4%
15	Lateral	[λ] → [ʤ]	[ʤamaɾ]	10	[λamaɾ] [baλa]	4 9	*llamar valla*	'to call' 'fence'	65.75%
		[λ] → [l]	[bala]	8					
		[λ] → [ʝ]	[ʝamaɾ]	36					
			[baʝa]	33					

The palatal nasal segment [ɲ], in (1), was wrongly pronounced as [n] in the specimens [*noɲeɾja] instead of the correct pronunciation [ɲoɲeɾja] *ñoñería* 'fussyness' and [*ensenanθa] instead of [enseɲanza] *enseñanza* 'education'. The consonant [ɲ]was repeated in (5) other specimens in the test; it was pronounced incorrectly in all the words, as seen in Appendix (XX, p.188). The percentage of this error was (15.58%). It was visible that Arab learners were not aware of the fact that this palatal nasal is entirely different from the plain alveolar nasal. This is obvious in the asterisk placed over the nasal <*ñ*> that is not visible with the plain <n>. The erroneous pronunciation let [ɲ] be changed from the palatal place of articulation to the alveolar place of articulation of [n]; however; the manner of articulation was maintained as nasal. When the researcher compared this error with the empirical literature, it was also seen as a problematic matter for Gospodaric's (2004) study on Slovenian learners who study Spanish as a foreign language. His participants also pronounced it as [n]. Moreover, the researcher's findings of this study agreed with Sanchez (2006) who conducted a study on Filipino participants who were unable to distinguish **[**ɲ**]** from the normal nasal phoneme [n]**.** However, at the same time the researcher disagreed with Gospodaric's result since his participants pronounced it also as [m]. It was significant

to notice that the participants of this study did not make errors in the pronunciation of [m] and [n]. However, Sanchez's (2006) participants confused the segment [n] with [l] and [ɾ].

The bilabial voiceless stop [p], in (2), was wrongly pronounced as [b] in the specimen [*basiʎo] instead of the correct pronunciation [pasiʎo] pasillo 'corridor' and in the example [*gɾabe] instead of [gɾape] *grape* 'staple'**.** This phoneme was repeated in (5) other examples in which they were all pronounced incorrectly. The total percentage of this error is (38.75%). This error did not face a change in the place or manner of articulation; however, the change occurred in the voicing feature. This study agreed with Carcedo's (1999), Cortes' (2002), Gospodaric's (2004), Sanchez's (2006) and Amador's and Rodriguez's (2008) results in the sense that they showed that learners could not distinguish between [p] and [b]. However, the researcher disagreed with Gospodaric's (2004) study in the sense that Slovenian learners also pronounced [p] as [f].

The bilabial voiced stop [b], in (3), became [p] in the specimens [*puɾo] instead of [buro] burro 'donkey' and [*kompa] instead of [komba] *comba* 'rope'. There were (5) other words that have the phoneme [b] in the test; all of them were pronounced incorrectly. The total frequency of this error is (30.92%). The pronunciation of this phoneme does not change the place or manner of articulation but changes the voicing feature. The researcher agreed with Carcedo's (1999) findings who conducted a study on Finnish learners of Spanish. Moreover, the researcher agreed with Cortes's (2002), Gospodaric's (2004) and with Amador's and Rodriguez's (2008) findings who proved it to be a difficult issue for Arab learners of Spanish. Conversely, the researcher disagreed with Gospodaric's (2004) result who said that in addition to confusing [p] with [b], his learners pronounced it as [f].

Moreover, the researcher disagreed with Madonati's (2007), Otto's (2006), Sanchez's (2006), Goglova's (2008) and Amador's and Rodriguez's (2008) results who stated that learners of Spanish pronounced the bilabial [b] as the labio-dental [v].

The alveolar voiceless stop [t], in (4), was wrongly pronounced as [d] in the medial position of the example [*intendad] instead of [intentad] *intentad* 'you try'. There were (7) other words that had the segment [t] in the test; however, only another error was found as shown in appendix (XX, p.188). The percentage of this type of error was (3.5%). The incorrect pronunciation of this phoneme did not change the place or manner of articulation but it changed the voicing feature; thus, from voiceless to voiced. The researcher agreed with Carcedo's (1999) results who found out the same error with his Finnish participants, with Cortes's (2002) and Gospodaric's (2004) findings in the sense that they said that learners of Spanish pronounced [t] as [d]. Moreover, the researcher disagreed with Gospodaric's results since the Slovenian learners of Spanish pronounced [t] as [θ].

The velar voiceless stop [k], in (5), was pronounced as [θ] in the final position of the word [*komiθ] instead of the correct pronunciation [komik] *comic* 'comic'. There were (7) other words that the phoneme [k] was used, in which (2) of them were pronounced wrongly as it was seen in the same appendix. This kind of error had a frequency of (5.33%). The change occurred in the manner of articulation in the sense that the segment [k] became [θ], that is, that the velar voiceless stop became inter-dental voiceless fricative insofar as the place of articulation was concerned. This problem was not seen in the previous literature; however, the researcher disagreed with Carcedo's (1999), Cortes's (2002) and Gospodaric's (2004) results in the sense that their learners could not distinguish between [k] and [g]. Additionally, the researcher disagreed with Sanchez's (2006) results since his

learners pronounced [k] as [x]. However, it seems that Arab learners of this sample have different background about the Spanish phonemes.

The velar voiced stop [g], in (6), was wrongly pronounced as [k] or [x] in the medial position of the specimen [*ponko] or [*ponxo] instead of the correct pronunciation [pongo] *pongo* **'**I put**'.** There were (6) other examples in which the segment [g] was used in the test; however, (4) of them were pronounced wrongly. This error had the percentage of (6.17%). When this sound became [k], the only change was in the voicing feature; however, when it changed to [x] there was a change in the place and manner of articulation; that is, the velar stop became uvular fricative. Carcedo's (1999), Cortes' (2002), Gospodaric's (2004) and Sanchez's (2006) results showed the same problem in their studies in which their participants could not differentiate between [g] and [k]. Moreover, the researcher concurred with Gospodaric's (2004) and Otto's (2006) results in the sense that learners pronounced [g] as [x].

In short, as far as the stops were concerned, the committed errors were the following: the voiced bilabial [b], the voiceless bilabial [p], the voiceless alveolar [t] and finally the voiceless velar [k]. It was significant to notice that in this study, errors in the pronunciation of the stop [d] did not take place; however, Cortes's (2002) and Gospodaric's (2004) learners pronounced it wrongly in the sense that they pronounced [d] as [t].

The palato-alveolar voiceless affricate [tʃ], in (7), was wrongly articulated either as [k] or [ʃ] in the medial position of the specimen [*desinkado] or [*desinʃado] instead of the correct pronunciation [desintʃado] *deshinchado* 'deflate' respectively. There were (5) other words having the phoneme [tʃ] in their spelling; thus, they were all pronounced

wrongly. This type of error was committed by (13%). When participants articulated this phoneme, the voiceless feature was maintained; however, when it was articulated as [k], a change in the place and manner of articulation took place, i.e., the palato-alveolar voiceless affricate became velar voiceless stop. Moreover, this phoneme was wrongly pronounced as the Arabic or English palato-alveolar voiceless fricative [ʃ]. The place of articulation did not change but the manner of articulation did. The researcher disagreed with Carcedo's (1999) result in the sense that his participant pronounced [tʃ] as [ts] or [tθ] or [θ]. The only Spanish affricate is the phoneme [tʃ].

The inter-dental voiceless fricative phoneme, [θ] in (8), was wrongly pronounced either as [k] or [tʃ] in the initial position of the example [*kinkwenta], [*tʃinkwenta] or [*sinkwenta] instead of the correct pronunciation [θinkwenta] *cincuenta* 'fifty'. Moreover, there was an error in the articulation of the same phoneme in the medial position of [*roke] instead of [roθe] *roce* 'rubbing'. There were (6) other words in which the phoneme [θ] was available in the test; thus, they were all articulated wrongly. This kind of error was found in (14.75%). Two changes took place in the manner and place of articulation in the sense that the inter-dental voiceless fricative [θ] became [k] and [tʃ] respectively. The former was velar voiceless stop and the latter was alveolar voiceless affricate. However, there was a change in the place of articulation when [θ] became the alveolar fricative [s] though maintaining the manner of articulation. The voiceless feature was maintained on all occasions. When it was compared to the empirical literature, it was evident that this phoneme was not pronounced as [k]; nevertheless, the researcher agreed with Otto's (2006) findings who showed that Maltese participants pronounced [θ] as [tʃ]. The researcher

disagreed with Gospodaric's (2004) result who agreed with Amador's and Rodriguez's (2008) result in the sense that their learners pronounced [θ] as [t]. Moreover, the researcher agreed with Cortes' (2002), Gospodaric's (2004), Otto's (2006), Goglova's (2001), Amador's and Rodriguez's (2008), Abril's and Hernandez's and Sossouvi's (2009) results in that their learners articulated [θ] as [s]. However, she differed from Gospodaric's (2004) findings in the sense that his participants pronounced [θ] as [f] or [x]. Additionally, the researcher disagreed with Otto's (2006) result in the sense that [θ] was wrongly articulated by his sample as [dʒ] or [ʃ]. The researcher differed from Sanchez's (2006) findings who articulated [θ] as [g]. Finally, the researcher also disagreed with Otto's (2006) and Sossouvi's (2009) results in the sense that their learners pronounced [z] instead of [s].

The alveolar voiceless fricative [s], in (9), was pronounced incorrectly as [θ] in the medial position of [*poθa] instead of [posa] *posa* 'pose'. There were other (7) specimens that had the segment [s]; however, (3) of them were pronounced wrongly as also seen in the same Appendix. This error scored the frequency of (1.83%). The error maintained the manner of articulation and the voicing feature but not the place of articulation, namely, the alveolar became inter-dental. When this work was compared to the empirical literature, it also proved to be a problematic case for Cortes' (2002) finding who illustrated that Chinese learners committed the same kind of error. Moreover, the researcher concurred with Gospodaric's (2004) pronunciation of Slovenian participants in the sense that they pronounced [s] as [θ]. Additionally, the researcher agreed with Otto's (2006) results of Maltese learners of Spanish and Amador's and Rodriguez's (2008) findings of Arab learners of Spanish on the same error in which [s] became [θ]. However, the researcher differed from Yates' (2005) result in the sense that he argued that Spanish learners

pronounced this phoneme as [z]. Furthermore, the researcher disagreed with Abril's and Hernandez's (2008) result who showed that French learners of Spanish pronounced the same error as [z].

The uvular voiceless fricative [x], in (10), was wrongly pronounced as [ʒ] or [dʒ] in the initial position of the specimen [*ʒeogɾafja] or [*dʒeogɾafja] instead of [xeogɾafja] *geografía* 'geography'. Moreover, it became [g] in the medial position of [*kontagjo] instead of the correct [kontaxjo] *contagio* 'contagion'. There were (6) other examples in which this error occurred; however, (4) of them were pronounced wrongly in the test as seen in the same Appendix. This sort of error occurred in (22.56%). The segment [x] retained its manner of articulation but lost the voicing feature and the place of articulation to become like the English palato-alveolar voiced fricative [ʒ]. The second change happened in the sense that the same fricative segment lost its manner and place of articulation to become like the Arabic and English palato-alveolar voiced affricate [dʒ]. The third change was that the same segment lost its manner and place of articulations and became the velar voiced stop [g]. The segment [x] lost its voiceless feature in all the cases. When a comparison was made with the empirical literature, the researcher agreed with Gospodaric (2004) and Otto (2006) in the sense that [x] was pronounced wrongly as [g]. Furthermore, the researcher concurred with Abril's and Hernandez's (2008) and Sossouvi's (2009) resuts in the sense that Spanish learners pronounced the phoneme [x] as [ʒ]. Moreover, she agreed with Otto's (2006) and Sossouvi's (2009) findings who showed that [dʒ] was a visible mistake in the participants' performances of the segment [x]. Conversely, the researcher disagreed with Carcedo's (1999), Poch's (1999) and Otto's (2006) findings

who showed that learners pronounced the segment [x] as [h]. Moreover, she disagreed with Gospodaric's (2004) findings in the sense that learners pronounced [x] as [θ]. Furthermore, she disagreed with Abril's and Hernandez's (2008) findings in the sense that their learners pronounced [x] as [s]. In short, it was visible that the only fricative that was pronounced correctly in this study is the labio-dental voiceless [f]. However, it was seen in the empirical literature that Gospodaric's (2004) Slovenian learners of Spanish pronounced it as [θ], [b] or as [p].

The palatal voiced fricative [ʝ], in (11), is wrongly pronounced either as [dʒ] or [ʎ] in the specimens [*dʒugo] or [*ʎugo] instead of [ʝugo] *yugo* 'yoke' and [*ʝodʒo] or [*ʝoʎo] instead of [ʝoʝo] *yoyo* 'yoyo' respectively. There were (3) other words that involved the segment [ʝ] in the test; all of them were pronounced wrongly. This kind of error scored the percentage (60.5%). The fricative [ʝ] lost its manner as well as its place of articulation to become like the Arabic and English palato-alveolar affricate [dʒ]. However, the voicing feature was maintained. The same segment maintained the voicing feature and the place of articulation; however, the only change happened in the manner of articulation since [ʎ] was palatal voiced lateral. It was significant to realize that this kind of error was not found in the empirical literature.

The alveolar voiced trill [r], in (12), was wrongly formed as [ɾ] in the initial position of [*ɾompekabeθas] instead of [rompekabeθas] *rompecabezas* 'jigsaw puzzle' and in the medial position of [*poɾa] instead of [pora] *porra* 'truncheon'. The study had (5) other words that had the same segment [r] in which all were pronounced wrongly. This error was found in (70%). The place of articulation was maintained but the change occurred

in the manner of articulation since the alveolar trill [r] became alveolar tap [ɾ]. The researcher agreed with Poch's (1999), Cortes' (2002), Gospodaric's (2004), Otto's (2006), Sanchez's (2006) and Abril's and Hernandez's (2008) results that proved to be a difficult matter for learners of Spanish. Nonetheless, the researcher differed from Poch's (1999) results in the sense that his participants pronounced the trill [r] as [γ].

The alveolar voiced tap [ɾ], in (13), was wrongly pronounced as [r] in the medial position of [*eroe] instead of [eɾoe] *héroe* 'hero' and in the final position of [*ekwador] instead of [ekwadoɾ] *Ecuador*. The sound [ɾ] was found in other (5) instances in the test; all were pronounced incorrectly as listed in the Appendix (XX, p.188). This sort of error carried with the frequency of (23.83%). The place of articulation was maintained but the change occurred in the manner of articulation since the alveolar tap [ɾ] became alveolar trill [r]. The researcher agreed with Poch's (1999), Cortes' (2002), Gospodaric's (2004) and Sanchez's (2006) findings whose participants could not differentiate between the tap and the trill [r]. However, the researcher also disagreed with Poch's (1999) result since he affirmed that French learners of Spanish pronounced the phoneme [ɾ] as [γ]. Moreover, the researcher disagreed with Sanchez's (2006) finding in the sense that his participants could not distinguish between the alveolat tap [ɾ] and the alveolar nasal [n].

The alveolar voiced lateral [l], in (14), was wrongly formed as [λ] in the initial position of [*λegalidad] instead of the correct form [legalidad] *legalidad* 'legality'. The segment [l] was repeated in (8) other words in which only one was pronounced mistakenly as it is seen in appendix (XX, p.188). This type of error took place in (1.4%). The manner of articulation was maintained but the place was not, since the alveolar lateral [l] became

palatal lateral [λ]. It proved to be a problematic issue for Sanchez's (2006) Filipino learners where [l] became wrongly pronounced as [λ]. However, the researcher differed from him since Filipino learners pronounced [l] as [n]. The researcher also disagreed with Cortes' (2002) findings for the reason that Chinese learners pronounced it as [r].

The palatal voiced lateral [λ], in (15), was wrongly pronounced either as [dʒ] and [ʝ] in the initial position of [*dʒamaɾ] or [*ʝamaɾ] instead of [λamaɾ] *llamar* 'to call' and [ʝ] or [l] in the medial position of [*baʝa] or [*bala] instead of [baλa] *valla* 'fence'. The phoneme [λ] was found in (5) other specimens in the test; all of them were pronounced incorrectly. This error scored the highest percentage of (65.75%). When the palatal lateral [λ] became [dʒ], there was a change in the manner and place of articulations since the latter is palato-alveolar voiced affricate. As for the second error, a change happened in the manner but not in the place of articulation because the segment [ʝ] is palatal fricative. Finally, the manner of articulation was maintained but not the place in which the palatal [λ] became alveolar lateral [l]. The voicing feature was maintained in all the errors. The researcher agreed with Gospodaric's (2004) and Madonati's (2007) results in the sense that learners of Spanish pronounced [λ] as [ʝ]. Additionally, she agreed with Gospodaric's (2004) and Sossouvi's (2009) results who showed that their participants transferred the segment [λ] into [l]. However, the researcher disagreed with Gospodaric's (2004) findings.

In short, from the perspective of the highest percentage, it was seen that the palatal lateral consonant [λ] scored the highest percentage, which was (65.75%). The second percentage scored was the palatal fricative [ʝ] with a frequency of (60.5%); then, the third was the consonant alveolar trill [r] with a percentage of (49.42%). The forth score was the

error in the pronunciation of the bilabial stop [p] with a frequency of (38.75%); the fifth score was the bilabial stop [b] with a percentage of (30.92%). The sixth error was the alveolar tap [ɾ] with a percentage of (23.83%); the seventh was the uvular fricative consonant [x] with a percentage of (22.56%). The eighth was the consonant palatal nasal [ɲ] that scored a frequency of (15.58%). The ninth was the inter-dental fricative [θ] that scored a percentage of (14.75%); the tenth was the palato-alveolar affricate [tʃ] with a frequency of (13%). The eleventh was the velar stop [g] with a frequency of (6.17%); the twelfth was the velar stop [k] with (5.33%). The thirteenth was the alveolar stop [t] that scored a percentage of (3.5%). The fourteenth in the list was the alveolar fricative [s] that scored a percentage of (1.83%); and finally, the lowest scored percentage was the alveolar lateral [l] with a percentage of (1.4%).

It was significant to know that the researcher of this study concurred and disagreed with various researchers mentioned in the empirical literatures of this work. In other words, the participants of this study committed similar errors as that of the empirical literature and committed different errors from that of the empirical studies. However, there were instances of errors that were restricted to this research. These results showed that the participants of this study had different backgrounds of two or more phonetic systems.

4.2.1.2. The Spanish Vowels

Table (2) shows the unacceptable articulated vowels made by the participants. It is significant to notice that other similar errors of vowels are available in Appendix (XXI, p.191).

Table (2). Examples of participants' committed errors in Spanish vowels.

	Process	Learner's performance	No. of students with wrong performance	Target performance of IPA Spanish Phonetic transcription	No. of students with correct performance	Spelling	Meaning	Total percentage of errors (%)
1	[i]→ [e]	[estoɾja] [paneko] [magɾebe]	33 10 15	[istoɾja] [paniko] [magɾebi]	17 40 35	*historia* *pánico* *magrebí*	'story' 'panic' 'person from Maghreb'	35.84%
2	[e] → [i]	[inbeneno] [piso] [pɾebjeni]	15 14 4	[enbeneno] [peso] [pɾebjene]	35 36 46	*enveneno* *peso* *previene*	'poison' 'weight' 'he prevents'	24.83%
3	[a] →[e]	[beso]	4	[baso]	46	*vaso*	'glass'	4.83%
4	[o] →[u]	[uɾatoɾja] [buske]	10 18	[oɾatoɾja] [boske]	40 38	*oratoria* *bosque*	'oratory' 'forest'	25.67%
5	[u]→[e]	[opelento]	14	[ufano] [opulento] [tɾibu]	26 35 23	*ufano* *opulento* *tribu*	'proud' 'opulent' 'tribe'	33.5%
	[u]→ [o]	[ofano] [opolento] [tɾibo]	24 10 27					

The high front weak [i], in (1), is wrongly pronounced as [e] in the initial position of the specimen [*estoɾja] instead of [istoɾja] *historia 'history'*, in the medial position of [*paneko] instead of [paniko] *pánico* 'panic' and in the final position of [*magɾebe] instead of [magɾebi] *magrebí* 'a person from Magreb'. The segment [i] was repeated in (5) other examples as in Appendix (XXI, p.191) in which all were pronounced wrongly. This error occurred in (35.58%). The researcher found out that Poch (1999), Gospodaric (2004),

Madonati (2007), Sanchez (2006) and Amador and Rodriguez (2008) showed a similar problematic issue with their participants and as the participants of this study in the sense that they could not distinguish between the vowels [i] and [e].

The mid-high front strong [e], in (2), was wrongly pronounced as [i] in the initial position of the example [*inbeneno] instead of the correct pronunciation [enbeneno] *enveneno* 'poison' and in the medial position of the specimen [*piso] instead of [peso] *peso* 'weight' and in the final position of [*pɾebjeni] instead of [pɾebjene] *previene* 'he prevents'. The error [e] was also found in (5) other words in the test as seen in the same Appendix

. This error took place in (24.83%). The researcher found out that Poch's (1999), Gospodaric's (2004), Madonati's (2007), Sanchez's (2006), Goglova's (2001) and Amador's and Rodriguez's (2008) results showed the same kind of error in which [e] became [i]. However, the researcher disagreed with Sossouvi's (2009) finding who argued that French speakers learning Spanish in Africa pronounced [e] as [ə] or [ɛ].

The low central front strong [a], in (3), was wrongly pronounced as [e] in the medial position of [*beso] instead of [baso] *vaso* 'glass'. The vowel [a] was repeated in (6) other words in the test in which (3) words were pronounced incorrectly. This error occurred with the percentage of (4.83%). The results of this study agreed with Gospodaric's (2004) study in that the segment [a] became [e]. Nonetheless, the researcher disagreed with Yates' (2005) result who said that learners of Spanish pronounced [a] as [aw]. Additionally, the researcher differed from Sanchez (2006) in the sense that Filipino learners of Spanish pronounced [a] as [o] or [u].

The mid-high back strong [o], in (4), was incorrectly articulated as [u] in the initial position of [*uɾatoɾja] instead of the correct [oɾatoɾja] *oratoria* ‘oratory’ and in medial position of [*buske] instead of [boske] *bosque* ’forest’. The vowel [o] was found in (6) other instances out of which (5) were pronounced incorrectly as seen in the same Appendix. This error was found in (25.67%). It was visible that Gospodaric’s (2004), Madonati’s (2007), Sanchez’s (2006) and Amador’s and Rodriguez’s (2008) results had the same error as the participants of this study in that learners could not distinguish between [o] and [u]. However, the researcher disagreed with Poch’s (1999) and Yates’ (2005) findings who showed that this segment was a problematic issue because learners pronounced it as [ou]. Moreover, the researcher differed from Gospodaric’s (2004) result on Slovenian learners in that [o] was wrongly articulated as [wo]. Additionally, the researcher disagreed with Sanchez’s (2006) result in the sense that Filipino learners pronounced [o] as [i]. Finally, the researcher differed from Goglova’s (2008) results of the Russian learners of Spanish who pronounced [o] as [a].

The high back weak [u], in (5), was wrongly pronounced as [e] in the medial position of [*opelento] instead of the correct pronunciation of [opulento] *opulento* ’opulent’. The empirical literature showed no similar error of this type by Spanish learners. Another type of error was that [u] was wrongly pronounced as [o] in the initial position of the example [*ofano] instead of [ufano] *ufano* ‘proud’, in the medial position of the utterance [*opolento] instead of [opulento] *opulent* ’opulent’ and in the final position of [*tɾibo] instead of [tɾibu] *tribu* ‘tribe’. A similar error of the vowel [u] was found in (5) other instances in which all were pronounced erroneously as in the same Appendix. This

type of error took place in (33.5%). It was evident that the high back [u] became the mid-high front [e]. This kind of error was visible in the previous literature of Gospodaric (2004), Madonati (2007), Sanchez (2006) and Amador and Rodriguez (2008). However, the researcher differed from Sossouvi's (2009) results who argued that French learners of Spanish living in Africa pronounced [i] instead of [u]. Additionally, the researcher disagreed from Yates' (2006) who said that learners of Spanish pronounced [u] as [ju].

In short, the participants of this study pronounced incorrectly all the Spanish vowels. Insofar as the highest error was concerned, the vowel [i] scored the greatest with a percentage of (35.58%). The second occurred with the vowel [u] with a percentage of (33.58). The third was the vowel [o] with a percentage of (25.67%), the forth was with the vowel [e] with a percentage of (24.83%) and finally, the lowest error was the vowel [a] with a percentage of (4.83%). The researcher agreed with a number of researchers but the most, was Madonati's (2007) and Amador's and Rodriguez's (2008) results.

4.2.1.3. The Spanish Diphthongs

Table (3) shows the unacceptable articulated diphthongs made by the participants. Similar errors of the category are written in the Appendix (XXII, p.192).

Table (3). Examples of the participants' committed errors in Spanish diphthongs

	Process	Learner's performance	No. of students with wrong perfor-mance	Target performance (IPA)	Total no. of students with wrong perfor-mance	No. of students with correct perfor-mance	Spelling	Meaning	Total percen-tage of errors (%)
1	[je]➔[i]	[iro] [diθjotʃo] [espeθi]	1 4 2	[jero] [djeθjotʃo] [espeθje]	10 11 13	40 39 37	*hierro* *dieciocho* *especie*	'iron' 'eighteen' 'species'	19.5 %

	[je] → [e]	[ero] [deθjotʃo] [espeθe]	6 7 5						
	[je] → [ja]	[espeθja]	6						
	[je] → [jo]	[joro]	2						
	[je] → [ei]	[eiro]	1						
2	[ja] → [i]	[ito] [diboliko]	3 5	[jato] [djaboliko] [feɾja]	18 13 7	32 37 43	*hiato* *diabólico* *feria*	'hiatus' 'diabolical' 'fair'	13.17%
	[ja] → [a]	[daboliko] [feɾa]	8 4						
	[ja] → [je]	[jeto] [feɾje]	2 2						
	[ja] → [ea]	[eato] [ferea]	2 1						
	[ja] → [ai]	[aito]	11						
3	[jo] → [u]	[kontaxu]	3	[joniθaɾ] [pjoxo] [kontaxjo]	19 8 11	31 42 39	*ionizar* *piojo* *contagio*	'ionize' 'louse' 'contagion'	18.17%
	[jo] → [o]	[oniθaɾ] [poxo] [kontaxo]	18 8 8						
	[jo] → [ai]	[ainiθaɾ]	1						
4	[ju] → [i]	[bido]	4	[bjudo]	14	36	*viudo*	'widower'	27%
	[ju] → [jo]	[bjodo]	3						
	[ju] → [eu]	[beudo]	6						
	[ju] → [we]	[bwedo]	1						
5	[ei] → [i]	[instenjo] [sisθjentos]	20 2	[einstenjo] [seisθjentos] [rei]	41 30 2	9 20 48	*einstenio* *seiscientos* *rey*	'einsteiniu m' 'six hundred' 'king'	34.17%
	[ei] → [e]	[enstenjo] [sesθjentos]	17 24						
	[ei] → [je]	[sjesθjentos]	4						
	[ei] → [ea]	[rea]	2						
	[ei] → [ai]	[ainstenjo]	4						
6	[eu] → [i]	[iɾopa] [sidonimo]	6 8	[euɾopa] [seudonimo]	42 20	8 30	*Europa* *seudónimo*	'Europe' 'pseudony m'	54%
	[eu] → [e]	[eɾopa] [sedonimo]	6 12						

	[eu]→[o]	[oɾopa]	9						
	[eu]→[u]	[uɾopa]	7						
	[eu]→[ju]	[juɾopa]	10						
	[eu]→[oi]	[oiɾopa]	4						
7	[ai]→[i]	[isladamente] [bila]	8 4	[aisladamente] [baila]	14 10	36 40	*aisladamente baila*	'isolated' 'dance'	22.22%
	[ai]→[e]	[bela]	2						
	[ai]→[a]	[asladamente]	6						
	[ai]→[ae]	[baela]	4						
8	[au]→[a]	[inaguɾaɾ]	22	[aula] [inauguɾaɾ]	8 36	42 14	*aula* *inaugurar*	'classroom' 'inaugurate'	34.5%
	[au]→[o]	[ola]	5						
	[au]→[u]	[ula] [inuguɾaɾ]	3 9						
	[au]→[wa]	[inwaguɾaɾ]	5						
9	[oi]→[jo]	[gasjol] [konbjo]	5 2	[oigo] [gasoil] [konboi]	11 14 12	39 36 38	*oigo* *gasoil* *convoy*	'I hear'	22.67%
	[oi]→[oe]	[gasoel]	3						
	[oi]→[wi]	[wigo] [gaswil] [konbwi]	7 4 10						
	[oi]→[we]	[wego] [gaswel]	4 2						
10	[ou]→[o]	[bo]	5	[bou]	14	36	*bou*	'seine fishing'	58%
	[ou]→[u]	[bu]	5						
	[ou]→[au]	[bau]	3						
	[ou]→[oi]	[boi]	1						
11	[wi]→[i]	[jɾ] [fimos]	2 1	[wiɾ] [fwimos]	24 14	26 36	*huir* *fuimos*	'to flee' 'we go'	30.33%
	[wi]→[oi]	[oiɾ]	18						
	[wi]→[we]	[weɾ] [fwemos]	4 13						
12	[we]→[e]	[elga] [ungento]	4 10	[welga] [ungwento] [fwe]	17 15 11	33 35 39	*huelga* *ungüento* *fue*	'strike' 'ointment' 'he went'	13.92%
	[we]→[o]	[olga]	3						
	[we]→[u]	[ulga]	4						

	[we]→[eo]	[eolga] [feo]	1 1						
	[we]→[eu]	[eulga]	5						
	[we]→[wi]	[ungwinto] [fwi]	5 10						
13	[wa]→[u]	[uka] [lenguxe]	5 3	[waka] [lengwaxe]	22 12	28 38	*huaca* *lenguaje*	‘huaca’ ‘language’	20.67%
	[wa]→[ju]	[kontinju]	12	[kontinwa]	15	35	*continua*	‘continue’	
	[wa]→[ao]	[aoka]	5						
	[wa]→[au]	[auka]	11						
	[wa]→[we]	[weka] [lengwexe]	1 9						
	[wa]→[wo]	[kontinwo]	3						
14	[wo]→[o]	[fastoso] [fato]	13 9	[fastwoso] [fatwo]	27 15	23 35	*fastuoso* *fatuo*	‘fatuous’ ‘fatuous’	44%
	[wo]→[u]	[fastuso] [fatu]	14 2						
	[wo]→[ou]	[fatou]	4						

The diphthong [je], in (1), was pronounced as [i] in the initial position of the specimen [*iro] instead of the correct form [jero] *hierro* ‘iron’. The same error occurred in the medial position of [*diθjotʃo] instead of [djeθjotʃo] *dieciocho* ‘eighteen’. It also occurred in the final position of [*espeθi] instead of the correct form [espeθje] *especie* ‘species’. Moreover, it was also pronounced wrongly as [e] in the examples [*ero] instead of the correct [jero] *hierro* ‘iron’, [*deθjotʃo] instead of [djeθjotʃo] *dieciocho* ‘eighteen’ and [*espeθe] instead of [espeθje] *especie* ‘species’. The same diphthong was pronounced mistakenly using different diphthongs as [ja] in the specimen [*espeθja] instead of

[espeθje] *especie* ‘species’, [jo] and [ei] in the specimens [*joro] and [*eiro] instead of [jero] ‘iron’ respectively. The diphthong [je] was repeated in (5) other specimens in the test in which all were pronounced incorrectly, as seen in appendix (XXII, p.192). This diphthong scored the frequency of (19.5%). The researcher agreed with Gospodaric’s (2004) finding whose Slovenian participants pronounced [je] as [e] and the researcher also agreed with Sanchez’s (2006) result whose Filipino participants pronounced [je] as [i]. However, the remaining errors were restricted to this analysis.

The diphthong [ja], in (2), was articulated erroneously as the vowels [i] and [a] in the initial position of the utterance [*ito] instead of [jato] *hiato* ‘hiatus’ and in the medial position of [*daboliko] instead of [djaboliko] *diabólico* ‘diabolical’. It was also pronounced wrongly using the different diphthongs as [je] and [ai] and the hiatus [ea] in the initial position of [*jeto], [*aito] and [*eato] for the same example [jato] *hiato* ‘hiatus’ respectively. The same mistake was repeated as [je], [ea] in the final position of the specimen [*feɾje] and [*feɾea] instead of [feɾja] *feria* ‘fair’ correspondingly. The diphthong [ja] was found in (4) other specimens in the test; the error occurred in (3) specimens as seen in the same Appendix. This error had a percentage of (13.17%). As it is compared to the empirical literature, the researcher agreed with Gospodaric’s (2004) results in the sense that Slovenian learners pronounced [ja] as [a].

The diphthong [jo], in (3), was articulated wrongly as the vowel [o] in the initial position of [*oniθaɾ] instead of [joniθaɾ] *ionizar* ‘ionize’, in the medial position of the utterance [*poxo] instead of [pjoxo] *piojo* ‘louse’ and in the final position of [*kontaxo]. Additionally, [jo] was incorrectly uttered as [u] in the final position of [*kontaxu] instead

of [kontaxjo] *contagio* ‘contagion’. However, it was pronounced wrongly using different diphthong as in [ai] in the example [*ainiθaɾ] instead of [joniθaɾ] *ionizar* ‘ionize’. The error of the diphthong [jo] was found in the (3) other instances as seen in Appendix (XXII, p.192). The frequency of error of this diphthong was (18.17%). The empirical literature showed no related error.

The diphthong [ju], in (4), was pronounced wrongly as the vowel [i] in the initial position of [*bido] instead of [bjudo] *viudo* ‘widower’. It was also articulated incorrectly using different diphthongs as [jo], [eu] and [we] in the same specimen [*bjodo], [*beudo] and [*bwedo] instead of [bjudo] *viudo* ‘widower’. The error of the diphthong [ju] was found in another example in the test. The percentage of this error was (27%). This kind of error was not found in the empirical literature.

The diphthong [ei], in (5), was pronounced wrongly as [i] in the initial position of the specimen [*instenjo] instead of [einstenjo] *einstenio* ‘einsteinium’ and in the medial position of [*sisθjentos] instead of [seisθjentos] *seiscientos* ‘six hundred’. The same diphthong was also pronounced as [e] in [*enstenjo] instead of [einstenjo] *einstenio* ‘einsteinium’ and [*sesθjentos] instead of [seisθjentos] *seiscientos* ‘six hundred’. However, it was pronounced mistakenly using different diphthongs as [je] in the medial position of the example [*sjesθjentos] instead of [seisθjentos] *seiscientos* ‘six hundred’. Furthermore, it was erroneously articulated in the final position as the hiatus [ea] in the specimen [*rea] instead of [rei] *rey* ‘king’. Moreover, it was incorrectly uttered as [ai] in the initial position of [*ainstenjo] instead of [einstenjo] *einstenio* ‘einsteinium’. This kind of diphthong took place in (4) other instances in which all were pronounced incorrectly, as seen in Appendix

(XXII, p.192). The percentage of the error was (34.17%). The result of this segment in this research agreed with Gospodaric's (2004) result in which [ei] was wrongly pronounced as [e]. Likewise, the researcher concurred with Sanchez's (2006) who proved that his Filipino learners of Spanish pronounced [ei] as [ai]. Alternatively, the researcher differed from Sossouvi's (2009) who proved that his participants pronounced the diphthong [ei] as [ɛ].

The diphthong [eu], in (6), was pronounced mistakenly as the vowels [i], [e], [o] and [u] in the initial position of the same specimen [*iɾopa], [*eɾopa], [*oɾopa] and [*uɾopa] instead of [euɾopa] *Europa* 'Europe'. Similarly, there was an error in the articulation of [*sidonimo] and [*sedonimo] instead of [seudonimo] *seudónimo* 'pseudonym'. However, it was pronounced wrongly using different diphthongs as [ju] and [oi] for the same specimen [*juɾopa] and [*oiɾopa] instead of [euɾopa] *Europa* 'Europe'. Similar pronunciation of the diphthong [jo] was repeated in another word in which was pronounced incorrectly. The frequency of error was (54%). The researcher disagreed with Sanchez's (2006) who showed that his participants pronounced the phoneme [eu] as the vowel [u].

The diphthong [ai], in (7), was articulated mistakenly as [i], [e] and [a] in the initial position of the same specimen [*isladamente] and [*asladamente] instead of the correct form [aisladamente] *aisladamente* 'isolated'. The mistake was done in the medial position of [*bila] and [*bela] instead of [baila] *baila* 'dance'. However, it was pronounced incorrectly using the hiatus [ae] in the same example [*baela] instead of [baila] *baila* 'dance'. The diphthong [ai] was found in another specimen in which was pronounced incorrectly as seen in the same Appendix. The percentage of the error was (22.22%). The

researcher agreed with Gospodaric's (2004) sample, in the sense that Slovenian learners pronounced [ai] as the vowel [a]. Likewise, the researcher agreed with Sanchez's (2006) results who illustrated that Filipino participants turned the diphthong [ai] into the vowel [a]. Simultaneously, the researcher differed from Gospodaric's (2004) result wherein learners pronounced [ai] as [ei].

The diphthong [au], in (8), was pronounced mistakenly as the vowels [o] and [u] in the initial position of the same example [*ola] and [*ula] instead of the correct [aula] *aula* 'classroom'. It was also pronounced incorrectly as the vowel [a] in the medial position of the utterance [*inaguɾaɾ] and [*inuguɾaɾ] instead of [inauguɾaɾ] *inaugurar* 'inaugurate'. Moreover, it was pronounced mistakenly using the different diphthong [wa] in the medial position of [*inwaguɾaɾ] instead of the correct [inauguɾaɾ] *inaugurar* 'inaugurate'. The diphthong [au] was found in (2) other examples in which both were pronounced incorrectly as seen in appendix (XXII, p.192). The percentage of the error was (34.5%) as compared to other previous diphthongs. The researcher concurred with Sanchez's (2006) result who showed the diphthong [aw] was erroneously pronounced as [u] by Filipino learners.

The diphthong [oi], in (9), was articulated mistakenly as the diphthongs [wi] and [we]. For instance, the former was articulated wrongly in the initial position of the example [*wigo] instead of [oigo] *oigo* 'I hear' and in the final position of [*konbwi] instead of [konboi] *convoy* 'convoy'. The latter was said to be wrongly pronounced as in the initial position of [*wego] instead of [oigo] *oigo* 'I hear'. Additionally, it was pronounced wrongly as the diphthong [jo] and the hiatus [oe]. For instance, the former occurred in the medial position of the utterance [*gasjol] instead of [gasoil] *gasoil* and the latter occurred

in the medial position of [*gasoel] instead of [gasoil] *gasoil* ‘fuel’. The diphthong [oi] was found in (2) other specimens but one was pronounced wrongly. The frequency of this error was (22.67%). The researcher differed from Sossouvi’s (2009) result who showed that French speakers living in Africa pronounced the diphthong [oi] as [wa] while learning Spanish.

The diphthong [ou], in (10), was articulated mistakenly as the vowels [o] and [u] in the final position of the same specimen [*bo] and [*bu] instead of [bou] *bou* ‘seine fishing’. Furthermore, it was pronounced mistakenly using different diphthongs as [au] and [oi] in the final position of the same example [*bau] and [*boi] instead of the correct [bou] *bou* ‘seine fishing’. The percentage of this error took place in (58%). The empirical literature did not show such error.

The diphthong [wi], in (11), was pronounced incorrectly as the vowel [i] in the initial position of the specimen [*iɾ] instead of the correct form [wiɾ] *huir* ‘flee’ and in the medial position of [*fimos] instead of [fwimos] *fuimos* ‘we went’. Moreover, it was pronounced incorrectly using different diphthongs as [oi] and [we] in the initial position of the same word [*oiɾ] and [*weɾ] instead of [wiɾ] *huir* ‘to flee’. Whereas [we] occured in the medial position of the specimen [*fwemos] instead of [fwimos] *fuimos* ‘we went’. The diphthong [wi] took place in (2) other cases seen in the same Appendix. The percentage of this error was (30.33%). The researcher agreed with Gospodaric’s (2004) results of Slovenian learners of Spanish who committed an error while pronouncing [wi] as [i].

The diphthong [we], in (12), was pronounced wrongly as the vowels [e], [o] and [u] in which all of them took place in the initial position of the specimen [*elga] [*olga] and

[*ulga] instead of [welga] *huelga* 'strike'. Additionally, [e] was pronounced wrongly in the medial position of [*ungento] instead of the correct [ungwento] *ungüento* 'ointment'. The same diphthong was mistakenly articulated as the diphthong [eu] and as the hiatus [eo] in the initial position of the same specimen [*eulga] and [*eolga] instead of [welga] *huelga* 'strike'. Whereas, the diphthong [wi] was pronounced wrongly in the medial position of [*ungwinto] instead of [ungwento] *ungüento* 'ointment'. Furthermore, the hiatus [eo] and the diphthong [wi] were articulated wrongly in the final position of the same specimen [*feo] and [*fwi] instead of [fwe] *fue* 'he went'. The diphthong [we] was listed in (4) other words in which all were pronounced incorrectly. The percentage of this error was (13.92%) The researcher concurred with Gospodaric's results in which [we] was wrongly articulated as [e] by Slovenians. Conversely, the researcher differed from Yates' (2005) findings who argued that Spanish learners pronounced the diphthong [we] as [wa].

The diphthong [wa], in (13), was articulated mistakenly as the vowel [u] in the initial position of the utterance [*uka] instead of [waka] *huaca* 'huaca' and in the medial position of [*lenguxe] instead of [lengwaxe] *lenguage* 'language'. However, it was pronounced wrongly as the diphthongs [au], [we] and as the hiatus [ao], in the initial position of [*aoka], [*auka] and [*weka] instead of [waka] *huaca* 'huaca'. Whereas, the diphthong [we] was used wrongly in the medial position of [*lengwexe] instead of [lengwaxe] *lenguage* 'language'. Likewise, the diphthong [ju] was pronounced wrongly in the final position of [*kontinju] instead of [kontinwa] *continua* 'continue'. The same errors of the types were listed in (3) other words seen in the same Appendix. The percentage of this error was (20.67). The available literature did not show any related error.

The diphthong [wo], in (14), was pronounced erroneously as the vowels [o] and [u] in the medial position of the same utterance [*fastoso] and [*fastuso] instead of [fastwoso] *fastuoso* ‘fatuous’. Both of them were pronounced wrongly in the final position of the same example [*fato] [*fatu] instead of [fatwo] *fatuo* ’fatuous’. The same diphthong was pronounced mistakenly using the diphthong [ou] in the final position of [*fatou] instead of [fatwo] *fatuo* ’fatuous’. Similar errors of the types were registered in another word as seen the same Appendix. The percentage of this error was of (44%). No such error was found in the available literature.

In short, it was noticeable that none of the L3 diphthongs was correctly pronounced. However, from the perspective of the highest percentage, it was seen that the diphthong [ou] scored the highest error, which was (58%). The second was the diphthong [eu] with a percentage of (54%); then, the third was [wo] with a percentage of (44%). The forth error was [au] with a percentage of (34.5%); the fifth error was [ei] with a percentage of (34.17%). The sixth was the error [wi] with a percentage of (30.33%); the seventh was [ju] with a percentage of (27%). The eighth was the diphthong [oi] that scored the frequency (22.67%). The ninth was [ai] that attained (22.22%). The tenth was [wa] with (20.67%). The eleventh took place for [je] that scored (19.5%). The twelfth was [jo] with a frequency of (18.17%). The thirteenth was [we] with the percentage of (13.92%) and finally, the fourteenth and lowest was [ja] with a frequency of (13.17%).

4.2.1.4. The Spanish Triphthongs

Table (4) shows the unacceptable articulated triphthongs made by the participants. Similar errors of the category are written in Appendix (XXIII, p.194).

Table (4). Examples of the participants' committed errors in Spanish triphthongs

	Process	Learner's performance	No. of students with wrong performance	Target performance of IPA	Total no. of students with wrong performance	No. of students with correct performance	Spelling	Meaning	Total percentage of errors (%)
1	[jei]→[je]	[pjes]	13	[pjeis]	25	25	*pieis*	'you spy'	59%
	[jei]→[jai]	[pjais]	12						
2	[jai]→[je]	[fjes]	9	[fjais]	30	20	*fiais*	'you trust'	58%
	[jai]→[ja]	[fjas]	7						
	[jai]→[ai]	[fais]	5						
	[jai]→[jei]	[fjeis]	9						
3	[joi]→[i]	[opide]	5	[joides] [opjoide]	27 23	23 27	*hioides opioide*	'hyoid' 'opioid'	50%
	[joi]→[je]	[opjede]	6						
	[joi]→[jo]	[jodes] [opjode]	7 4						
	[joi]→[ju]	[judes] [opjude]	4 4						
	[joi]→[oi]	[oides]	6						
	[joi]→[wi]	[wides] [opwide]	10 4						
4	[wei]→[oi]	[boi]	1	[bwei]	15	35	*buey*	'ox'	52%
	[wei]→[wi]	[bwi]	3						
	[wei]→[we]	[bwe]	11						
5	[wai]→[wei]	[paɾagwei]	18	[paɾagwai]	18	32	*Paraguay*	'Paraguay'	31%

The triphthong [jei], in (1), was wrongly pronounced as the diphthong [je] in the medial position of [*pjes] instead of [pjeis] *pieis* 'you spy'. However, it was also pronounced incorrectly as the triphthong [jai] in the medial position of the same specimen [*pjais] instead of [pjeis] *pieis* 'you spy'. The error of the triphthong [jei] occurred in another word seen in the Appendix (XXIII, p.194). The percentage of this error was (59%).

The researcher agreed with Gospodaric's (2004) result whose Slovenian participants could not differentiate between the triphthongs [jei] and [jai].

The triphthong [jai], in (2), was wrongly pronounced as the diphthongs [je], [ja] and [ai] in the medial position of the same specimen [*fjes], [*fjas] and [*fais] instead of [fjais] *fiais* 'you trust' respectively. However, it was also pronounced incorrectly using the triphthong [jei] in the medial position of [*fjeis] instead of [fjais] *fiais* 'you trust'. There was a similar type of triphthong [jai] found in another example which was pronounced incorrectly as seen in the same Appendix. The percentage of this error was (58%). This result agreed with Gospodaric's (2004) result in the sense that Slovenian participants could not distinguish between [jai] and [jei].

The triphthong [joi], in (3), was wrongly pronounced as the vowel [i] in the medial position of [*opide] instead of [opjoide] *opioide* 'Opioid'. However, [joi] was wrongly pronounced as the diphthong [je] in the medial position of [*opjede] instead of [opjoide] *opioide* 'Opioid'. This triphthong was also wrongly articulated as [jo] in the initial position of the specimen [*jodes] instead of [joides] *hioides* 'hyoid' and in the medial position of [*opjode] instead of [opjoide] *opioide* 'Opioid'. Moreover, it was incorrectly pronounced as the diphthong [ju] in the initial position of [*judes] instead of [joides] *hioides* 'hyoid' and in the medial position of the specimen [*opjude] instead of [opjoide] *opioide* 'Opioid'. Additionally, [joi] was wrongly pronounced as the diphthong [oi] in the initial position of [*oides] instead of [joides] *hioides* 'hyoid' and finally it was wrongly articulated as [wi] in [*wides] instead of [joides] *hioides* 'hyoid' and in the utterance [*opwide] instead of [opjoide] *opioide* 'Opioid'. The triphthong [joi] was seen in another example as seen in the

same Appendix. The percentage of this error was (50%). No similar error of the type was found in the related literature.

The triphthong [wei], in (4), was wrongly pronounced as the diphthongs [oi], [wi] and [we] in the final position of the utterance [*boi], [*bwi] and [*bwe] instead of [bwei] *buey* ‘ox’ respectively. The percentage of this error was (52%) as compared to others in the analysis. No similar errors was seen in the empirical literature.

The triphthong [wai], in (5), was pronounced incorrectly as the triphthong [wei] in the final position of the specimen [*paragwei] instead of [paragwai] *Paraguay* ’Paraguay’. The triphthong [wai] was visible in another example in the test. The percentage of this error was (31%). The available literature did not show similar error.

In short, the highest percentage, which was scored, was the triphthong [jei] with a frequency of (59%). The second was registered for the triphthong [jai] with a percentage of (58%). The triphthong [wei] scored the third position with (52%). The forth, in rank, was occupied by [joi] with a percentage of (50%). The lowest in the hierarchy was the triphthong [wai] with (50%).

4.2.1.5. The Spanish Hiatuses

Table (5) shows the unacceptable articulated hiatus made by the participants. Similar errors with different words are found in the Appendix (XXIV, p.195).

Table (5). Examples of the participants' committed errors in Spanish hiatuses.

	Process	Learner's performan-ce	No. of students with wrong perfor-mance	Target performance of IPA	Total no. of students with wrong perfor-mance	Total no. of students with correct performan-ce	Spelling	Meaning	Total percent-tage of errors (%)
1	[ii]→ [i]	[tʃita]	40	[tʃiita]	47	3	*Chiita*	'Shiite'	84%
	[ii]→ [e]	[tʃeta]	7						
2	[ee]→ [i]	[kɾinθja] [desi]	18 13	[kɾeenθja] [desee]	41 20	9 30	*creencia* *desee*	'belief' 'wish'	68.5%
	[ee]→ [e]	[kɾenθja] [dese]	18 12						
3	[ea]→ [e]	[creɾ] [pele]	2 2	[kɾeaɾ] [pelea]	32 25	18 25	*crear* *pelea*	'create' 'fight'	47.84%
	[ea]→ [a]	[pela]	4						
	[ea]→[ja]	[kɾjaɾ] [pelja]	13 19						
	[ea]→[ee]	[kɾeeɾ]	17						
4	[eo]→ [o]	[oθeno] [tebo]	11 6	[eoθeno] [meoλo] [tebeo]	29 29 20	21 21 30	*eoceno* *meollo* *tebeo*	'eocene' 'marrow' 'comic'	39%
	[eo]→ [u]	[uθeno]	2						
	[eo]→ [jo]	[joθeno] [mjoλo] [tebjo]	11 11 8						
	[eo]→ [ei]	[meiλo]	8						
	[eo]→[eu]	[euθeno] [meuλo] [tebeu]	5 9 6						
	[eo]→[we]	[mweλo]	1						
5	[ae]→ [e]	[eɾopweɾto] [seta] [tɾe]	10 9 5	[aeɾopweɾto] [saeta] [tɾae]	25 25 22	25 25 28	*aeropuerto* *saeta* *trae*	'airport' 'arrow' ' bring'	40%
	[ae]→[ja]	[sjata]	6						

	[ae]→[ei]	[tɾei]	5						
	[ae]→[ai]	[aiɾopweɾto] [saita] [tɾai]	15 10 12						
6	[aa]→ [a]	[aɾon] [alβaka]	30 8	[aaɾon] [albaaka]	36 8	14 42	*Aarón* *albahaca*	‘Aarón’ ‘basil’	37%
	[aa]→[ai]	[aiɾon]	5						
	[aa]→[au]	[auɾon]	1						
7	[ao]→ [a]	[bakala]	1	[aoɾa]	29	21	*ahora*	‘now’	44.34%
	[ao]→ [o]	[oɾa] [koba] [bakalo]	7 4 8	[kaoba] [bakalao]	20 24	30 26	*caoba* *bacalao*	‘mahogany’ ‘cod fish’	
	[ao]→[ai]	[bakalai]	1						
	[ao]→[au]	[auɾa] [kauba] [bakalau]	22 16 14						
8	[oe]→ [o]	[oste] [obo]	4 3	[oeste] [poeta]	25 21	25 29	*oeste* *poeta*	‘west’ ‘poet’	47.34%
	[oe]→[je]	[jeste]	1	[oboe]	24	26	*oboe*	‘oboe’	
	[oe]→[eo]	[obeo]	4						
	[oe]→[oi]	[oiste] [poita] [oboi]	6 7 6						
	[oe]→[ou]	[obou]	11						
	[oe]→[wi]	[wiste]	5						
	[oe]→[we]	[weste] [pweta]	9 14						
9	[oa]→[o]	[osis] [tolа]	5 11	[oasis] [toalа]	29 15	21 35	*oasis* *toalla*	‘oasis’ ‘towel’	44%
	[oa]→[au]	[ausis]	3						
	[oa]→[oi]	[oisis]	1						
	[oa]→[oe]	[oesis] [toelа]	12 2						
	[oa]→[wa]	[wasis] [twalа]	8 2						
10	[oo]→ [i]	[θiloxiko]	1	[oosfeɾa]	36	14	*oosfera*	‘oosphere’	
	[oo]→[o]	[osfeɾa] [θoloxiko] [θo]	28 26 21	[θooloxiko] [θoo]	46 49	4 1	*zoológico* *zoo*	‘zoo’	80.67 %
	[oo]→[u]	[usfeɾa] [θuloxiko] [θu]	7 19 28						
11	[uu]→[o]	[dombiɾo]	12	[duumbiɾo]	49	1	*duunviro*	‘duumvir’	96%

	[uu]→[u]	[dumbiɾo]	32						
	[uu]→[oo]	[doombiɾo]	5						

The hiatus [ii], in (1), was wrongly pronounced as the vowels [i] and [e] in the medial position of the same example [*tʃita] and [*tʃeta] instead of [tʃiita] *chiita* 'Shiite'. This type of error was found in another specimen in the test in which it was also articulated wrongly as seen in the same Appendix (XXIV, p.195). The percentage of errors was (84%). No similar error was found in the available literature.

In (2), the hiatus [ee] was wrongly pronounced as the vowels [i] and [e] in the medial position of the specimen [*kɾinθja] and [*kɾenθja] instead of [kɾeenθja] *creencia* 'belief' and in the final position of the utterance [*desi] and [*dese] instead of [desee] *desee* 'you wish (formal)'. The hiatus [ee] was found in (2) other words in which were also pronounced wrongly, as listed in the Appendix (XXIV, p.195). The frequency of this error was (68.5%). The researcher agreed with Sanchez's (2006) result that Filipino learners of Spanish pronounced the hiatus [ee] as the vowel [e].

The hiatus [ea], in (3), was articulated incorrectly as the vowel [e] in the medial position of [*kɾeɾ] instead of [kɾeaɾ] *crear* 'to create'; whereas, the same hiatus was pronounced as [a] in the final position of [*pela] instead of [pelea] *pelea* 'fight'. However, this hiatus was wrongly pronounced as the diphthong [ja] in the medial position of [*kɾjaɾ] instead of [kɾeaɾ] *crear* 'to create' and in the final position of [*pelja] and [*pela] instead of [pelea] *pelea* 'fight'. It was also wrongly pronounced as [ee] in medial position of [*kɾeeɾ] instead of [kɾeaɾ] *crear* 'to create'. The hiatus [ea] was found in (3) other words

in which all were pronounced incorrectly as seen in the same Appendix. The percentage of occurrence of this error was (47.84%). The available literature did not show alike error.

The hiatus [eo], in (4), was pronounced incorrectly as the vowel [o] in the initial position of [*oθeno] instead of [eoθeno] *eoceno* 'Eocene' and in the final position of [*tebo] instead of [tebeo] *tebeo* 'comic'. It was also pronounced incorrectly as [u] in the initial position of [*uθeno] instead of [eoθeno] *eoceno* 'Eocene'. However, this hiatus was wrongly articulated as the diphthong [jo] in the initial position of [*joθeno] instead of [eoθeno] *eoceno* 'Eocene', in the medial position of the specimen [*mjoʎo] instead of [meoʎo] *meollo* 'marrow' and in the final position of the example [*tebjo] instead of [tebeo] *tebeo* 'comic'. Moreover, it was wrongly pronounced as the diphthong [ei] in the medial position of [*meiʎo] instead of [meoʎo] *meollo* 'marrow'. It was also erroneously pronounced as [eu] in the initial position of the specimen [*euθeno] instead of [eoθeno] *eoceno* 'Eocene', in the medial position of [*meuʎo] instead of [meoʎo] *meollo* 'marrow' and in the final position as [*tebeu] instead of [tebeo] *tebeo* 'comic'. Finally, this hiatus was wrongly pronounced as the diphthong [we] in the medial position of [*mweʎo] instead of [meoʎo] *meollo* 'marrow'. Similar error in the hiatus [eo] was found in (2) other words in which both were pronounced incorrectly as listed in the same Appendix. The frequency of error was (39%). The available literature did not show similar errors of this type.

The hiatus [ae], in (5), was incorrectly pronounced as [e] in the initial position of [*eɾopwerto] instead of [aeɾopwerto] *aeropuerto* 'airport', in the medial position of [*seta] instead of [saeta] *saeta* 'arrow' and in the final position of the specimen [*tɾe] instead of [tɾae] *trae* 'bring'. However, it was wrongly replaced by the diphthong [ja] in the medial

position of [*sjata] instead of [saeta] *saeta* ‘arrow’. Moreover, it was said as [ei] in the final position of the example [*tɾei] instead of [tɾae] *trae* ‘bring’ and finally by [ai] in all positions of the specimens [*aiɾopwerto], [*saita] and [*tɾai] instead of [aeɾopwerto] *aeropuerto* ‘airport’, [saeta] *saeta* ‘arrow’ and [tɾae] *trae* ‘bring’ respectively. The hiatus [ae] was found in another word in the test in which was also pronounced incorrectly as seen in the same Appendix. The percentage of this error was (40%). The provided literature did not show similar error.

The hiatus [aa], in (6), was erroneously pronounced as the vowel [a] in the initial position of the specimen [*aron] instead of [aaron] *Aaron* ’Aaron’ and in the medial position of [*albaka] instead of [albaaka] *albahaca* ’basil’. However, many different diphthongs were pronounced in the place of this hiatus as the diphthongs [ai] and [au] in the initial position of the same word [*airon] and [*auron] instead of [aaron] *Aaron* ’Aaron’ respectively. The percentage of the error was (37%). No related error has been found in the available literature.

In (7), the hiatus [ao] was wrongly articulated as the vowel [a] in the final position of the specimen [*bakala] instead of [bakalao] *bacalao* ’cod fish’. This hiatus was incorrectly articulated as [o] in the initial position of the example [*oɾa] instead of [aoɾa] *ahoɾa* ’now’, in the medial position of [*koba] instead of [kaoba] *caoba* ‘mahogany’ and in the final position of [*bakalo] instead of the correct [bakalao] *bacalao* ‘cod fish’. However, this hiatus was replaced by other diphthongs such as [ai] in the final position of [*bakalai] instead of [bakalao] *bacalao* ’cod fish’. Moreover, it was replaced by [au] in the initial position of the utterance [*auɾa] instead of [aoɾa] *ahoɾa* ’now’, in the medial position of

[*kauba] instead of [kaoba] *caoba* ‘mahogany’ and in the final position of [*bakalau] instead of [bakalao] *bacalao* ’cod fish’. The hiatus [ao] was found in another word in which was also pronounced incorrectly as illustrated in Appendix (XXIV, p.195). The percentage of the error took place in (44.34%). The provided literature did not show similar type of error.

The hiatus [oe], in (8), was wrongly pronounced as the vowel [o] in the initial position of [*oste] instead of [oeste] *oeste* ’west’ and in the final position of [*obo] instead of [oboe] *oboe* ’oboe’. However, there was a transfer of the hiatus to different diphthongs. For instance, [je] in the initial position of the utterance [*jeste] instead of [oeste] *oeste* ’west’ and [eo] in the final position of [*obeo] instead of [oboe] *oboe* ’oboe’. This hiatus was erroneously pronounced as [oi] in the initial position of [*oiste] instead of [oeste] *oeste* ’west’, in the medial position of [*poita] instead of [poeta] *poeta* ‘poet’ and finally in the final position of [*oboi] instead of [oboe] *oboe* ’oboe’. The hiatus [oe] was pronounced incorrectly as [ou] in the final position of [*obou] instead of [oboe] *oboe* ’oboe’. Moreover, it was incorrectly pronounced as [wi] in the initial position of [*wiste] instead of the correct pronunciation [oeste] *oeste* ’west’ and finally it was mistakenly articulated as [we] in the initial position of [*weste] instead of [oeste] *oeste* ’west’ and in the medial position of [*pweta] instead of [poeta] *poeta* ‘poet’. The percentage of this particular error was (47.34%). No similar error was seen in the empirical literature.

The hiatus [oa], in (9), was erroneously pronounced as the vowel [o] in the initial position of [*osis] instead of [oasis] *oasis* ‘oasis’ and in the medial position of [*toʎa] instead of [toaʎa] *toalla* ‘towel’. However, this hiatus was wrongly pronounced as diphthongs such as [au] in the initial position of the word [*ausis] instead of [oasis] *oasis*

‘oasis’. Moreover, it was spken as [oi] in the initial position of [*oisis] instead of [oasis] *oasis* ‘oasis’, as [oe] in the initial position of [*oesis] instead of [oasis] *oasis* ‘oasis’ and in the medial position of [*toeʎa] instead of [toaʎa] *toalla* ‘towel’. It was also pronounced as [wa] in the initial position of [*wasis] instead of the correct [oasis] *oasis* ‘oasis’ and in the medial position of [*twaʎa] instead of [toaʎa] *toalla* ‘towel’. The hiatus [oa] was found in another example in the test in which was articulated wrongly, as seen in the same Appemdix. The percentage of this error took place with (44%). The available literature did not show alike error.

The hiatus [oo], in (10), was said as the vowel [i] in the medial position of the specimen [*θiloxico] instead of [θooloxico] *zoológico* ’zoo’. It was also articulated as the vowel [o] in the initial position of [*osfeɾa] instead of [oosfeɾa] *oosfera* ’oosphere’, in the medial position of [*θoloxico] instead of [θooloxico] *zoológico* ’zoo’ and in the final position of [*θo] instead of [θoo] *zoo* ’zoo’. It was uttered as the vowel [u] in the initial position of [*usfeɾa] instead of [oosfeɾa] *oosfera* ’oosphere’, in the medial position of [*θuloxico] instead of [θooloxico] *zoológico* ’zoo’ and in the final position of [*θu] instead of [θoo] *zoo* ’zoo’. The percentage of this error scored (80.67%). The researcher did not see any similar error of the type in the literature.

The hiatus [uu], in (11), was wrongly produced as the vowels [o] and [u] in the medial position of [*donbiɾo] and [*dunbiɾo] instead of [duunbiɾo] *duunviro* ’duumvir’. The frequency of this error was (96%), which was incredibly high. No similar error was found in the available literature.

In short, none of the Spanish hiatuses was correctly pronounced. However, the highest error was the hiatus [uu] with a percentage of (96%). The second percentage was for the hiatus [ii] with a frequency of (84%). Then, the third was [oo], which scored (80.67%). The forth was the hiatus [ee] with a percentage of (68.5%). Then, the hiatus [ea] took place with a percentage of (47.84%) as the fifth. The sixth was the hiatus [oe] in which

its percentage was (47.34%). The seventh error was the hiatus [ao] that scored (44.34%). The eighth error was [oa] with the percentage of (44%). The ninth error was the hiatus [ae] with a percentage of (40%). The tenth error was [eo] which scored (39%). The lowest error was the hiatus [aa] with the percentage of (37%).

To sum up, the highest percentage of errors in the test were the hiatuses in which they totally scored (57.15%). The second percentage was seen in the wrong articulation of triphthongs with a percentage of (50%). The third rank was occupied by diphthongs with a percentage of (29.45%). The forth position was set for the articulation of the vowels that score a percentage of (24.93%); however, the lowest percentage was scored in the pronunciation of consonants which was (23.55%).

It was important to notice **that** errors took place in the entire test; however, mistakes were most remarkably seen in the first part of the test, which showed the occurrence of phonemes in the initial, medial position of the word. The second higher error was found in the second part of the test that concerned the minimal pairs. Therefore, the third and fourth part of the test showed the same low level of errors.

4.2.2. Results and Analyses Related to Question (3)

The participants made a number of phonetic errors in the articulation of consonants, vowels, diphthongs, triphthongs and hiatuses; the errors were due to (i) the influence of L1 and L2 on L3 and (ii) lack of knowledge of L3's phonetic segments. These errors were classified on the source of interlanguage and intralanguage. In this section of the research, the researcher showed one specimen for each type of error found in a segment in order to avoid repetition; therefore, for more specimens refer to tables (1-5).

4.2.2.1. Interlingual Errors

Interlingual errors were those errors which can be attributed to the influence of the L1 (i.e. Arabic) and L2 (i.e English) on L3 (i.e Spanish). In this research, there were found interlingual errors in consonants and vowels merely.

4.2.2.1.A. Interlingual Errors in Consonants

Table (6) shows the consonantal errors that were done due to the influence of Arabic L1 and English L2 into the Spanish L3.

Table (6). Examples of the participants' interlingual errors in Spanish consonants.

Arabic (L1) Influence on Spanish (L3)								
No.	Manner of articulation	Process	Spanish phonetic transcription	Arabic phonetic transcription	Learner's performance	Target performance of IPA	*Spelling*	Meaning
1	Nasal	[ɲ]→[n]	[ɲ]	[n]	[ensenanθa]	[enseɲanθa]	*enseñanza*	'education'
2	Stop	[p]→[b]	[p]	[b]	[basiʎo]	[pasiʎo]	*pasillo*	'corridor'
3	Stop	[b]→[p]	[b]	[p]	[puro]	[buro]	*burro*	'donkey'
4	Affricate	[tʃ]→[ʃ]	[tʃ]	[ʃ]	[ʃikle]	[tʃike]	*chicle*	'gum'
5	Tap	[ɾ]→[r]	[ɾ]	[r]	[eroe]	[eɾoe]	*heroe*	'hero'
6	Trill	[r]→[ɾ]	[r]	[ɾ]	[poɾa]	[pora]	*porra*	'truncheon'
English (L2) Influence on Spanish (L3)								
No.	Manner of articulation	Process	Spanish Phonetic transcription	English Phonetic transcription	Learner's performance	Target performance in IPA Spanish	*Spelling*	Meaning
7	Nasal	[ɲ]→[n]	[ɲ]	[n]	[ensenanθa]	[enseɲanθa]	*enseñanza*	'education'
8	Affricate	[tʃ]→[k]	[k]	[tʃ]	[kikle]	[tʃike]	*chicle*	'gum'
9	Fricative	[θ]→[s]	[s]	[θ]	[sinkwenta]	[θinkwenta]	*cincuenta*	'fifty'
10	Fricative	[x]→[ʒ]	[ʒ]	[x]	[ʒeogɾafja]	[xeogɾafja]	*geografía*	'geography'
		[x]→[dʒ]	[dʒ]	[x]	[dʒeogɾafja]			
11	Trill	[r]→[ɾ]	[ɾ]	[r]	[poɾa]	[pora]	*porra*	'truncheon'
12	Tap	[ɾ]→[r]	[r]	[ɾ]	[eroe]	[eɾoe]	*heroe*	'hero'
13	Palatal	[ʎ]→[l]	[l]	[ʎ]	[lamaɾ]	[ʎamaɾ]	*llamar*	'to call'

In (1), the palatal nasal [ɲ] had a clear effect from L1 into L3 in the sense that the Arabic phonetic system has [n] but not [ɲ]; the former enforced the second to change. This was shown in the specimen [*ensenanθa] instead of [enseɲanθa] *enseñanza* ‘education’.

In (2) and (3) there was a clear effect of L1 on L3 in the sense that Arabic has the bilabial voiced stop [b] in which it was pronounced as the absent phoneme [p] in the Arabic phonetic system; Arab learners were confused in the pronunciation of these two phonemes in Spanish. Due to this reason, the former segment enforced the second to be changed. This was clear when [p] was pronounced in the example [*basiʎo] instead of [pasiʎo] *pasillo* ‘corridor’ and as [*puro] instead of [buro] *burro* ‘donkey’. The researcher agreed with Carcedo (1999) who stated that this error was an interlingual, in which, Finnish learners of Spanish language could not distinguish between these two phonemes since Finnish phonetic system has not the bilabial voiced stop [b].

Likewise, in (4), the participants of this study pronounced erroneously [ʃ] instead of the Spanish affricate [tʃ] because of its absence in the Arabic phonetic system. This was shown in the specimen [*ʃikle] instead of [tʃikle] *chicle* ‘gum’. The researcher disagreed with Carcedo (1999) in the sense that Finnish learners of Spanish pronounced it wrongly as [ts], [tθ] or [θ].

Moreover, in (5) and (6), the Arabic phonetic system has only the trill [r] but not the tap [ɾ]; thus, each tap was changed to trill as [*eroe] instead of [eɾoe] *heroe* ‘hero’ and each trill was changed into tap as [*poɾa] instead of [pora] *porra* ‘truncheon’.

In short, the interlingual errors were done due to the Arabic influence in which were six: the palatal nasal [ɲ], the bilabial stops [p], [b], the palato alveolar affricate [tʃ], the

alveolar trill [r] and finally, the alveolar tap [ɾ]. Not only L1 had an influence on L3, nonetheless, L2 had a direct effect on the articulation of L3 segments seen in table (6).

There segments that were wrongly pronounced due to the L2 influence on L3 were (7). Therefore, in (7), as it was mentioned in (1), for instance, the error of the Spanish palatal nasal [ɲ] was also an influence from L2 since it is written similarly as the English grapheme <n> however, with an asterisk above it. This was obvious in the pronunciation of the specimen [*ensenanθa] instead of [enseɲanθa] *enseñanza* 'education'.

Additionally, the Spanish affricate [tʃ], in (8) was pronounced as the English [k] in [*kikle] instead of [tʃikle] *chicle* 'gum'. This mistake happened because of the grapheme <ch> in English sometimes is pronounced as [k] as in 'school' or as [tʃ] as in 'church'; however, in Spanish is always pronounced as [tʃ].

In (9), the fricative [θ] was pronounced as [s] in view of the fact that in Spanish it is represented by the grapheme <c>, however, the same is pronounced as [s] in L2 as [selebriti] 'celebrity'. This was clear in the specimen [*sinkwenta] instead of [θinkwenta] *cincuenta* 'fifty'.

In (10), the fricative [x] was wrongly pronounced as the English fricative [ʒ] and the affricate [dʒ]. However, this error occurred since the grapheme <g> is pronounced as the segment [x] in Spanish, but in English is pronounced as [ʒ] and as [dʒ]. This error was visible in the example [*ʒeogɾafja] or [*dʒeogɾafja] instead of [xeografja] *geografia* 'geography'.

Similarly, in (11) and (12) the English trill [r] had a direct influence on the articulation of the Spanish tap [ɾ]. The tap phonemes were pronounced as the trill [r] as seen in the example [*eroe] instead of [eɾoe] *heroe* 'hero' and vice versa, as the specimen [*poɾa] instead of [pora] *porra*.

Finally, the lateral palatal [λ], in (13) was wrongly pronounced as [l] in the sense that this phoneme in Spanish is represented as the grapheme <ll> in which is pronounced as [l] in L2. This was seen in the example [*lamaɾ] instead of [λamaɾ] *llamar* 'to call'.

In short, the interlingual consonantal errors were made due to English influence were the palatal nasal [ɲ], the palato alveolar affricate [tʃ], the inter-dental fricative [θ], the uvular fricative [x], the tap [ɾ], the trill [r] and finally the lateral [λ]. Carcedo (1999) found out that his learners had other interlingual errors. Thus, according to Carcedo, he stated that these types of errors occurred because of the confusions that Finnish participants had in the pronunciation of the stops [k] with [g], whereas the phoneme [g] does not exist in the Finnish phonetic system. Moreover, he said that other erroneous pronunciations were found in the fricative [x] that was wrongly pronounced as [h]; the segment [x] is not found in the Finnish phonetic system. Errors in the pronunciation of consonants took place in spite of the fact that there were a number of segments pronounced similarly in the three languages as is seen in appendix (XV, p.182).

4.2.2.1.B. Interlingual Errors in Vowels

It was very clear that a high number of interlingual errors took place in the articulation of vowels due to the influence of L1 and L2 on L3, as is seen in table (7).

Table (7). Examples of the participants' interlingual errors in Spanish vowels.

No.	**Process**	**Spanish phonetic 102ranscri pt-tion**	**Arabic phonetic 102ranscr ipt-tion**	**Learner's performance**	**Target performance of IPA Spanish phonetic transcription**	**Spelling**	**Meaning**
1	[e]→[i]	[e]	[i]	[*inbeneno]	[enbeneno]	*enveneno*	'poison'
2	[o]→[u]	[o]	[u]	[buske]	[boske]	*bosque*	'forest'
No.	**Process**	**Spanish phonetic transcript-tion**	**English phonetic transcript -tion**	**Learner's performance**	**Target performance of IPA Spanish transcription**	**Spelling**	**Meaning**
3	[i] →[e]	[i]	[e]	[estoɾja]	[istoɾja]	*historia*	'history'
4	[a]→[e]	[a]	[e]	[beso]	[baso]	*vaso*	'glass'
5	[u]→[e]	[u]	[e]	[opelento]	[opulento]	*opulento*	'opulent'
	[u]→[o]	[u]	[o]	[ofano] [tɾibo] [opolento]			

The mid-high front vowel [e], in (1), had a clear effect on L1 to L3 in the sense that Arabic has the high front segment [i] but not [e]; Arab learners were confused in the pronunciation of this vowel. This was the reason why the former [i] enforced the second [e] to be changed as in the specimen [*inbeneno] instead of [enbeneno] *enveneno* 'poison'. The mid-high back vowel [o], in (2), also had a clear effect of L1 as in the specimen [*buske] instead of [boske] *bosque* 'forest' because of the non-existent segment in the Arabic phonetic system. As far as the influence of L2 on L3 was concerned, for instance, in (3), the vowel [i] became [e] as in the specimen [*estorja] instead of [istorja] *historia* 'history'.

This occurred since the English grapheme <i> is sometimes pronounced as the English segment [i] as in ‘bit’ [bit]; however, the pronunciation of this segment is not similar to the Spanish grapheme <i>. In (4), the vowel [a] was wrongly pronounced as [e], in the sense that the grapheme <a> in English, is pronounced as the word ‘bad’ [bæd]. In (5), the vowel [u] became [e] as in the example [*opelento] instead of [opulento] *opulento*. This error happened since the English grapheme <u> is sometimes pronounced as [ɜ] as in the word *burn* [bɜrn].

In short, L2 had more influence on L3 than L1. This was because the former had a higher number of vowels than the other. Errors in the pronunciation of vowels took place in spite of the fact that there were a number of vowels pronounced similarly in the three languages as is seen in appendix (XVI, p.184).

4.2.2.2. Intralingual Errors

Intralingual errors are those errors that happen due to the lack of knowledge of the language that is being learned, independently of the NL, i.e. Spanish in this work. The most common intralingual errors that were found in this study were in all the segments, i.e. in the consonants, diphthongs, triphthongs and hiatuses as shown below.

4.2.2.2.A. Intralingual Errors in Consonants

There were a number of intralingual errors found in consonants due to (i) the nonexistence of some phonemes in L1 and L2, and (ii) due to some different characteristics in the pronunciation of some graphemes of L3. This is shown in table (8).

Table (8). Examples of the Participants' Intralingual Errors in Spanish Consonants

No.	Manner of articulation	Process	Learner's performance	Target performance in IPA Spanish	Spelling	Meaning
1	Stop	[t]→[d]	[intendad]	[intentad]	*intentad*	'you try'
2	Stop	[k]→[θ]	[komiθ]	[komik]	*comic*	'comic'
3	Stop	[g]→[x]	[ponxo]	[pongo]	*pongo*	'I put'
4	Fricative	[θ]→[k]	[kinkwenta]	[θinkwenta]	*cincuenta*	'fifty'
5	Fricative	[s]→[θ]	[poθa]	[posa]	*posa*	'pose'
6	Fricative	[x]→[g]	[kontagjo]	[kontaxjo]	*contagio*	'contagion'
7	Fricative	[ʝ]→[λ]	[λugo]	[ʝ ugo]	*yugo*	'yoke'
8	Lateral	[l]→[λ]	[λegalidad]	[legalidad]	*legalidad*	'legality'
9	Lateral	[λ]→[ʝ]	[ʝamaɾ]	[λamaɾ]	*llamar*	'to call'

The alveolar voiceless stop [t], in (1), became [d] in the specimen [*intendad] instead of [intentad] *intentad* 'you try'. The velar voiceless stop [k], in (2), was wrongly pronounced as [*komiθ] instead of [komik] *comic* 'comic'. The Spanish grapheme <c> is pronounced as [k] before the vowels [a] as [kasa] *casa* 'house', [o] as in [baɾko] *barco* 'ship' and [u] as in [kurso] *curso* 'course'; however, if the grapheme <c> is followed by

the vowel [e] or [i], it is pronounced as [θ] as in [θena] *cena* ‘dinner’ and [θirko] *circo* ‘circus’. In order to pronounce [k] before the vowels [e] and [i], it is normally used the grapheme <q>, and it is followed by <ue> as in *queso* [keso] ‘cheese’ and before <ui> as in *maquillaje* [makiʎaxe] ‘make up’. Consequently, the participants are confused in the pronunciation of this phoneme because they did not know the rules that govern the pronunciation of L3’s <c>.

The velar voiced stop [g], in (3) in the specimen [pongo] *pongo* 'to put', was wrongly pronounced as [*ponxo]; the segment [g] is not listed in L1’s phonetic system though it is present in the participant’s L2 background. In Spanish, this sound was pronounced as [g] when it is represented by the grapheme <g> and followed by the vowel [a] as in [gato] *gato* ‘cat’, [o] as in [gota] *gota* ‘drop’ and [u] as in [gusano] *gusano* ‘worm’. However, if this grapheme is followed by the vowels [e] and [i], it would be pronounced as [x] as in [xente] *gente* ‘people’ and [xitano] *gitano* ‘gypsie’. In order to be pronounced as [g] after the vowels [e] and [i], the grapheme <u> must be placed after the grapheme <g> as in *guerra* ‘war’ pronounced as [gera] and *guitarra* ‘guitar’ articulated as [gitara]. Therefore, the participants’ confusion in this segment was due to the lack of knowledge of the L3, in the sense that, the vowel that follows the consonant varies in the pronunciation the [g].

The inter-dental voiceless fricative [θ], in (4), became [k] as it was found in the utterance [θinkwenta] *cincuenta* 'fifty' was wrongly pronounced as [*kinkwenta]; It is an intralingual error because [θ] is represented graphically by <z> followed by any vowel as in [θapato] *zapato* ‘shoes’, [θebra] *zebra* ‘zebra’, [θigθag] *zigzag* ‘zigzag’, [θona] *zona* ‘zone’ and [θumo] *zumo* ‘juice’. However, it is also pronounced as [θ] among the grapheme

<c> if it is followed by the vowel [e] as in [θerka] *cerca* ‘near’ and [i] as in [θine] *cine* ‘cinema’. However, it is pronounced as [k] if it is followed by the vowel [a] as in [karo] *carro* ‘trolley’, [o] as in [kotʃe] *coche* ‘car’ and [u] as in [kuɾioso] *curioso* ‘curious’. Thus, participants were confused because the pronunciation varies depending on the vowel that follows. This is not a clear a criterion in Spanish.

The alveolar voiceless fricative [s], in (5), became [θ] as in the specimen [posa] *posa* 'pose' wrongly pronounced as [*poθa]. This error was due to the breach of code. The uvular voiceless fricative [x], in (6), became [g] in the example [*kontagjo] instead of [kontaxjo] *contagio* 'contagion'. This consonant is not listed in the L2 phonetic system, though it occurs in the participant’s L1. This phoneme is pronounced as [x] when it is represented by <g> and followed by the segments [e] and [i]; it would be pronounced as [x] as in [xente] *gente* ‘people’ and [xitano] *gitano* ‘gypsie’. However, when this grapheme is pronounced as [g] if it is followed by the vowel [a] as in [gato] *gato* ‘cat’, [o] as in [gota] *gota* ‘drop’ and [u] as in [gusano] *gusano* ‘worm’. In order to be pronounced as [g] the vowel [u] must be placed after the grapheme <g> as in *guerra* ‘war’ [gera] and *guitarra* [gitara] ‘guitar’. Therefore, it was an intralingual issue since participants confused the pronunciation of this segment sine it varies depending on the followed vowel.

The palatal voiced fricative [ʝ], in (7), became [λ] as [*λugo] instead of [ʝugo] *yugo* 'yoke’. Moreover, it became [λ] because students could not distinguish between these two different sounds that are not listed in their L1 and L2 phonetic system.

The alveolar lateral [l], in (8), became [λ] as in the specimen [*λegalidad] instead of [legalidad] *legalidad* 'legality'. It was wrongly pronounced because of the intralingual factor in which made the participants unable to distinguish [l] from [λ].

The palatal lateral [λ], in (9), became [ʝ] as in the example [*ʝamar] instead of [λamaɾ] *llamar* 'to call'. This error took place since it is an intralingual issue in the sense that this segment is not found in the participants' L1 or in L2 phonetic systems.

In short, intralingual errors occurred due to the lack of knowledge that Spanish phonetic symbols.

4.2.2.2.B. Intralingual Errors of Diphthongs

There were a number of intralingual errors in diphthongs. Such errors were due to the poor knowledge of L3's diphthongs. Errors in diphthongs were very high and each diphthong was pronounced erroneously in many different ways; however, in order to avoid repetition, the researcher gives one example of error for each segment. For further examples, see table (3).

Table (9). Examples of the participants' intralingual errors in Spanish diphthongs

No.	Process	Learner's performance	Target performance IPA Spanish	Spelling	Meaning
1	[je]→ [i]	[iro]	[jero]	*hierro*	'iron'
2	[ja]→ [i]	[ito]	[jato]	*hiato*	'hiatus'
3	[jo]→ [u]	[kontaxu]	[kontaxjo]	*Contagio*	'contagion'
4	[ju]→ [jo]	[bjodo]	[bjudo]	*viudo*	'widower'
5	[ei]→ [ea]	[rea]	[rei]	*rey*	'king'
6	[eu]→ [i]	[sidonimo]	[seudonimo]	*seudónimo*	'pseudonym'
7	[ai]→ [i]	[bila]	[baila]	*baila*	'dance'
8	[au]→ [o]	[ola]	[aula]	*aula*	'classroom'
9	[oi] → [wi]	[konbwi]	[konboi]	*convoy*	'convoy'
10	[ou]→ [o]	[bo]	[bou]	*bou*	'seine fishing'
11	[wi]→ [i]	[fimos]	[fwimos]	*fuimos*	'we went'
12	[we]→ [eo]	[feo]	[fwe]	*fue*	'he went'

13	[wa] → [u]	[lenguxe]	[lengwaxe]	*lenguaje*	‘language’
14	[wo] → [o]	[fato]	[fatwo]	*fatuo*	‘fatuous’

For instance, the diphthong [je], in (1), was wrongly pronounced as [i] in the initial position of the specimen [*iro] instead of [jero] *hierro* ‘iron’. The diphthong [ja], in (2), was wrongly pronounced in the initial position of [*ito] instead of [jato] *hiato* ‘hiatus’. The diphthong [jo], in (3), was also incorrectly pronounced as [u] in [*kontaxu] instead of [kontaxjo] *contagio* ‘contagion’. The diphthong [ju], in (4), was incorrectly pronounced as [jo] in the specimen [*bjodo] instead of [bjudo] *viudo* ’widower’.

The diphthong [ei], in (5), was wrongly articulated as [ea] in the final position of the example [*rea] instead of [rei] *rey* ‘king’. The diphthong [eu], in (6), was wrongly articulated as [i] in the medial position of the example [*sidonimo] instead of [seudonimo] *seudonimo* ‘pseudonym’. The diphthong [ai], in (7), was incorrectly pronounced as [i] in the medial position of [*bila] instead of [baila] *baila* ‘dance’.

The diphthong [au], in (8), was incorrectly articulated as [o] in the initial position of the [*ola] instead of [aula] *aula* ‘classroom’. In (9), the diphthong [oi] was wrongly articulated as [wi] in the final position of the word [*konbwi] instead of [konboi] *convoy* ‘convoy’. The diphthong [ou], in (10), was wrongly articulated as [o] in the final position of the specimen [*bo] instead of [bou] *bou* ‘seine fishing’. The diphthong [wi], in (11), was incorrectly pronounced as [i] in the medial position of the word [*fimos] instead of [fwimos] *fuimos* ‘we went’.

The diphthong [we], in (12), was wrongly pronounced as [eo] in the final position of the [*feo] instead of [fwe] *fue* ‘he went’. The diphthong [wa], in (13), was erroneously articulated as [u] in the medial position of the specimen [*lenguxe] instead of [lengwaxe]

lenguaje ‘language’. Finally, the diphthong [wo], in (14), was incorrectly pronounced as [o] in the final position of the word [*fato] instead of [fatwo] *fatuo* ‘fatuous’. In short, errors of this type occurred since there are few similar diphthongs in L1 and in L3. As far as the L2 diphthongs were concerned, there is a higher similarity between the diphthongs of L2 and L3.

4.2.2.2.C. Intralingual Errors in Triphthongs

As far as the triphthongs were concerned, linguistically L1 does not possess triphthongs whereas L2 has a number of them; however, there were no similarities in the pronunciation of L2 and L3 triphthongs. For further specimens see table (4).

Table (10). Examples of the participants’ intralingual errors in Spanish triphthongs

No.	Process	Learner’s performance	Target performance of Spanish IPA	Spelling	Meaning
1	[jei] → [jai]	[pjais]	[pjeis]	*Pieis*	'you spy'
2	[jai] → [jei]	[fjeis]	[fjais]	*Fiais*	'you trust'
3	[joi] → [jo]	[jodes]	[joides]	*hioides*	'hyoid'
4	[wei] → [oi]	[boi]	[bwei]	*Buey*	'ox'
5	[wai] → [wei]	[paɾagwei]	[paɾagwai]	*Paraguay*	'Paraguay'

The triphthong [jei], in (1), that occurred in the medial position of the specimen [pjeis] *pieis* ‘you spy’ was wrongly articulated as [jai] in [*pjais]. The triphthong [jai], in (2), was articulated wrongly as [jei] in the medial position of the specimen [*fjeis] instead of [fjais] *fiais* ‘you trust’. Likewise, the triphthong [joi], in (3), was wrongly articulated as [jo] in the initial position of the specimen [*jodes] instead of [joides] *hioides* ‘hyoid’. The triphthong [wei], in (4), was incorrectly pronounced as [oi] in the final position of [*boi]

instead of [bwei] *buey* ‘ox’. Finally, the triphthong [wai], in (5), was wrongly articulated as [wei] in the final position of [*paragwei] instead of [paragwai] *Paraguay*’Paraguay’.

The researcher did not find any of these types of mistakes in the empirical literature. Thus, this work takes the initiative in discussing these types of errors made by the participants of this study.

4.2.2.2.D. Intralingual Errors in Hiatuses

L1 and L2 do not have hiatuses in their phonetic systems. This caused the L3 hiatuses to be pronounced incorrectly. For further examples of the types of errors, refer to table (5).

Table (11). Examples of the participants’ intralingual errors in Spanish Hiatuses

No.	Process	Learner’s performance	Target performance of Spanish IPA	Spelling	Meaning
1	[ii]→ [i]	[tʃita]	[tʃiita]	*Chiita*	‘Shiite’
2	[ee]→ [e]	[kɾenθja]	[kɾeenθja]	*creencia*	‘belief’
3	[ea]→ [e]	[creɾ]	[kɾeaɾ]	*crear*	'create’
4	[eo]→[o]	[oθeno]	[eoθeno]	*eoceno*	‘eocene’
5	[ae] →[e]	[eɾopweɾto]	[aeɾopweɾto]	*aeropuerto*	‘airport’
6	[aa] →[a]	[aɾon]	[aaɾon]	*Aarón*	‘Aarón’
7	[ao]→ [a]	[bakala]	[bakalao]	*bacalao*	‘cod fish’
8	[oe]→ [o]	[oste]	[oeste]	*oeste*	‘west’
9	[oa]→ [o]	[osis]	[oasis]	*oasis*	‘oasis’
10	[oo]→ [o]	[θoloxiko]	[θooloxiko]	*zoológico*	‘zoo’
11	[uu] →[u]	[dumbiɾo]	[duumbiɾo]	*duunviro*	‘duumvir’

The hiatus [ii], in (1), was wrongly pronounced as the vowel [i] in the medial position of the specimen [*tʃita] instead of [tʃiita] *chiita* 'chiite'. In (2), the hiatus [ee] was wrongly pronounced as the vowel [e] in the medial position of [*kɾenθja] instead of [kɾeenθja] *creencia* 'belief'. The hiatus [ea], in (3), was articulated incorrectly as the vowel [e] in the medial position of [*kɾeɾ] instead of [kɾeaɾ] *crear* 'to create'.

The hiatus [eo], in (4), was pronounced incorrectly as the vowel [o] in the initial position of the specimen [*oθeno] instead of [eoθeno] *eoceno* 'Eocene'. The hiatus [ae], in (5), was incorrectly pronounced as [e] in the initial position of the example [*eɾopwerto] instead of [aeɾopwerto] *aeropuerto* 'airport'. The hiatus [aa], in (6), was erroneously pronounced as the vowel [a] in [*aron] instead of [aaron] *Aaron* 'Aaron'. In (7), the hiatus [ao] was wrongly articulated as the vowel [a] in the final position of [*bakala] instead of [bakalao] *bacalao* 'cod fish'. The hiatus [oe], in (8), was wrongly pronounced as the vowel [o] in the initial position of the example [*oste] instead of [oeste] *oeste* 'west'.

The hiatus [oa], in (9), was erroneously pronounced as the vowel [o] in the initial position of the specimen [*osis] instead of [oasis] *oasis* 'oasis'. The hiatus [oo], in (10), was said as the vowel [o] in the medial position of [*θoloxico] instead of [θooloxico] *zoológico* 'zoo'. The hiatus [uu], in (11), was wrongly formed as the vowel [u] in the medial position of [*dunbiɾo] instead of [duunbiɾo] *duunviro* 'duumvir'.

In short, L3 has a variety of (11) hiatuses; thus, learners did not pronounce any of them acceptably. Errors in the pronunciation of hiatuses took place since there were not found similar hiatuses in the other languages as seen in appendix (XIX, p.187)

4.2.3. Results and Analyses Related to Question (4)

Learners of a new language usually transfer a segment found in their L1 to the L2 considering that the sound is pronounced in the same manner. The result of the transfer might be positive or negative.

4.2.3.1. Positive Transfer

It refers to the automatic use of the pronunciation of L1 phonemes into L2 performance resulting in correct utterances. This study did not only show the automatic use of similar segments of L1 into L3 but also of L2 into L3.

4.2.3.1. A. Positive Transfer in Consonants

The following phonemes in the chart show the L1 consonants, the L2 consonants and the L3 consonants. Thus, this section shows the correctly articulated phonetic symbols of L3 segments made by the participants' of this study.

Table (12). Examples of the participants' positive transfer from L1 and L2 on L3 in consonants

No.	Arabic (L1)		Spanish (L3)		Example		
	Phonemic	**Phonetic symbol**	**Phonemic**	**Phonetic symbol**	**Phonetic transcription**	**Spelling**	**Meaning**
1	/m/	[m]	/m/	[m]	[mateɾja]	*materia*	'material'
2	/n/	[n]	/n/	[n]	[naɾiθ]	*nariz*	'nose'
3	/d/	[d]	/d/	[d]	[doɾmiɾ]	*dormir*	'to sleep'
4	/f/	[f]	/f/	[f]	[faboɾ]	*favor*	'favour'
No.	**English (L2)**		**Spanish (L3)**		**Example**		
	Phonemic	**Phonetic symbol**	**Phonemic**	**Phonetic symbol**	**Phonetic transcription**	**Spelling**	**Meaning**
1	/m/	[m]	/m/	[m]	[mateɾja]	*materia*	'material'
2	/n/	[n]	/n/	[n]	[naɾiθ]	*nariz*	'nose'
3	/d/	[d]	/d/	[d]	[doɾmiɾ]	*dormir*	'to sleep'
4	/f/	[f]	/f/	[f]	[faboɾ]	*favor*	'favour'

The bilabial nasal [m] as in [mateɾja] *materia* 'material' and the alveolar nasal [n] in the specimen [naɾiθ] *nariz* 'nose', in (1) and (2), were produced by a positive transfer since they are articulated in the same manner in the three languages. The articulation of the alveolar voiced stop [d] as in [doɾmiɾ] *dormir* 'to sleep', in (3), was also a positive transfer due to the same reason. The pronunciation of the labio-dental voiceless fricative [f] as in [faboɾ] *favor* 'favour', in (4), indicated a positive transfer because this consonant was articulated similarly in the same languages.

In short, the phonemes were classified by positive transfer in which they did not only coincid with L1 and L3, but also with L2. However, these were merely the sounds that have shown a positive transfer from Arabic and English into Spanish. There was no positive transfer in the pronunciation of the Spanish vowels, diphthongs, triphthongs and hiatus.

4.2.3.2. Negative Transfer

Negative transfer occurs when a learner's first language interferes with the learner's second language and that it comprises an obstacle in the new language; thus, if L1 phonemes differed in the pronunciation of those in the L2, errors will be reflected in the pronunciation from L1. Such errors are said to be due to the influence of the learner's L1 habits on L2 production (c.f. Dulay, Burt and Krashen, 1982, p. 97), also known as interference. As far as this study was concerned, there were negative transfers from L1 and L2 in the articulation of L3 segments.

4.2.3.2. A. Negative transfer in Consonants

This section showed the consonantal errors produced by the participants of this study while producing a negative transfer from their L1 and their L2 into their L3.

Table (13). The participants' negative transfer from L1 and L2 on L3 consonants

No.	Process	Spanish phonetic symbols	Arabic phonetic symbols	Learner's performance	Target performance in IPA	Spelling	Meaning
1	[tʃ]→ [ʃ]	[tʃ]	[ʃ]	[desinʃado]	[desintʃado]	*deshinchado*	'deflate'
2	[x]→[dʒ]	[x]	[dʒ]	[dʒeogɾafja]	[xeogɾafja]	*geografia*	'geography'
3	[ʝ]→[dʒ]	[ʝ]	[dʒ]	[dʒugo]	[ʝugo]	*yugo*	'yoke'
4	[ɾ]→ [r]	[ɾ]	[r]	[eroe]	[eɾoe]	*heroe*	'hero'
5	[λ]→[dʒ]	[λ]	[dʒ]	[dʒamaɾ]	[λamaɾ]	*llamar*	'to call'
No.	Process	Spanish phonetic symbols	English phonetic symbols	Learner's performance	Target performance in IPA	Spelling	Meaning
6	[tʃ]→ [k]	[tʃ]	[k]	[desinkado]	[desintʃado]	*deshinchado*	'deflate'
7	[x]→ [ʒ]	[x]	[ʒ]	[ʒeogɾafja]	[xeogɾafja]	*geografia*	'geography'
	[x]→[dʒ]		[dʒ]	[dʒeogɾafja]			
8	[ʝ]→[dʒ]	[ʝ]	[dʒ]	[dʒugo]	[ʝugo]	*yugo*	'yoke'
9	[ɾ]→ [r]	[ɾ]	[r]	[eroe]	[eɾoe]	*heroe*	'hero'
10	[λ]→[dʒ]	[λ]	[dʒ]	[dʒamaɾ]	[λamaɾ]	*llamar*	'to call'

The participants' bad habits lead them to apply the Arabic [ʃ], in (1), in the articulation of the Spanish word *deshinchado* as [*desinʃado] instead of [desintʃado]. Another example was the articulation of [dʒ], in (2), in the word *geografia* as [*dʒeogɾafja] instead of [xeogɾafja]. The same occurred in the articulation of the Arabic segment [dʒ], in (3), in the word *yugo* as [*dʒugo] instead of [ʝugo]. Similarly, there was an erroneous pronunciation of the Arabic trill [r], in (4), in the specimen [*eroe] instead of [eɾoe] *heroe* 'hero'. Finally, the articulation of the Arabic phoneme [dʒ], in (5), was pronounced incoeerctly as the specimen *llamar* as [*dʒamaɾ] instead of [ʎamaɾ]. Thus, the above phonemes could not be pronounced the same in Spanish.

The participants also had a bad habit on the application of their L2. For instance, [tʃ] in (6), was wrongly pronounced as [k] in the word *desinchado* as [*desinkado] instead of [desintʃado]. The same occurred in the pronunciation of [x] in (7), which was wrongly pronounced as [ʒ] and [dʒ] in the word *geografia* as [*ʒeogɾafja] and [*dʒeogɾafja] instead of [xeogɾafja]. Another example was the [dʒ], in (8), in the word *yugo* as [*dʒugo] instead of [ʝugo]. Moreover, the tap [r], in (9), was articulated erroneously as the English trill [r] in the specimen [*eroe] instead of [eɾoe] *heroe* 'hero'. Finally, the articulation of [ʎ], in (10), was wrongly pronounced as in the example [*dʒamaɾ] instead of [ʎamaɾ] *llamar* 'to call'.

In short, the participants of this study applied the sements of L1 and L2 on L3 which lead to negative transfer.

4.2.3.2. B. Negative Transfer in Vowels

Table (14). The participants' negative transfer from L1 and L2 into L3 vowels.

No.	Process	Spanish phonetic symbols	Arabic phonetic symbols	Learner's performance	Target performance of IPA	Spelling	Meaning
1	[e] → [i]	[e]	[i]	[*inbeneno]	[enbeneno]	*enveneno*	'poison'
2	[o]→ [u]	[o]	[u]	[buske]	[boske]	*bosque*	'forest'
No.	Process	Spanish phonetic symbols	English phonetic symbols	Learner's performance	Target performance of IPA	Spelling	Meaning
3	[i]→ [e]	[i]	[i]	[pɾebjeni]	[pɾebjene]	*previene*	'prevent'
4	[a]→ [e]	[a]	[e]	[beso]	[baso]	*vaso*	'glass'
5	[u]→ [e]	[u]	[e]	[opelento]	[opulento]	*opulento*	'opulent'
	[u]→ [o]	[u]	[o]	[opolento]			

The vowel [e], in (1), illustrated a negative transfer from L1 into L3 as in [*inbeneno] instead of [enbeneno] *enveneno* 'weight' in the sense that the participants of this study transferred the absent Arabic phoneme [e] to the Arabic vowel [i]. The vowel [o], in (2), was wrongly pronounced as [*uɾatoɾia] instead of [oratorja] *oratoria* 'oratory'. Thus, participants transferred the Spanish vowel [o] into the Arabic vowel [u].

Insofar as the L2 interference on L3 vowels were concerned, the vowel [i], in (3), shows a negative transfer from L2 to L3 in the sense that *panico* [paniko] 'panic' is wrongly pronounced as [*paneko]; as previously mentioned, this error occurred since the English grapheme <i> is differently pronounced in different manners in L2. The vowel [a] in (4), was wrongly pronounced as the English vowel [e] in the word [*beso] instead of [baso] *vaso* 'glass'. The English grapheme <a> was pronounced in different ways in which sometimes was pronounced as [æ] as in [bæd], (near to the pronunciation of the Spanish

<e>). The vowel [u], in (4), was a negative transfer from L2 into L3. Therefore, participants made a negative transfer from L2 into L3 in (3), (4) and (5) since they put in use the pronunciation of the English vowels instead of the Spanish vowels.

4.2.3.2. C. Negative transfer in Diphthongs

The participants of this study pronounced all diphthongs erroneously. In order to avoid repetition see table (3) of this chapter. L1, L2 and L3 have two similar diphthongs as is seen in Appendix (XVII, p.185). As seen in Appendix (XI, p.177), L1 has two diphthongs in which both were found in L3; the first diphthong was the L1 [aj] as the specimen [ʕajn] 'eye' similar to the L3 diphthong [ai] in the specimen [baila] *baila* 'dance' in which participants pronounced it wrongly as [*bila]. The other type of diphthong that is shared in both L1 and L3 is [aw] in the specimen [ʕawd] 'come' as the L3 [au] in the specimen [awla] *aula* 'classroom' in which learners pronounced it as [*ola]. Thus, participants made mistakes in the pronunciation of all the diphthongs in spite of the similarities of L1 and L3.

As far as L2 diphthongs were concerned, there were seven similar diphthongs shared by L2 and L3 as seen in Appendix (XVII, p.185). The similar diphthongs are as follows: (i) the diphthong [iə] is found in the English word *near* [niər] and as the Spanish word *hierro* [jero] 'iron'. Learners pronounced it wrongly as [*iro] as seen in (1) of table (3); (ii) the diphthong [ei] in English is found in *face* [feis] and the Spanish *rey* [rei] 'king'. This diphthong was erroneously pronounced as [*rea] as seen in (5) of table (3); (iii) the diphthong [ai] is found in the English word *price* [prais] and in the Spanish *baila* [baila] 'dance'. This diphthong was erroneously pronounced as [*bila] as seen in (7) of table (3); (iv) the diphthong [au] is found in the English word *mouth* [mauθ] and the Spanish word *aula* [aula] 'classroom'. This diphthong was wrongly pronounced as [*ola] as seen in (8) of table (3); (v) the diphthong [ɔi] is found in the English word *choice* [tʃɔis] and in the

Spanish word *convoy* [konboi] ‘convoy’. This diphthong was erroneously pronounced as [*konbwi] as seen in (9) of table (3); (vi) the diphthong [ou] is found in the English word *goat* [gout] and in the Spanish *bou* [bou] ‘seine fishing’. This diphthong was incorrectly pronounced as [*bo] as seen in (10) of table (3); (vii) finally, the diphthong [uə] is found in English as in the word *cure* [kuər] and in the Spanish word *fue* [fwe] ‘he went’. This diphthong was incorrectly pronounced as [*feo] as seen in (11) of table (3). In spite of this, some students pronounced them incorrectly.

A diphthong that is not found in L1 nor in L2 is the Spanish [ja] as in the wrongly pronounced specimen [*ito] instead of the correct [jato] *hiato* ‘hiatus’ as seen in (2) of table (3). Other not found diphthong in both languages is the diphthong [jo] as seen in the wrongly pronounced specimen [*kontaxu] instead of [kontaxjo] *contagio* ‘contagion’ which is found in (3) of table (3). Moreover, the diphthong [ju] is not found in L1 and L2, therefore, in Spanish, it was wrongly pronounced as [*bjodo] instead of [bjudo] *viudo* ‘widower’ as seen in (4) of table (3). Another diphthong that is not found in L1 and L2 is the Spanish [eu] which was wrongly pronounced as [*sidonimo] instead of [seudonimo] *seudonimo* ‘pseudonym’ which is seen in (6) of table (3). Moreover, the Spanish diphthong [wi], in (11) of table (3), is not found in L1 and L2. It was wrongly pronounced as [*fimos] instead of [fwimos] *fuimos* ‘we went’. The Spanish diphthong [wa], in (13) of table (3), is not found in L1 and in L2. It was wrongly pronounced as [*lenguxe] instead of [lengwaxe] *lenguage* ‘language’. Finally, the Spanish diphthong [wo], in (14) of table (3) is not found in L1 and in L2. This diphthong was wrongly pronounced as [*fato] instead of the correct [*fatwo] *fatuo* ‘fatuous’.

4.2.3.2. D. Negative transfer in Triphthongs

As far as triphthongs were concerned, the participants of this study pronounced all L3 triphthongs wrongly. In order to avoid repetition, Table (4) shows in depth the errors with specimens. The errors of this type were produced wrongly since L1 has no triphthongs; however, L2 has triphthongs but none is similar to the L3 as seen in Appendix (XVIII, p.186). The triphthongs of L2 are five: (i) the triphthong [ɛiə] in the word *layer* [lɛiər], (ii) the triphthong [aiə] as *liar* [laiər], (iii) the triphthong [ɔiə] as in *lawyer* [lɔiər], (iv) the triphthong [auə] as in the word *power* [pauər] and finally (v) the triphthong [ouə] as the Engish word *lower* [louər] (c.f. http://www.paulmeier.com/ipa/charts.html). However, there are no similar triphthongs in L2 and L3. This issue led the high number of the incorrect pronunciation of the L3 triphthongs. The Spanish triphthongs are five in which all were pronounced incorrectly. The triphthong [jei], in (1) of table (4), in the specimen [pjeis] *pieis* 'you spy' was wrongly articulated as [jai] in [*pjais]. The triphthong [jai], in (2) of table (4), was articulated wrongly as [jei] in [*fjeis] instead of [fjais] *fiais* 'you trust'. Likewise, the triphthong [joi], in (3) of table (4), was wrongly articulated as [jo] in [*jodes] instead of [joides] *hioides* 'hyoid'. The triphthong [wei], in (4) of table (4), was incorrectly pronounced as [oi] in [*boi] instead of [bwei] *buey* 'ox'. Finally, the triphthong [wai], in (5) of table (4), was wrongly articulated as [wei] in [*paragwei] instead of [paragwai] *Paraguay*'Paraguay'.

4.2.3.2. E. Negative transfer in Hiatuses

Negative transfer occurred in the pronunciation of hiatuses since L1 and L2 has none in their phonetic system. In order to avoid repetition, table (5) shows in detail the errors produced by the participants of this study. The hiatus [ii], in (1) of table (5), was wrongly pronounced as the vowel [i] in [*tʃita] instead of [tʃiita] *chiita* 'chiite'. In (2) of table (5), the hiatus [ee] was wrongly pronounced as [e] in [*kɾenθja] instead of [kɾeenθja] *creencia* 'belief'. The hiatus [ea], in (3) of table (5), was articulated incorrectly as the vowel [e] in [*kɾeɾ] instead of [kɾeaɾ] *crear* 'to create'. The hiatus [eo], in (4) of table (5), was pronounced incorrectly as the vowel [o] in [*oθeno] instead of [eoθeno] *eoceno* 'Eocene'. The hiatus [ae], in (5) of table (5), was incorrectly pronounced as [e] in [*eɾopwerto] instead of [aeɾopwerto] *aeropuerto* 'airport'. The hiatus [aa], in (6) of table (5), was erroneously pronounced as the vowel [a] in [*aron] instead of [aaron] *Aaron* 'Aaron'. In (7) of table (5), the hiatus [ao] was wrongly articulated as the vowel [a] in [*bakala] instead of [bakalao] *bacalao* 'cod fish'. The hiatus [oe], in (8) of table (5), was wrongly pronounced as the vowel [o] in [*oste] instead of [oeste] *oeste* 'west'. The hiatus [oa], in (9) of table (5), was erroneously pronounced as the vowel [o] in [*osis] instead of [oasis] *oasis* 'oasis'. The hiatus [oo], in (10) of table (5), was said as the vowel [o] in [*θoloxico] instead of [θooloxico] *zoológico* 'zoo'. The hiatus [uu], in (11) of table (5), was wrongly articulated as [u] in [*dunbiɾo] instead of [duunbiɾo] *duunviro* 'duumvir'.

To sum up, the participants of the study had incorrectly pronounced the phonemes of the test because of L1 and L2 interference with L3. The most remarkable error that took place was in the consonants' intralingual and in the vowels in the interlanguage. However,

there were not interlingual errors in diphthongs, triphthongs and hiatus because there are a few similar phonemes of this kind listed in L1 and L2 with L3; moreover, there were no intralingual errors in vowels since participants made an interference from their L1 and L2 with their L3. As for the transfer, there was positive transfer in four consonants: in which three of them were produced a cause of L2 and one a cause of L1. As for the vowels, there were three negative transfers from L1 and five vowels from L2. Negative transfer was also seen in all the diphthongs from L2 and none from L1 since L1 diphthongs were pronounced as Spanish diphthongs. There are negative transfers of triphthongs because there are no similar triphthongs in L1 and L2 on L3. As for the hiatuses, they were wrongly pronounced since they exist only in Spanish.

Chapter Five
Conclusions and Recommendations

5.1. Conclusions

The review of the relevant literature in Chapter Two revealed that a number of scholars investigated difficulties met by the learners of Spanish at the phonetic level. In the area of pronunciation of consonants, the researcher agreed with Gospodaric's (2004) and Sanchez's (2006) results in the sense that the palatal nasal [ɲ] was produced wrongly as the alveolar nasal [n] as seen in (1) of table (1). The researcher also agreed with Carcedo's (1999), Cortes' (2002), Gospodaric's (2004), Sanchez's (2006) and Amador's and Rodriguez's (2008) findings who argued that the bilabial voiceless stop [p] was wrongly pronounced as the bilabial voiced stop [b] as seen in (2) of table (1). Moreover, the researcher agreed with Carcedo's (1999), Cortes' (2002), Gospodaric's (2004) and Amador's and Rodriguez's (2008) results in that the bilabial voiced stop [b] was changed in the articulation process to [p] as visible in (3) of table (1). There was an obvious agreement between the researcher and Carcedo's (1999), Cortes' (2002) and Gospodaric's (2004) findings in that the alveolar voiceless stop [t] was wrongly articulated as the alveolar voiced stop [d] as shown in (4) of table (1). The researcher coincided with Carcedo's (1999), Cortes' (2002), Gospodaric's (2004) and Sanchez's (2006) results in the sense that the velar voiced stop [g] was erroneously pronounced as [k] as in (6) of table (1). Moreover, the researcher agreed with Gospodaric's (2004) and Otto's (2006) results where they stated that [g] was incorrectly articulated as [x] as in (6) of table (1). Insofar as the wrong articulations of fricatives were concerned, the researcher agreed with Otto's (2006) result in that the inter-dental fricative [θ], in (8) of table (1), was wrongly pronounced as the affricate [tʃ] and

as the fricative [s]. Moreover, there was a concurrence with Cortes' (2002), Gospodaric's (2004), Goglova's (2001), Amador's and Rodriguez's, Abril's and Hernandez's and Sossouvi's (2009) findings in which [θ], in (8) of table (1), was wrongly pronounced as [s]. It was visible that the pronunciation of the alveolar fricative [s], in (9) of table (1), was erroneously articulated as [θ] in which the researcher concurred with Cortes' (2002), Gospodaric's (2004), Otto's (2006) and with Amador's and Rodriguez's (2008) findings. Moreover, there was a concurrence with Otto's (2006) and Sossouvi's (2009) findings in that the uvular fricative phoneme [x] was wrongly pronounced as [dʒ] as in (10) of table (1). Moreover, the researcher agreed with Abril's and Hernandez's (2008) and Sossouvi's (2009) findings in which [x] was wrongly pronounced as [ʒ] in (10) of table (1). Additionally, the researcher agreed with Gospodaric's (2004) and Otto's (2006) results who argued that [x] was wrongly pronounced as [g] in (10) of table (1). In so far the trill was concerned, the researcher agreed with Poch's (1999), Cortes' (2002), Gospodaric's (2004), Otto's (2006), Sanchez's (2006) and Abril's and Hernandez's (2008) in that the alveolar trill [r], in (12) of table (1), was wrongly articulated as the tap [ɾ]. Additionally, there was a concurrence with Poch's (1999), Cortes' (2002), Gospodaric's (2004) and Sanchez's (2006) in the wrong articulation of the alveolar tap [ɾ], in (13) of table (1), as the trill [r]. However, the alveolar lateral [l], in (14) of table (1), was wrongly pronounced as the palatal lateral [λ] in concurrence with Sanchez's (2006) result. The investigator also coincided with Gospodaric's (2004) and Sossouvi's (2009) findings in that the palatal lateral [λ] was wrongly articulated as [l] as in (15) of table (1). The researcher agreed with Gospodaric's

(2004) and Madonati's (2007) findings in the sense that the phoneme [λ] was wrongly articulated [j] in (15) of table (1).

However, the researcher disagreed with Gospodaric's (2004) result in the sense that [ɲ], in (1) of table (1), was wrongly pronounced as [m]. Another example of the category was that the researcher differed from Gospodaric's (2004) result in that the bilabial voiceless stop [p], in (2) of table (1), was pronounced as [f]. The pronunciation of the bilabial voiced stop [b], in (3) of table (1), was wrongly articulated as [f] in which the researcher differed from Gospodaric's (2004) result. Moreover, the bilabial voiced stop [b], in (3) of table (1), was wrongly produced as [v] in which the investigator disagreed with Madonati's (2007), Otto's (2006), Sanchez's (2006), Goglova's (2001) and Amador's and Rodriguez's (2008) results. There was a difference between the researcher and Gospodaric's (2004) results in that [t], in (4) of table (1), was produced as [θ]. The researcher also disagreed with Carcedo's (1999), Cortes' (2002) and Gospodaric's (2004) result in that [k], in (5) of table (1), was produced as [g]. As far as the affricate and fricatives were concerned, the researcher disagreed with Carcedo's (1999) result in that the palato alveolar [tʃ], in (7) of table (1), was pronounced as [ts], [tθ] and [θ]. The researcher also differed from Gospodaric's (2004) result in the sense that the inter-dental fricative [θ], in (8) of table (1), was wrongly articulated as [x], [t] and [f]. Furthermore, the investigator disagreed with Otto's (2006) result for the error of [θ] in which it was wrongly pronounced as [ʃ], [z] or [dʒ]. Additionally, she disagreed with Amador's and Rodriguez's (2008) and Gospodaric's (2004) in the sense that [θ], in (8) of table (1), was wrongly articulated as [t].

The researcher disagreed with Sossouvi's (2009) result in that [θ] was wrongly pronounced as [z]. The researcher disagreed with Yates' (2005) and Abril's and Hernandez's (2008) result in the sense that the alveolar fricative phoneme [s], in (9) of table (1), was incorrectly produced as [z]. The researcher differed from Carcedo's (1999), Poch's (1999) and Otto's (2006) results in the sense that the uvular fricative [x], in (10) of table (1), was wrongly pronounced as [h]. The fricative [x] was also wrongly pronounced as [θ] in which case the researcher differed from Gospodaric's (2004) result. Likewise, the researcher disagreed with Abril's and Hernandez's (2008) findings in the sense that [x], in (10) of table (1), was wrongly pronounced as [s]. The researcher disagreed with Poch's (1999) result in the sense that the alveolar trill [r], in (12) of table (1), was erroneously articulated as the alveolar tap [ɾ]. However, there was a difference between the researcher and Poch's (1999) results in the sense that [ɾ], in (13) of table (1), was wrongly pronounced as [γ]. The researcher disagreed with Sanchez's (2006) result in the sense that [ɾ], in (13) of table (1), was wrongly pronounced as [n]. The researcher differed from Cortes' (2002) result in the sense that the alveolar lateral [l], in (14) of table (1), was wrongly articulated as [r]. Finally, the researcher disagreed with Sanchez's (2006) result in the sense that [l], in (14) of table (1), was wrongly pronounced as [n].

As far as the articulation of vowels were concerned, the researcher agreed with Poch's (1999), Gospodaric's (2004), Madonati's (2007), Sanchez's (2006) and Amador's and Rodriguez's (2008) findings in the sense that the high front weak [i] was incorrectly articulated as [e] as seen in (1) of table (2). Moreover, the researcher concurred with Poch's (1999), Gospodaric's (2004), Madonati's (2007), Sanchez's (2006), Goglova's (2001) and

Amador's and Rodriguez's (2008) findings in the sense that the mid-high front strong [e] was wrongly articulated as [i] as it is obvious in (2) of table (2). The researcher also agreed with Gospodaric's (2004) result that the low central strong [a] was erroneously pronounced as [e] as in (3) of table (2). The researcher agreed with Gospodaric's (2004), Madonati's (2007), Sanchez's (2006) and Amador's and Rodriguez's (2008) findings in that the mid-high back strong [o] was said to be articulated as [u] in (4) of table (2). Finally, the researcher concurred with Gospodaric's (2004), Madonati's (2007), Sanchez's (2006) and Amador's and Rodriguez's (2008) results in the sense that the high back weak [u] was wrongly pronounced as [o] as in (5) of table (2).

However, the researcher disagreed with Sossouvi's (2009) result in the sense that the mid-high front strong [e], in (2) of table (2), was articulated as [ə] or as [ɛ]. The researcher differed from Sanchez's (2006) result in the sense that the low front strong [a], in (3) of table (2), was wrongly said as [o] and [u]. Moreover, the researcher differed from Yates' (2005) result in the sense that [a], in (3) of table (2), was wrongly pronounced as [au]. The researcher differed from Poch's (1999) and Yates' (2005) findings in the sense that the articulation of the vowel [o], in (4) of table (2), was incorrectly pronounced as [ou]. Moreover, the researcher disagreed with Sanchez's (2006) result in the wrong pronunciation of [o], in (4) of table (2), was wrongly pronounced as [i]. The researcher disagreed with Gospodaric's (2004) result because the vowel [o], in (4) of the same table was produced as [wo]. The researcher disagreed with Goglova's (2001) result in the sense that [o], in (4) of the same table, was wrongly pronounced as [a]. The researcher differed from Yates' (2005) result in the sense that the high back weak [u], in (5) of table (2), was

wrongly pronounced as [ju]. Finally, the researcher differed from Sossouvi's (2009) result since [u], in (5) of table (2), was erroneously pronounced as [i].

In short, all the vowels were mentioned as errors in the empirical data.

Insofar as the diphthongs were concerned, the researcher agreed with Gospodaric's (2004) result in the wrong articulation of [je] as [e] and with Sanchez's (2006) finding as [i] in (1) of table (3). The researcher also agreed with Gospodaric's (2004) result in the sense that [ja], in (2) of table (3), was wrongly pronounced as [a]. Moreover, the investigator agreed with Gospodaric's (2004) in the sense that [ei], in (5) of table (3), was wrongly pronounced as [e] and also agree with Sanchez's (2006) result since [ei], in (5) of table (3), was wrongly pronounced as [ai]. Additionally, the investigator concurred with Sanchez's (2006) result in the sense that [eu], in (6) of table (3), was wrongly articulated as [u]. Moreover, the researcher agreed with Gospodaric's (2004) and Sanchez's (2006) results in the sense that [ai], in (7) of table (3), was wrongly articulated as [a]. The researcher concurred with Sanchez's (2006) finding in the sense that participants pronounced [aw], in (8) of table (3), as [u]. Moreover, the researcher concurred with Gospodaric's (2004) in the sense that [wi], in (11) of table (3), was wrongly pronounced as [i]. Finally, the investigator agreed with Gospodaric's (2004) result in the wrong articulation of [we], in (12) of table (3), as [e].

Conversely, the researcher disagreed with Sossouvi's result in the sense that the diphthong [ai], in (7) of table (3), was mistakenly pronounced as [ei]. Moreover, the researcher differed from Sossouvi's (2009) result in the sense that [oi], in (9) of table (3), was wrongly pronounced as [wa]. Additionally, the researcher differed from Yates' (2005) result in the sense that [we], in (12) of table (3), was wrongly articulated as [wa].

In short, the diphthongs that were not mentioned in the empirical data were: [jo], in (3) of table (3), [ju], in (1) of table (3), [ou], in (10) of table (3), [wa], in (13) of table (3) and [wo], in (14) of table (3).

As far as triphthongs were concerned, the researcher agreed with Gospodaric's (2004) finding in the sense that [jei], in (1) of table (4), as wrongly articulated as [jai]. Moreover, the researcher concurred with Gospodaric's (2004) result in the sense that the triphthong [jai], in (2) of table (4), was mistakenly pronounced as [jei].

In short, the triphthongs that were not mentioned in the empirical literature were [joi], in (3) of table (4), [wei], in (4) of table (4) and finally [wai], in (5) of table (4).

Insofar as the hiatuses were concerned, the investigator concurred with Sanchez's (2006) result in the sense that [ee], in (2) of table (5), was wrongly uttered as [e]. However, the rest of the hiatuses were not mentioned in the empirical literature.

This study was new in the sense that it tackled all difficulties of wrong articulations not only in consonants, vowels and diphthongs but also in triphthongs and hiatuses of L3. Corder's (1973) views of error analysis made it simple not only in finding out the similarities between the three languages, namely Arabic, English and Spanish but also the differences between such languages. The theory made it simple as it classified errors in groups, namely, in consonants, vowels, diphthongs, triphthongs and hiatuses in L3 and gave theoretical justifications for each error. Thus, the theory of error analysis shed the light on each fact as it reflected the learners' competence in learning a new language. Therefore, it helped the researcher to discuss every type of errors produced by the participants of the study starting from classifying the errors, tracing the source of errors and specifying the type of transfer whether it was positive or negative. The purpose of this

study was to tackle every phonetic error made by the participants while learning Spanish as L3. Therefore, the following questions were posited and then answered. The phonemes in some words were pronounced incorrectly in different ways, thus, the researcher wrote one example of each phonetic error in order to avoid repetition.

Question One:

What are the pronunciation errors of consonants and vowels (i.e. vowels, diphthong, triphthong and hiatus) committed by the learners of Spanish as a foreign language?

Results reported in chapter four indicate that there were (15) out of (21) consonantal segments that were pronounced erroneously in the participants' performances of this study. The researcher used only one example in this part, in order to avoid repetition. For instance, the nasal [ɲ], was wrongly pronounced as [n] in the specimen [*noɲeɾja] instead of [ɲoɲeɾja] *ñoñería* 'fussyness' (1) of table (1). The bilabial voiceless stop [p] was wrongly pronounced as [b] in the specimen [*basiʎo] instead of [pasiʎo] pasillo in (2) of table (1). The bilabial voiced stop [b] became [p] in the example [*pu**r**o] instead of [buro] *burro* 'donkey' in (3) of the same table. The alveolar voiceless stop [t] was wrongly pronounced as [d] in the specimen [*intendad] instead of [intentad] *intentad* 'you try' in (4) of table (1). The velar voiceless stop [k] was pronounced as [θ] in the example [*komiθ] instead of [komik] *comic* 'comic' in (5) of the same table. The velar voiced stop [g] was wrongly pronounced as [k] or [x] in the specimen [*ponko] or [*ponxo] instead of the correct [pongo] *pongo* 'I put' in (6) of table (1).

Insofar as the affricate and fricatives were concerned, the palato-alveolar voiceless affricate [tʃ] was wrongly produced as [k] or [ʃ] in the example [*desinkado] or [*desinʃado] instead of [desintʃado] *deshinchado* ‘deflate’ respectively in (7) of table (1). The inter-dental voiceless fricative phoneme [θ] was wrongly pronounced either as [k], [tʃ] and [s] in the specimen [*kinkwenta], [*tʃinkwenta] or [sinkwenta] instead of [θinkwenta] *cincuenta* ‘fifty’ in (8) of table (1). The alveolar voiceless fricative [s] was produced incorrectly as [θ] in the word [*poθa] instead of [posa] *posa* ‘pose’ in (9) of table (1). The uvular voiceless fricative [x] was wrongly produced as [ʒ] or [dʒ] in the example [*ʒeogɾafja] or [*dʒeogɾafja] instead of [xeogɾafja] geografía ’geography’, and it became [g] in the specimen [*kontagjo] instead of [kontaxjo] *contagio* ‘contagion’ in (10) of table (1). As for the palatal voiced fricative [ʝ] was wrongly produced either as [dʒ] or [ʎ] in the example [*dʒugo] or [*ʎugo] instead of [ʝugo] *yugo* ’yoke’ in (11) of table (1).

In the function of the alveolar trill [r], it was wrongly articulated as the tap [ɾ] in the specimen [*ɾompekabeθas] instead of [rompekabeθas] *rompecabezas* ’jigsaw puzzle’, in (12) of table (1). The alveolar tap [ɾ] was wrongly pronounced as the trill [r] in the specimen [*eroe] instead of [eɾoe] *héroe* ’hero’ in (13) of table (1).

As far as the laterals were concerned, the alveolar [l] was wrongly produced as [ʎ] in the specimen [*ʎegalidad] instead of [legalidad] *legalidad* ’legality’ in (14) of table (1). The palatal [ʎ] was wrongly pronounced as [dʒ] or [ʝ] in the example [*dʒamaɾ] or [*jamaɾ] instead of [ʎamaɾ] *llamar* ’to call’ in (15) of table (1).

As far as the vowels were concerned, all the (5) Spanish vowels were pronounced incorrectly. The high front weak [i] was wrongly pronounced as [e] in the specimen [*estoɾja] instead of [istoɾja] *historia 'history'* as seen in (1) of table (2). The mid-high front strong [e] was wrongly produced as [i] in the word [*inbeneno] instead of [enbeneno] *enveneno* 'poison' in (2) of table (2). The low central strong [a] was wrongly pronounced as [e] in the example [*beso] instead of [baso] *vaso* 'glass' as in (3) of table (2). The mid-high back strong [o] was incorrectly articulated as [u] in the specimen [*uɾatoɾja] instead of [oɾatoɾja] *oratoria* 'oratory' as in (4) of table (2). The high front weak [u] was wrongly pronounced as [e] in the specimen [*opelento] instead of [opulento] *opulento* 'opulent' in (5) of table (2).

As far as diphthongs were concerned, the Spanish diphthongs are (14) and they were all pronounced incorrectly. Therefore, the diphthong [je] was erroneously pronounced as [i] in the specimen [*iro] instead of [jero] *hierro* 'iron' as seen in (1) of table (3). The diphthong [ja] was erroneously articulated as [a] in the example [*ato] instead of [jato] *hiato* 'hiatus', in (2) of table (3). Moreover, the diphthong [jo] was articulated mistakenly as [o] in the example [*oniθaɾ] instead of [joniθaɾ] *ionizar* 'ionize' as shown in (3) of table (3). The diphthong [ju] was produced wrongly as the vowel [i] in [*bido] instead of [bjudo] *viudo* 'widower', in (4) of table (3). Additionally, the diphthong [ei] was pronounced wrongly as [i] in the word [*instenjo] instead of [einstenjo] *einstenio* 'einsteinium' in (5) of table (3). The diphthong [eu] was pronounced mistakenly as [u] in the specimen [*uɾopa] instead of [euɾopa] *Europa* 'Europe' in (6) of table (3). Moreover, the diphthong [ai] was articulated mistakenly as [a] in the example [*asladamente] instead of [aisladamente]

aisladamente ‘isolated’, in (7) of table (3). Additionally, the diphthong [au] was produced mistakenly as [o] in the utterance [*ola] instead of [aula] *aula* ‘classroom’ in (8) of table (3). Moreover, the diphthong [oi] was articulated erroneously as the diphthong [wi] in [*wigo] instead of [oigo] *oigo* ‘I hear’ in (9) of table (3). The diphthong [ou] was articulated mistakenly as [u] in the example [*bu] instead of [bou] *bou* ‘seine fishing’ in (10) of table (3). The diphthong [wi] was pronounced incorrectly as the vowel [i] in the word [*iɾ] instead of [wiɾ] *huir* ‘flee’ in (11) of table (3). Moreover, the diphthong [we] was produced wrongly as [wi] in the word [*ungwinto] instead of [ungwento] *ungüento* ‘ointment’ in (12) of table (3). The diphthong [wa] was articulated mistakenly as [we] in the specimen [*weka] instead of [waka] *huaca* ’huaca’ in (13) of table (3). The diphthong [wo] was produced erroneously as the vowel [o] in the specimen [*fastoso] instead of [fastwoso] *fastuoso* ‘fatuous’ in (14) of table (3).

Insofar as triphthongs were concerned, the Spanish triphthongs are (5). The participants of this research pronounced erroneously all of them. The triphthong [jei] was wrongly pronounced as [jai] in the utterance [*pjais] instead of [pjeis] *pieis* ’you spy’ in (1) of table (4). The triphthong [jai] was wrongly pronounced as [jei] in the specimen [*fjeis] instead of [fjais] *fiais* ’you trust’ in (2) of table (4). The triphthong [joi] was wrongly pronounced as [i] in the word [*opide] instead of [opjoide] *opioide* ’Opioid’ in (3) of table (4). The triphthong [wei] was wrongly pronounced as [wi] in the word [*bwi] instead of [bwei] *buey* ‘ox’ in (4) of table (4). The triphthong [wai] was pronounced incorrectly as [wei] in the example [*paragwei] instead of [paragwai] *Paraguay* ’Paraguay’ as seen in (5) of table (4).

As far as hiatus were concerned, Spanish hiatuses are (11) in which all of them were pronounced incorrectly by the participants of this research. Therefore, the hiatus [ii] was wrongly produced as [i] in the specimen [*tʃita] instead of [tʃiita] *chiita* 'Shiites', in (1) of table (5). The hiatus [ee] was wrongly pronounced as [e] in the specimen [*kɾenθja] instead of [kɾeenθja] *creencia* 'belief' in (2) of table (5). The hiatus [ea] was produced incorrectly as [ja] in the example [*kɾjaɾ] instead of [kɾeaɾ] *crear* 'to create' in (3) of table (5). The hiatus [eo] was pronounced incorrectly as [o] in [*oθeno] instead of [eoθeno] *eoceno* 'Eocene' as seen in (4) of table (5). The hiatus [ae] was incorrectly pronounced as [ei] in the specimen [*tɾei] instead of [tɾae] *trae* 'bring' in (5) of table (5). The hiatus [aa] was erroneously pronounced as the vowel [a] in [*aron] instead of [aaron] *Aaron* 'Aaron' as seen in (6) of table (5). The hiatus [ao] was wrongly articulated as the vowel [au] in the example [*auɾa] instead of [aoɾa] *ahoɾa* 'now' in (7) of table (5). The hiatus [oe] was wrongly pronounced as [o] in the occurrence [*oste] instead of [oeste] *oeste* 'west' in (8) of table (5). The hiatus [oa] was erroneously pronounced as [oi] in the specimen [*oisis] instead of [oasis] *oasis* 'oasis' in (9) of table (5). The hiatus [oo] was said as the vowel [o] in the utterance [*osfeɾa] instead of [oosfeɾa] *oosfera* 'oosphere' in (10) of table (5). Finally, the hiatus [uu] was wrongly pronounced as [u] in the specimen [*dunbiɾo] instead of [duunbiɾo] *duunviro* 'duumvir' in (11) of table (5).

Question Two:

Are the committed errors due to change of place of articulation or manner of articulation?

Results in chapter four revealed that the participants' phonetic errors took place either to change of place or manner of articulation. For instance, the palatal nasal phoneme [ɲ] was pronounced wrongly as [n] in the specimen [*ensenanθa] instead of [enseɲanza] *enseñanza* 'education' in (1) of table (1). The change took place from the palatal place of articulation to the alveolar place of articulation of the phoneme [n]. However, the manner of articulation was maintained as nasals.

As far as stops were concerned**,** the bilabial voiceless stop [p] was wrongly pronounced as [b] in the example [*basiʎo] instead of [pasiʎo] pasillo 'corridor' in (2) of table (1). It was evident that both, the place and the manner of articulations were maintained but the change happened in the voicing feature. Likewise, the bilabial voiced stop [b] became [p] in the specimen [*kompa] instead of [komba] comba 'jumping a rope' in which it merely changed the voicing feature in (3) of table (1)**.** The alveolar voiceless stop [t] was wrongly pronounced as [d] in the specimen [*intendad] instead of [intentad] intentad 'you try' in which it merely changed in the voicing feature as seen in (4) of table (1)**.** The velar voiceless stop [k] was wrongly pronounced as [θ] in the example [*komiθ] instead of [komik] comic 'comic' in (5) of table (1)**.** The change occurred in the manner and place of articulations in the sense that the segment [k] became [θ] that was the velar voiceless stop became inter-dental voiceless fricative. The velar voiced [g] was incorrectly pronounced as [x] in the word [*ponxo] instead of [pongo] pongo **'**I put**'** in (6) of table (1)**.** It was obvious that there was a change in the place and manner of articulations and in the voicing feature, that is, the velar voiced stop became uvular voiceless fricative.

Insofar as the affricate and the fricatives were concerned, the palato-alveolar voiceless affricate [tʃ] was wrongly produced either as [k] in the specimen [*desinkado] instead of [desintʃado] deshinchado ‘deflate’ in (7) of table (1)**.** The change was in both the place and manner of articulations; however, the voicing feature remained. The palato-alveolar voiceless affricate became velar voiceless stop. The inter-dental voiceless fricative phoneme [θ] was wrongly pronounced [s] in [*sinkwenta] instead of [θinkwenta] cincuenta ‘fifty’ **in (8) of table (1).** When [θ] became the alveolar fricative [s], it maintained both the manner of articulation and the voicing feature; however, the place of articulation changed from inter-dental to alveolar. The alveolar voiceless fricative [s] became incorrectly pronounced as [θ] in the word [*poθa] instead of [posa] posa ‘**pose’** in (9) of table (1). That was, it maintained the manner of articulation and the voicing feature but the place of articulation changed from alveolar to inter-dental. The segment [x] was incorrectly pronounced as [g] in [*kontagjo] instead of [kontaxjo] contagio ‘contagion’ **in (10) of table (1)**, that is, the place and manner of articulations and the voicing feature changed from the uvular voiceless fricative into the velar voiced stop. The palatal voiced fricative [ʝ] was wrongly produced as [ʎ] in the word [*ʎugo] instead of [ʝugo] yugo ’yoke’ in (11) of table (1). **T**he only change that happened was in the manner of articulation since [ʎ] is lateral and [ʝ] is fricative.

The alveolar voiced trill [r] was wrongly articulated as [ɾ**] in** the specimen [*ɾompekabeθas] instead of [rompekabeθas] *rompecabezas* ’jigsaw puzzle’ in (12) of table (1). The place of articulation was maintained but the change occurred in the manner of articulation since the trill [r] became tap [ɾ]. The alveolar voiced tap [ɾ] was wrongly

pronounced as [r] in the specimen [*ekwador] instead of [ekwadoɾ] *Ecuador* ‘equator’ in (13) of table (1). The place of articulation was maintained but the change occurred in the manner of articulation since the tap [ɾ] became trill [r]. The alveolar voiced lateral phoneme [l] was wrongly formed as [λ] in the occurrence [*λegalidad] instead of [legalidad] *legalidad* ’legality’ in (14) of table (1). The manner of articulation was maintained but the place was not since the alveolar lateral [l] became palatal lateral [λ]. The palatal voiced lateral [λ] was wrongly pronounced as [dʒ] in the example [*dʒamaɾ] instead of [λamaɾ] *llamar* ’to call’ in (15) of table (1). When the segment [λ] was incorrectly pronounced as [dʒ], there was a change in the manner and place of articulation, that is, the palatal lateral became the Arabic or English palato-alveolar affricate.

Question Three:

3. Do the committed errors happen because of interlingual and intralingual influence?

Results in chapter four showed that there were errors that happened due to both interlingual and intralingual. The interlingual errors were due to the influence of L1 and L2 on L3. The researcher found that the participants of this study made a number of interlingual errors caused by Arabic as L1. For instance, the palatal nasal [ɲ] in (1) of table (6) was made alveolar nasal [n]. This was seen in the specimen [*ensenanθa] instead of [enseɲanθa] *enseñanza* ‘education’. The bilabial voiceless [p] in (2) of table (6) became [b] as in the example [*basiλo] instead of [pasiλo] *pasillo* ‘corridor’. However, the bilabial voiced stop [b] of (3) of table (6) was changed to the voiceless stop [p] as it was obvious in [*puro] instead of [buro] *burro* ‘donkey’. Likewise, in (4) of table (6), the participants of this study pronounced erroneously the voiceless affricate [tʃ] as the Arabic palato alveolar

fricative [ʃ] as in [*ʃikle] instead of [tʃikle] *chicle* ‘gum’. Moreover, in (5) and (6) of table (6), the trill [r] became the tap [ɾ] as in [*eroe] instead of [eɾoe] *heroe* ‘hero’; whereas the tap became trill as in [*poɾa] instead of [pora] *porra* ‘truncheon’. As far as the influence of English as L2 was concerned, it was obvious that (7) of table (6) the palatal nasal [ɲ] became [n]. This was obvious in the specimen (1) of Arabic since the segment is identical. Additionally, the voiceless affricate [tʃ] in (8) of table (6) was pronounced [*kikle] instead of [tʃikle] *chicle* ‘gum’. In (9) of table (6), the fricative [θ] was pronounced as [s] as in the specimen [*sinkwenta] instead of [θinkwenta] *cincuenta* ‘fifty’. In (10) of table (6), the voiceless fricative [x] was wrongly produced as voiced fricative [ʒ] and the affricate [dʒ] as in the example [*ʒeogɾafja] or [*dʒeogɾafja] instead of [xeografja] *geografia* ‘geography’. In the segments (11) and (12) of table (6) the trill [r] was made the tap [ɾ] as seen in (5) and (6) of table (6); this error was done due to the influence of both languages, i.e. L1 and L2. Finally, the lateral palatal [ʎ], in (13) of table (6), was wrongly pronounced as [l] as it was seen in [*lamaɾ] instead of [ʎamaɾ] *llamar* ‘to call’.

As far as vowels were concerned, the influence of L1 was visible in the specimens in which the mid-high front vowel [e] in (1) of table (7) was wrongly articulated as [i] in [*inbeneno] instead of [enbeneno] *enveneno* as it is not available in L1. Likewise, the mid-high back vowel [o], in (2) of table (7) became high back [u]. This was clear in the specimen [*uratorja] instead of [oratorja] *oratoria* in ‘oratory’. As far as the influence of English was concerned, the errors were visible in (3) of table (7), in which the vowel [i] became [e] as in [*estoɾja] instead of [istoɾja] *historia* ‘history’. In (4) of table (7), the

vowel [a] was wrongly pronounced as [e] as in the specimen [*beso] instead of [baso] *vaso* ‘glass’. In (5) of table (7), the vowel [u] became [e] as in the word *opulento* [opulento] in which the same vowel was wrongly articulated as [*opelento].

There were not interlingual errors in diphthongs, triphthongs and hiatuses.

As far as the intralingual types of errors were concerned, they were visible in the alveolar voiceless stop [t], in (1) of table (8), in which became [d] as in [*intendad] instead of [intentad] *intentad* ‘try’. The velar voiceless stop [k], in (2) of table (8), was wrongly pronounced as [*komiθ] instead of [komik] *comic* 'comic'. Likewise, the velar voiced stop [g], in (3) of table (8), was wrongly pronounced as [x] in the word [*ponxo] instead of [pongo] *pongo* 'to put'. The inter-dental voiceless fricative [θ], in (4) of table (8), was wrongly pronounced as [k] in [*kinkwenta] instead of [θinkwenta] *cincuenta* 'fifty’. The alveolar voiceless fricative [s], in (5) of table (8), became [θ] as in [*poθa] instead of [posa] *posa* 'pose'. The uvular voiceless fricative [x], in (6) of table (8), became [g] as in the word [*kontagjo] which was supposed to be [kontaxjo] *contagio* 'contagion'. The palatal voiced approximant [ʝ], in (7) of table (8), became [λ] in [*λugo] instead of [ʝugo] *yugo* 'yoke'. The alveolar lateral [l], in (8) of table (8), became [λ] as [*λegalidad] instead of [legalidad] *legalidad* 'legality'. Finally, the palatal lateral [λ], in (9) of table (8), became [ʝ] as [*ʝamar] instead of [λamaɾ] *llamar* 'to call'.

There were not intralingual errors produced in the Spanish vowels.

As far as diphthongs were concerned, there were intralingual errors in the diphthongs as [je], in (1) of table (9), was wrongly pronounced as [i] the word [*iro] instead of [jero] *hierro* ‘iron’. The diphthong [ja], in (2) of table (9), was made [*ito] instead of

[jato] *hiato* ‘hiatus’. The diphthong [jo], in (3) of table (9), was incorrectly pronounced as [u] in [*kontaxu] instead of [kontaxjo] *contagio* ‘contagion’. The diphthong [ju] was pronounced [jo] as in (4) of table (9) in [*bjodo] instead of [bjudo] *viudo* ’widower’. The diphthong [ei], in (5) of table (9), was made [ea] as in [*rea] instead of [rei] *rey* ‘king’. The diphthong [eu], in (6) of table (9), was wrongly articulated as [i] in [*sidonimo] instead of [seudonimo] *seudonimo* ‘pseudonym’. The diphthong [ai], in (7) of table (9), was wrongly produced as [i] as in [*bila] instead of [baila] *baila* ‘to dance’. The diphthong [au], in (8) of table (9), was incorrectly articulated as [*ola] instead of [aula] *aula* ‘classroom’. In (9) of table (9), [oi] became [wi] as in [*konbwi] instead of [konboi] *convoy* ‘convoy’. The diphthong [ou], in (10) of table (9), also became [o] as in [*bo] instead of [bou] *bou* ‘seine fishing’. The diphthong [wi], in (11) of table (9) was incorrectly pronounced as [i] in [*fimos] instead of [fwimos] *fuimos* ‘we went’. The diphthong [we], in (12) of table (9), was wrongly pronounced as [eo] as in the specimen [*feo] instead of [fwe] *fue* ‘he went’. The diphthong [wa], in (13) of table (9), was articulated as [u] in [*lenguxe] instead of [lengwaxe] *lenguaje* ‘language’. Finally, the diphthong [wo], in (14) of table (9), was produced [o] in [*fato] instead of the correct [fatwo] *fatuo* ‘fatuous’.

Insofar as intralingual errors of triphthongs were concerned, the triphthong [jei], in (1) of table (10), was pronounced [jai] in [*pjais] instead of [pjeis] *pieis* ‘you spy’. The triphthong [jai], in (2) of table (10), was articulated as [jei] in [*fjeis] instead of [fjais] *fiais* ‘you trust’. Likewise, the triphthong [joi], in (3) of table (10), was wrongly pronounced [jo] in [*jodes] instead of [joides] *hioides* ‘hyoid’. The triphthong [wei], in (4) of table (10), was incorrectly pronounced as [oi] in the specimen [*boi] instead of [bwei] *buey* ‘ox’.

Finally, the triphthong [wai], in (5) of table (10), was wrongly articulated as [wei] in [*paragwei] instead of [paragwai] *Paraguay* 'Paraguay'.

As far as the intralingual errors in hiatus were concerned, all of them were incorrectly pronounced due to the absence of hiatus in L1 and L2. For instance, the hiatus [ii], in (1) of table (11), was wrongly produced as the vowel [i] in the example [*tʃita] instead of [tʃiita] *chiita* 'chiite'. In (2) of table (11), the hiatus [ee] was wrongly pronounced as [e] in [*kɾenθja] instead of [kɾeenθja] *creencia* 'belief'. The hiatus [ea], in (3) of table (11), was articulated incorrectly as [e] in [*kɾeɾ] instead of [kɾeaɾ] *crear* 'to create'. The hiatus [eo], in (4) of table (11), was pronounced [o] as the specimen [*oθeno] instead of [eoθeno] *eoceno* 'Eocene'. The hiatus [ae], in (5) of table (11), was incorrectly produced [e] in the example [*eɾopweɾto] instead of [aeɾopweɾto] *aeropuerto* 'airport'. The hiatus [aa], in (6) of table (11), was erroneously pronounced as the specimen [*aron] instead of [aaron] *Aaron* 'Aaron'. In (7) of table (11), the hiatus [ao] was wrongly articulated as [a] in [*bakala] instead of [bakalao] *bacalao* 'cod fish'. The hiatus [oe], in (8) of table (11), was wrongly pronounced as [o] as in [*oste] instead of [oeste] *oeste* 'west'. The hiatus [oa], in (9) of table (11), was made [o] in the specimen [*osis] instead of [oasis] *oasis* 'oasis'. The hiatus [oo], in (10) of table (11), was pronounced [o] as in the example [*θoloxico] instead of [θooloxico] *zoológico* 'zoo'. Finally, the hiatus [uu] was produced [u], in (11) of table (11), as the specimen [*dunbiɾo] instead of [duunbiɾo] *duunviro* 'duumvir'.

Question Four:

How do positive and negative transfer of errors take place?

The positive transfers of the consonants were merely five for both, L1 and L2 on L3. For instance, the bilabial nasal [m], in (1) of table (12), had a positive impact in the word [mateɾja] *materia* 'material'. The alveolar nasal [n], in (2) of table (12), remained the same in the specimen [naɾiθ] *nariz* 'nose'. This was also visible when the alveolar voiced stop [d], in (3) of table (12) was produced in the same manner in [doɾmiɾ] *dormir* 'to sleep'. Similarly, the pronunciation of the labio-dental voiceless fricative [f] had a positive transfer, in (4) of table (12), as the specimen [faboɾ] *favor* 'favor' showed.

There were no positive transfers at any of the vowels, diphthongs, triphthongs and hiatuses.

As far as the negative transfer in consonants was concerned, the participants had a wrong pronunciation of Spanish since they tried to maintain the Arabic phonetic segments. The Arabic consonant [ʃ], in (1) of table (13), was an error in the specimen [*desinʃado] instead of [desintʃado] *deshinchado* 'deflate'. Another example was the Arabic [dʒ], in (2) of table (13), which was wrongly pronounced in the specimen [*dʒeogɾafja] instead of [xeogɾafja] *geografia* 'geography'. The same occurred in the articulation of the Arabic affricate [dʒ], in (3) of table (13), in which was wrongly articulated in the specimen [*dʒugo] instead of [ʝugo]. Moreover, the Arabic trill [r], in (4) of table (5) was an error as in [*eroe] instead of the correct [eɾoe] *heroe* 'hero'. Finally, the articulation of the Arabic segment [dʒ], in (5) of table (13), took place in the wrong articulation of [*dʒamaɾ] instead of [λamaɾ] *llamar* 'to call'.

The participants also had a bad habit on the application of their L2 consonants on L3. For instance, the English [tʃ] in (6) of table (13), was wrongly pronounced instead of [k] in [*desinkado] instead of [desintʃado] *deshinchado* ‘deflate’. The same occurred in the English [ʒ] and [dʒ], in (7) of table (13), which was erroneously pronounced as [*ʒeogɾafja] and [*dʒeogɾafja] instead of [xeogɾafja] *geografia* ‘geography’. Another error was the English [dʒ], in (8) of table (13), in which was wrongly pronounced in [*dʒugo] instead of [ʝugo] *yugo* ‘yoke’. Moreover, the English trill [r], in (9) of table (10), was wrongly pronounced in the specimen [*eroe] instead of [eɾoe] *heroe* ‘hero’. Finally, the English of [dʒ], in (10) of table (13), was wrongly articulated in [*dʒamaɾ] instead of [ʎamaɾ] *llamar* ‘to call’.

The negative transfer also took place in vowels. Insofar as the negative transfer of vowels from L1 into L3 were concerned, for instance, the absent Arabic vowel [e], in (1) of table (14), showed a negative transfer from L1 to L3 in the sense that it was wrongly articulated as the Arabic [i] in [*inbeneno] instead of the correct [enbeneno] *enveneno* ‘poison’. Other negative transfer from L1 into L3 was the absent Arabic vowel [o], in (2) of table (14), in which it was wrongly articulated as the Arabic [u] in [*buske] instead of the correct [boske] *bosque* ‘forest’.

Insofar as the negative transfer of vowels from L2 into L3 were concerned, for instance, the English vowel [e], in (3) of table (14), showed a negative transfer from L2 to L3 in the sense that it was articulated wrongly instead of [i] in [*pɾebjeni] instead of the correct [pɾebjene] *previene* ‘prevent’. Other negative transfer from L2 into L3 was the English [e], in (4) of table (14), in which it was wrongly articulated instead of [a] in [*beso] instead of the correct [baso] *vaso* ‘glass’. Finally, there was a negative transfer in the pronunciation of the English [e] and [o], in (5) of table (14), instead of the vowel [u] in [*opelento] and [*opolento] instead of [opulento] *opulento* ‘opulent’.

As far as the negative transfers in diphthongs were concerned, all the diphthongs were a negative transfer. For instance, the diphthong [je], in (1) of table (3), was wrongly

pronounced as [i] [*iro] instead of [jero] *hierro* ‘iron’. The diphthong [ja], in (2) of table (3), was wrongly pronounced in [*ito] instead of [jato] *hiato* ‘hiatus’. The diphthong [jo], in (3) of table (3), was also incorrectly pronounced as [u] in [*kontaxu] instead of [kontaxjo] *contagio* ‘contagion’. The diphthong [ju], in (4) of table (3), was incorrectly pronounced as [jo] in [*bjodo] instead of [bjudo] *viudo* ’widower’. The diphthong [ei], in (5) of table (3), was wrongly articulated as [ea] in [*rea] instead of [rei] *rey* ‘king’. The diphthong [eu], in (6) of table (3), was wrongly articulated as [i] in [*sidonimo] instead of [seudonimo] *seudonimo* ‘pseudonym’. The diphthong [ai], in (7) of table (3), was incorrectly pronounced as [i] in [*bila] instead of [baila] *baila* ‘dance’. The diphthong [au], in (8) of table (3), was incorrectly articulated as [o] in [*ola] instead of [aula] *aula* ‘classroom’. In (9) of table (3), the diphthong [oi] was wrongly articulated as [wi] in [*konbwi] instead of [konboi] *convoy* ‘convoy’. The diphthong [ou], in (10) of table (3), was wrongly articulated as [o] in [*bo] instead of [bou] *bou* ‘seine fishing’. The diphthong [wi], in (11) of table (3), was incorrectly pronounced as [i] in [*fimos] instead of [fwimos] *fuimos* ‘we went’. The diphthong [we], in (12) of table (3), was wrongly pronounced as [eo] in [*feo] instead of [fwe] *fue* ‘he went’. The diphthong [wa], in (13) of table (3), was erroneously articulated as [u] in [*lenguxe] instead of [lengwaxe] *lenguaje* ‘language’. Finally, the diphthong [wo], in (14) of table (3), was incorrectly pronounced as [o] in [*fato] instead of [fatwo] *fatuo* ‘fatuous’.

Insofar as the negative transfer in triphthongs were concerned, [jei] in (1) of table (4), was wrongly pronounced as [jai] in [*pjais] instead of [pjeis] *pieis* ‘you spy’. The triphthong [jai], in (2) of table (4), was articulated wrongly as [jei] in [*fjeis] instead of [fjais] *fiais* ‘you trust’. Likewise, the triphthong [joi], in (3) of table (4), was wrongly articulated as [jo] in [*jodes] instead of [joides] *hioides* ‘hyoid’. The triphthong [wei], in (4) of table (4), was incorrectly pronounced as [oi] in [*boi] instead of [bwei] *buey* ‘ox’. Finally, the triphthong [wai], in (5) of table (4), was wrongly articulated as [wei] in [*paragwei] instead of [paragwai] *Paraguay* ’Paraguay’.

The negative transfer occurred in all the hiatuses. Thus, the pronunciation of [ii], in (1) of table (5), was erroneously pronounced as [i] in [*tʃita] instead of [tʃiita] *chiita* 'chiite'. In (2) of table (5), the hiatus [ee] was wrongly pronounced as [e] in [*kɾenθja] instead of [kɾeenθja] *creencia* 'belief'. The hiatus [ea], in (3) of table (5), was articulated incorrectly as [e] in [*kɾeɾ] instead of [kɾeaɾ] *crear* 'to create'. The hiatus [eo], in (4) of table (5), was pronounced incorrectly as [o] in [*oθeno] instead of [eoθeno] *eoceno* 'Eocene'. The hiatus [ae], in (5) of table (5), was incorrectly produced as [e] in [*eɾopwerto] instead of [aeɾopwerto] *aeropuerto* 'airport'. The hiatus [aa], in (6) of table (5), was erroneously pronounced [a] in [*aron] instead of [aaron] *Aaron* 'Aaron'. In (7) of table (5), the hiatus [ao] was wrongly articulated as [a] in [*bakala] instead of [bakalao] *bacalao* 'cod fish'. The hiatus [oe], in (8) of table (5), was wrongly pronounced as [o] in [*oste] instead of [oeste] *oeste* 'west'. The hiatus [oa], in (9) of table (5), was erroneously pronounced as [o] in [*osis] instead of [oasis] *oasis* 'oasis'. The hiatus [oo], in (10) of table (5), was articulated as [o] in [*θoloxico] instead of [θooloxico] *zoológico* 'zoo'. The hiatus [uu], in (11), was wrongly articulated as [u] in [*dunbiɾo] instead of [duunbiɾo] *duunviro* 'duumvir'.

To sum up, this work tried to test the validity of the Theory of Error Analysis proposed by Corder (1973) and (1981) and Dulay, Burt and Krashen (1982) and the researcher found that it was the case. The researcher looked at various phonetic errors in which difficulties happened in articulation of segments of all types and gave scientific justifications for each. The researcher discussed the two types of errors, namely, (i) interlingual errors, (ii) intralingual errors and also found the type of transfer whether it is (i) positive or (ii) negative. Thus, the researcher could say with certainty that the theoretical perspectives were fit and deserved to be followed.

5.2. Recommendations

The researcher recommended that this type of study is suitable for other scholars who are interested in similar issues in phonetics in any foreign language at any number of participants. Moreover, it is valid to be applied even though the number of the participants might be different, as it would lead to precise results.

The researcher recommended that this study can be followed by teachers to correct the learners if they commit errors in the classrooms conversations in Spanish. Moreover, teachers must not only concentrate on grammar and literature and ignore the articulation of phones during the learning process of the language.

This study can also be of a great benefit for students as it contains a detailed analysis of the Spanish phonetic symbols as per IPA at the beginning of chapter four to put at the right path of learning. Following the analysis of errors, students might take the advantage to avoid such errors in the process of learning Spanish in classrooms environment.

The researcher also recommends teaching the theory of Contrastive Analysis and specifying the type of transfer in this work to ease the process of learning Spanish at schools and in any educational institution.

Furthermore, the researcher recommends that a course of Spanish phonetics can be a requirement for the Spanish B.A program in the department of Spanish not only at the University of Jordan but also in any institution where Spanish is taught.

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Appendices

Appendix I: Participant's Demographic Data

No.	Name	Age	Sex	Level (in year)	Completed Spanish subjects in hours	Students' grades	Place of Living	Language		Academic Year
								Mother Language	Second Language	
1	Ala' Anwar Hamdan	20	F	2	27	3.4	Amman	Arabic	English	2008-2009
2	Alia Mohamad Quteshat	20	F	2	24	2.5	Amman	Arabic	English	2008-2009
3	Amira Isam Ahmad	19	F	2	18	3.2	Amman	Arabic	English	2009-2010
4	Arwa Abd Alkareem Yousef	19	F	2	18	3	Amman	Arabic	English	2009-2010
5	Aseel Riad Al-Hawaysah	19	F	2	18	2.78	Amman	Arabic	English	2009-2010
6	Aya Mohammad Al- Garaleh	19	F	2	15	2.11	Amman	Arabic	English	2009-2010
7	Ayman Khaled Derek	20	M	2	15	1.9	Amman	Arabic	English	2009-2010
8	Ayyah Said Alayan	19	F	2	18	3.75	Amman	Arabic	English	2009-2010
9	Balqees Saad Ahmad	21	F	2	18	2.9	Amman	Arabic	English	2009-2010
10	Dana Shaker Mestarihi	20	F	2	24	2.7	Amman	Arabic	English	2008-2009
11	Dania Mohamad Abu- Faudeh	19	F	2	15	2.6	Amman	Arabic	English	2009-2010
12	Diala Al-Ayoubi	20	F	2	21	3.5	Amman	Arabic	English	2008-2009
13	Dina Barmawi	20	F	2	24	2.9	Amman	Arabic	English	2008-2009
14	Du'a Ahmad Jdo'a	20	F	2	18	3.03	Amman	Arabic	English	2009-2010
15	Du'a Waleed Abdallah	20	F	2	18	3.25	Amman	Arabic	English	2009-2010
16	Duha Atari	20	F	2	24	3.01	Amman	Arabic	English	2008-2009
17	Emad Anton Smerat	19	M	2	18	2.8	Amman	Arabic	English	2009-2010
18	Fatmeh Ja'far Aleyyan	19	F	2	15	3.6	Amman	Arabic	English	2009-2010
19	"Farah Axandra" Al-Abdallat	20	F	2	27	3.1	Amman	Arabic	Italian	2008-2009
20	Ghadeer Rasmi	20	F	2	30	2.6	Amman	Arabic	English	2008-2009
21	Hala Al-Adawi	20	F	2	15	2.8	Amman	Arabic	English	2008-2009

22	Haneen Abu-Hmedan	20	F	2	24	2.5	Amman	Arabic	English	2008-2009
23	Haneen Ameen Zureiqi	19	F	2	18	3.15	Amman	Arabic	English	2009-2010
24	Haneen Husam Arar	19	F	2	18	2	Amman	Arabic	English	2009-2010
25	Hiba Ahmad Habbas	19	F	2	18	3.4	Amman	Arabic	English	2009-2010
26	Hiba Alfred Hattar	21	F	2	24	2.4	Fuheis	Arabic	English	2008-2009
27	Isra' Mohamad Madi	21	F	2	15	2.9	Amman	Arabic	English	2009-2010
28	Khaleel Bsharah Hamam	22	M	2	24	2.7	Zarqa	Arabic	English	2008-2009
29	Mais Haitham Bawab	20	F	2	24	2.7	Amman	Arabic	English	2008-2009
30	Malak Al-taba'	20	F	2	27	3.6	Amman	Arabic	English	2008-2009
31	Mohamad Munder Karroumeh	21	M	2	18	2.03	Amman	Arabic	English	2009-2010
32	Murad Anis Haidar	24	M	2	18	2.6	Amman	Arabic	English	2009-2010
33	Noor Ali Abdallah	19	F	2	15	3.1	Amman	Arabic	English	2009-2010
34	Nour Hazem Al-Ashi	19	F	2	18	3.5	Amman	Arabic	English	2009-2010
35	Osama Ibraheem Mustafa	22	M	2	24	2.5	Amman	Arabic	English	2008-2009
36	Rasha Abd-Alsalam	20	F	2	27	3.83	Amman	Arabic	English	2008-2009
37	Rasha Nader Bakree	20	F	2	24	2.5	Amman	Arabic	English	2008-2009
38	Rawan Osama Al- Maghrebi	19	F	2	15	3.4	Amman	Arabic	English	2009-2010
39	Razan Salah Al-Nobani	19	F	2	18	3.4	Amman	Arabic	English	2009-2010
40	Rimal Baker Al- Harasees	19	F	2	15	3.2	Amman	Arabic	English	2009-2010
41	Sadouf Al-Doghoum	20	F	2	27	3.32	Salt	Arabic	English	2008-2009
42	Saja Ahmad Abu- Taha	19	F	2	18	2.44	Amman	Arabic	English	2009-2010
43	Sana' Fakhouri	19	F	2	18	3	Amman	Arabic	English	2009-2010
44	Sana' Shawabkeh	21	F	2	27	2.3	Madaba	Arabic	English	2008-2009
45	Sandra Muris Zreqat	21	F	2	18	2.6	Amman	Arabic	English	2009-2010
46	Sara Al- Hmoud	20	F	2	24	2.5	Amman	Arabic	English	2008-2009
47	Sara Kamal Mousa	21	F	2	15	2.5	Amman	Arabic	English	2009-2010
48	Sara Mohammad Mqanassah	20	F	2	27	3.3	Amman	Arabic	English	2008-2009

49	Yara Waleed Al-Azzeh	19	F	2	18	3	Amman	Arabic	English	2009-2010
50	Zeina Mohammad Abu-Hmour	20	F	2	24	2.3	Amman	Arabic	English	2008-2009

Appendix II: Participant's Test Re-Test
Test Re-test

Q. 1 Lee las siguientes palabras:

I. Consonantes

1.	Memorándum	Campana	
2.	Nicaragua	Aniñada	Algodón
3.	Ñoño	Ermitaño	Enseñanza
4.	Pueblo	Espacio	Pontevedra
5.	Biblioteca	Obvio	Absolver
6.	Treinta	Atlántico	Ritmo
7.	Dejadlo	Adhesivo	Intentad
8.	Kilogramo	Maquina	Comic
9.	Grabo	Magnifico	Persigo
10.	Chincheta	Deshinchado	Hechicera
11.	Fotografía	Favor	Fosforo
12.	Cereza	Cocer	Niñez
13.	Sillón	Espada	Seiscientos
14.	Geografía	Despejado	Guadalajara
15.	Yema	Papaya	Huyamos
16.	Rompecabezas	Guerrero	Navarra
17.		Héroe	Ecuador
18.	Legalidad	Filólogo	Abril
19.	Lluvioso	Millón	Gallina

II. Vocales

Parte 1

1.	Amanecer	Paz	Víbora
2.	Emprender	Ver	Examine
3.	Inaugurar	Dimitir	Radiotaxi
4.	Oratoria	Corto	Quejigo
5.	Ufano	Opulento	Tribu

Parte 2

a) Desee
b) Alcohol
c) Aarón
d) Paseemos
e) Costee
f) Cooperar
g) Creencia
h) Zoología

Parte 3

a) Seiscientos
b) Aisladamente
c) Contagio
d) Reunion
e) Causa
f) Boutique

g) Dieciocho
h) Eugenesia
i) Hospicio
j) Piular
k) Güije
l) Ungüento
m) Cuatripartito
n) Fastuoso
o) Averigüéis
p) Envidiéis
q) Adecuáis

Q.2 Lee los siguientes pares mínimos:

I. Consonantes

a)	Proclamar	Programar
b)	Cuenca	Cuenta
c)	Abrazar	Abrasar
d)	Ocio	Odio
e)	Despejado	Despegado
f)	Enterrar	Enterar
g)	Chalado	Salado
h)	Mueva	Nueva
i)	Animada	Aniñada
j)	Campaña	Campana
k)	Estrella	Estrecha
l)	Hoy	Soy
m)	Prisa	Brisa
n)	Soldarlo	Soltarlo
o)	Abraces	Abrases
p)	Jabón	Japón
q)	Besado	Pesado
r)	Hoy	Oí
s)	Vais	País
t)	Pollo	Bollo
u)	Rivera	Ribera
v)	Vaya	Valla
w)	Veta	Beta

II. Vocales

a)	Paca	Peca	Poca		
b)	Paso	Peso	Piso	Poso	Puso
c)	Bala	Vela	Bola	Bula	
d)	Bosque			Busque	
e)	Vais		Veis		
f)	Marea		María		

Q.3 Lee las siguientes frases:

- Repetimos en voz alta.
- Eso lo de estar en casa es maravilloso.
- Dicen que a mar revuelto, ganancia de pescadores.
- Para hacer historia se necesita un sueño.
- Han ido a comer en el pueblo.
- Tengo un gran álbum histórico.
- Voy a ver qué puedo hacer con este estudiante.
- Usted y yo necesitamos vacaciones.
- Este piso tiene dos salas.
- ¿Qué has hecho? Yo no he sido.
- Este oso es muy gigante.
- ¿Es tu hija?

Q.4 Lee el siguiente párrafo:

Antes de lo que yo pensaba, querido tío, me decidió mi padre a que montase en Lucero. Ayer, a las seis de la mañana, cabalgué en esta hermosa fiera, como le llama mi padre, y me fui con mi padre al campo. Mi padre iba caballero en una jaca alazana. Lo hice tan bien, fui tan seguro y apuesto en aquel soberbio animal, que mi padre no pudo resistir a la tentación de lucir a su discípulo, y después de reposarnos en un cortijo que tiene a media legua de aquí, y a eso de las once, me hizo volver al lugar y entrar por lo más concurrido y céntrico, metiendo mucha bulla y desempedrando las calles. No hay que afirmar que pasamos por la de Pepita, quien de algún tiempo a esta parte se va haciendo algo ventanera y estaba a la reja, en una ventana baja, detrás de la verde celosía.

Appendix III: Participant's Test

Ejercicio 1. Lee las siguientes palabras:

I. Consonantes

1.	Materia	Amanecer	
2.	Nariz	Anillo	Porción
3.	Ñoñería	Enseñanza	
4.	Pasillo	Grape	
5.	Burro	Comba	
6.	Torre	Roto	Tarot
7.	Dormir	Péndulo	Intentad
8.	Coche	Maquina	Comic
9.	Guiño	Pongo	
10.	Chicle	Deshinchado	
11.	Favor	Afilar	
12.	Cincuenta	Roce	Emperatriz
13.	Sanidad	Posa	Cientos
14.	Geografía	Contagio	Reloj
15.	Yugo	Yoyo	
16.	Rompecabezas	Porra	
17.		Héroe	Ecuador
18.	Legalidad	Acalorado	Pueril
19.	Llamar	Valla	

II. Vocales

Monoptongos

1.	Habito	Vaso	Víbora
2.	Enveneno	Peso	Previene
3.	Historia	Pánico	Magrebí
4.	Oratoria	Bosque	Teléfono
5.	Ufano	Opulento	Tribu

Diptongos

1. Aisladamente	Baila	Hay
2. Aula	Inaugurar	
3. Einstenio	Seiscientos	Rey
4. Europa	Seudónimo	
5. Oigo	Gasoil	Convoy
6.		Bou
7. Hiato	Diabólico	Feria
8. Hierro	Dieciocho	Especie
9. Ionizar	Piojo	Contagio
10.	Viudo	
11. Huaca	Lenguaje	Continua
12. Huelga	Ungüento	Fue
13. Huir	Fuimos	
14.	Fastuoso	fatuo

Triptongos

1.	Fiais	
2.	Pieis	
3.		Paraguay
4.		Buey
5. Hioides	Opioide	

Hiatos

1. Aarón	Albahaca	
2. Aeropuerto	Saeta	Trae
3. Ahora	Caoba	Bacalao
4.	Crear	Pelea
5.	Creencia	Desee
6. Eoceno	Meollo	Tebeo
7. Oasis	Toalla	
8. Oeste	Poeta	Oboe
9. Oosfera	Zoológico	Zoo
10.	Chiita	
11.	Duunviro	

Ejercicio 2. Lee los siguientes pares mínimos:

I. Consonantes

Consonantes								
1	Mueva	Nueva	Momo	Moño	Remo	Reno		
2	Niña	Piña	Cana	Caña	Pana	Para	Cantan	Cantas
3	Ñudo	Nudo	Puño	Puro	Caño	Cano		
4	Pelo	Velo	Copa	Coba	Ropa	Roja		
5	Barra	Parra	Combita	Compita	Calvo	Caldo		
6	Toma	Coma	Pato	Paso	Cota	Coda		
7	Duro	Zuro	Dado	Dato	Pido	Pico	Contestad	Contestar
8	Corrillo	Zorrillo	Caco	Cazo	Poca	Pocha		
9	Goma	Toma	Pega	Peca	Regó	Rejo		
10	Chillar	Pillar	Pocho	Poro	Cacho	Caco		
11	Fase	Case	Rafa	Raza	Gafas	Cavas		
12	Cinta	Quinta	Pozo	Poco	Poza	Poda	Capaz	Capas
13	Sensor	Censor	Abrasar	Abrazar			Reñís	Reñid
14	Jarra	Charra	Paja	Paga	Roja	Roca		
15	Yudo	Pudo	Raya	Ralla	Maya	Mala		
16	Rico	Pico	Perro	Pero	Cara	Cala		
17			Para	Parra	Caro	Callo	Volar	Bolas
18	Lema	Yema	Cala	Calla	Palo	Paro	Casal	Casar
19	Llama	Lama	Valle	Vale	Pilla	Pira		

II. Vocales

Monoptongos						
1	Amor	Humor	Bala	Vela	Hija	Hijo
2	Evocar	Avocar	Peso	Piso	Paje	Paja
3	Higo	Hago	Piso	Poso	Boli	Bolo
4	Oso	Uso	Bosque	Busque	Moreno	Morena
5	Hulla	Olla	Bula	Bola	Tu	Te

Diptongos						
1	Hay	Hoy	Vais	Veis		
2	Aura	Oirá	Fauna	Faena		
3			Reina	Runa	Ley	Lay
4	Euro	Huero				
5	Oigo	Higo	Boina	Buena	Hoy	Hay
6					Bou	Voy
7			Piado	Puedo	Columpia	Columpio
8	Hielo	Huelo	Piedra	Pudra	Pie	Púa
9					Ario	Aria
10			Piular	Polar		
11			Buarillo	Barrillo		
12	Huevo	Hubo	Vuela	Viola		
13	Huir	Oír	Ruido	Raído	Fui	Fue
14					Antiguo	Antigua

Hiatos						
1	Aarón	Hurón				
2			Paella	Pilla		
3			Caos	Caes		
4	Área	Aria	Palea	Palia	Línea	Linio
5			Lees	Leas	Cree	Crea
6			Creo	Creí	Poleo	polea
7			Roano	Ruano		
8			Oeste	Huiste		
9					Zoo	Cía
10			Tiito	Tito		
Triptongos						
1			Liais	Lieis		
2			Crieis	Criais		
3					Guay	Gay
4					Buey	Búho
5			Dioico	Dauco		

Ejercicio 3. Lee las siguientes frases:

- Tengo un gran álbum histórico.
- Repetimos en voz alta.
- Claro como el aceite de Aparicio.
- Cantarle a alguien las cuarenta.
- Borrón y cuenta nueva.
- Apretarse el cinturón.
- A tal casa, a tal aldaba.
- No dejes para mañana lo que puedas hacer hoy.
- Perfume bueno viene en frasco pequeño.
- En casa del herrero, cuchillo de palo.
- No es lo mismo predicar que dar trigo
- Prefiero morir de pie que vivir arrodillado
- Este año me voy a proponer varias metas: Meta vino, meta fiestas, meta y ponga.

Ejercicio 4. Lee los siguientes párrafos:

1. Antes de lo que yo pensaba, querido tío, me decidió mi padre a que montase en Lucero. Ayer, a las seis de la mañana, cabalgué en esta hermosa fiera, como le llama mi padre, y me fui con mi padre al campo. Mi padre iba caballero en una jaca alazana. Lo hice tan bien, fui tan seguro y apuesto en aquel soberbio animal, que mi padre no pudo resistir a la tentación de lucir a su discípulo, y después de reposarnos en un cortijo que tiene a media legua de aquí, y a eso de las once, me hizo volver al lugar y entrar por lo más concurrido y céntrico, metiendo mucha bulla y desempedrando las calles. No hay que afirmar que pasamos por la de Pepita, quien de algún tiempo a esta parte se va haciendo algo ventanera y estaba a la reja, en una ventana baja, detrás de la verde celosía.
2. Almas dichosas que del mortal velo, libres y esentas, por el bien que obrastes, desde la baja tierra os levantastes, a lo más alto y lo mejor del cielo, y, ardiendo en ira y en honroso celo, de los cuerpos la fuerza ejercitastes, que en propia y sangre ajena colorastes, el mar vecino y arenoso suelo; primero que el valor faltó la vida, en los cansados brazos, que, muriendo, con ser vencidos, llevan la vitoria. Y esta vuestra mortal, triste caída entre el muro y el hierro, os va adquiriendo fama que el mundo os da, y el cielo gloria.

ppendix IV: Panel of Experts' Letter

Dear Professors,

My name is Farah Otoum Lutfi. I am a graduate student in the Middle East University for graduate studies. To get my M.A degree in English Language and Literature, I am writing a thesis in the *Analysis of Pronunciation Errors Made by Students of Spanish as a foreign language in the University of Jordan.*

In order to have an appropriate, reliable and consistent result in my thesis, would you please review the enclosed test which I will examine the students with. I would kindly ask if you could give your comments, recommendations and opinions about the appropriateness of the exam.

Names of Professors	**Institution**
Dr. Ziad Qoqazeh	University of Jordan
Dr. Rinad Al-momani	University of Jordan
Ana Garcia	University of Jordan
Teresa Simon Cabodebilla	University of Jordan
Miguel Angel Pelaez	Spanish Institute 'Cervantes'

Thank you for your assistance.

Yours faithfully,
Farah Otoum

Appendix V: Arabic Chart of Consonants

		Bilabial	Labio-dental	Dental	Alveolar	Palato-alveolar	Palatal	Velar	Uvular	Pharyn-geal	Glottal
Nasal		م m	-	ن n	-	-	-	-	-	-	-
Stop	**voiceless**	-	-	ت t	-	-	-	ك k	ق q	ط tˤ	ء ʔ
	voiced	ب b	-	د d	-	-	-	-	-	ض dˤ	-
Affricate	**voiceless**	-	-	-	-	-	-	-	-	-	-
	voiced	-	-	-	-	ج dʒ	-	-	-	-	-
Frica-tive	**voiceless**	-	ف f	ث θ	س s	ش ʃ	-	خ x	-	ح ħ ص sˤ	ه h
	voiced	-	-	ذ ð	ز z	-	-	غ ɣ	-	ع ʕ ظ ðˤ	-
Trill		-	-	-	ر r	-	-	-	-	-	-
Approximant		-	-	-	-	ل l	ي j	و w	-	-	-

(c.f. A Handbook of the International Phonetic Association (1999, p.51))

Appendix VI: Arabic Examples of Consonants

No.	English phonetic symbol	Arabic phonetic symbol	Phonetic transcrip-tion	Meaning	No.	English phonetic symbol	Arabic phonetic symbol	Phonetic transcrip-tion	Meaning
1	[m]	[م]	[madiinah]	‘city’	**15**	[s]	[س]	[sajyaarah]	‘car’
2	[n]	[ن]	[naafiðah]	‘window’	**16**	[z]	[ز]	[zaʕtar]	‘thyme’
3	[b]	[ب]	[binaaʔ]	‘building’	**17**	[sˤ]	[ص]	[sˤavɪir]	‘small’
4	[t]	[ت]	[tidʒaarah]	‘business’	**18**	[ðˤ]	[ظ]	[ðˤarf]	‘envelop’
5	[d]	[د]	[darasa]	‘studied’	**19**	[ʃ]	[ش]	[ʃaʕr]	‘hair’
6	]tˤ]	[ط]	[tˤaawilah]	‘table’	**20**	[x]	[خ]	[xazaanah]	‘wardrobe’
7	[dˤ]	[ض]	[dˤuu?]	‘light’	**21**	[ɣ]	[غ]	[ʁurfah]	‘room’
8	[k]	[ك]	[kitaab]	‘book’	**22**	[ħ]	[ح]	[ħamala]	‘carry’
9	[q]	[ق]	[qaʕidah]	‘base’	**23**	]ʕ]	[ع]	[ʕajn]	‘eye’
10	[ʔ]	[ء]	[ʔustaað]	‘teacher’	**24**	[h]	[ه]	[haatif]	‘phone’
11	[dʒ]	[ج]	[dʒaras]	‘bell’	**25**	[r]	[ر]	[rukn]	‘corner’
12	[f]	[ف]	[ferqah]	‘group’	**26**	[w]	[و]	[waadi]	‘valley’
13	[θ]	[ث]	[θimaar]	‘fruit’	**27**	[l]	[ل]	[lawn]	‘colour’
14	[ð]	[ذ]	[ðiʔb]	‘wolf’	**28**	[j]	[ي]	[jasiiru]	‘walk’

Appendix VII: English Chart of Consonants

		Bilabial	Labio-dental	Dental	Alveolar	Palato-Alveolar	Palatal	Velar	Glottal
Nasal		m	-	-	n	-	-	ŋ	-
Stop	**Voiceless**	p	-	-	t	-	-	k	
	Voiced	b	-	-	d	-	-	g	-
Affricate	**Voiceless**	-	-	-	-	tʃ	-	-	-
	Voiced	-	-	-	-	dʒ	-	-	-
Fricative	**Voiceless**	-	f	θ	s	ʃ	-	-	h
	Voiced	-	v	ð	z	ʒ	-	-	-
Approximant		-	-	-	r	-	j	w	-
Lateral		-	-	-	l	-	-	-	-

(c.f. Ladefoged (2001, p.35))

Appendix VIII: English Examples of Consonants

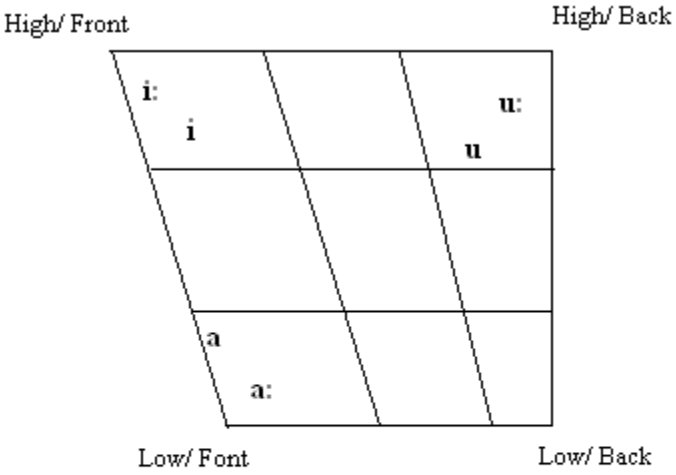
No.	Phonetic Symbol	Phonetic Transcription	Example	No.	Phonetic Symbol	Phonetic Transcription	Example
1	[m]	[mai]	‘my’	**15**	[ð]	[ðai]	‘thy’
2	[n]	[nat]	‘nut’	**16**	[s]	[sit]	‘sit’
3	[ŋ]	[siŋiŋ]	‘singing’	**17**	[z]	[zu:]	‘zoo’
4	[p]	[pai]	‘pie’	**18**	[ʃ]	[ʃu:]	‘shoe’
5	[b]	[bai]	‘bye’	**19**	[ʒ]	[beiʒ]	‘beig’
6	[t]	[tai]	‘tie’	**20**	[h]	[haus]	‘house’
7	[d]	[dip]	‘dip’	**21**	[r]	[rait]	‘right’
8	[k]	[kuk]	‘cook’	**22**	[w]	[wu:ld]	‘wool’
9	[g]	[bɔ:l]	‘bowl’	**23**	[j]	[ju:]	‘you’
10	[tʃ]	[tʃin]	‘chin’	**24**	[l]	[lukiŋ]	‘looking’
11	[dʒ]	[dʒig]	‘jig’				
12	[f]	[fi:t]	‘feet’				
13	[v]	[seiv]	‘save’				
14	[θ]	[θin]	‘thin’				

Appendix IX: Spanish Chart of Consonants

		Bilabial	Labio-dental	Inter-dental	Alveolar	Palato-alveolar	Palatal	Velar	Uvular
Nasal		m	-	-	n	-	ɲ	-	-
Stop	**Voiceless**	p	-	-	t	-	-	k	-
	Voiced	b	-	-	d	-	-	g	-
Affricates	**Voiceless**	-	-	-	-	tʃ	-	-	-
	Voiced	-	-	-	-	-	-	-	-
Fricative	**Voiceless**	-	F	θ	s	-	-	-	x
	Voiced	-	-	-	-	-	ʝ	-	-
Approximant	**Voiceless**	-	-	-	-	-	-	-	-
	Voiced	-	-	-	-	-	j	w	-
Trill		-	-	-	r	-	-	-	-
Tap		-	-	-	ɾ	-	-	-	-
Lateral		-	-	-	l	-	ʎ	-	-

(c.f. http://neobabel.org/archivo/54)

Appendix X: Arabic Chart of Long and Short Vowels



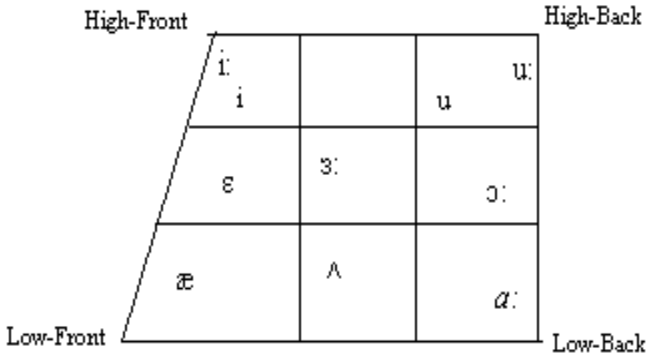
(فارع حمدان و اخرون (2008) ، ص 74 c.f)

Appendix XI: Arabic Examples of Vowels and Diphthongs

Vowels				Diphthongs			
No.	**Phonetic symbol**	**Phonetic transcription**	**Meaning**	**No.**	**Phonetic symbol**	**Phonetic transcription**	**Meaning**
1	[i:]	[ti:n]	‘fig’	**1**	[aj]	[ʕajn]	‘eye’
2	[i]	[min]	‘from’	**2**	[aw]	[ʕawd]	‘return’
3	[a:]	[ma:l]	‘money’				
4	[a]	[lan]	‘not’	(c.f. A Handbook of the International Phonetic Association (1999, p. 52))			
5	[u:]	[su:d]	‘dark complexion’				
6	[u]	[ʕud]	‘come back’				

(c.f Fare’ and et al (2008, p. 74))

Appendix XII: English Chart of Long and Short Vowels



(c.f . Ladefoged (2001, p. 29))

Appendix XIII: English Examples of Vowels, Diphthongs and Triphthongs

Vowels

No.	Phonetic Symbol	Phonetic Transcription	Examples
1	[i:]	[fi:t]	'feet'
2	[i]	[ʃip]	'ship'
3	[ɜ:]	[bɜ:rd]	'bird'
4	[ɛ]	[hɛd]	'head'
5	[æ]	[bæd]	'bad'
6	[*a*:]	[h*a*:t]	'hat'
7	[ʌ]	[hʌt]	'hut'
8	[ɔ:]	[hɔ:]	'haw'
9	[u]	[hud]	'hood'
10	[u:]	[hu:t]	'hoot'

(c.f . Ladefoged,(2001, 29))

Diphthongs

No.	Phonetic Symbol	Phonetic Transcription	Examples
1	[iə]	[niə]	'near'
2	[ei]	[feis]	'face'
3	[ɛə]	[skɛər]	'square'
4	[ai]	[prais]	'price'
5	[*a*ə]	[st*a*ərt]	'start'
6	[au]	[mauθ]	'mouth'
7	[ɔi]	[tʃɔis]	'choice'
8	[ɔə]	[nɔərθ]	'north'
9	[ou]	[gout]	'goat'
10	[uə]	[kuə]	'cure'

(c.f. http://www.paulmeier.com/ipa/charts.html)

Triphthongs

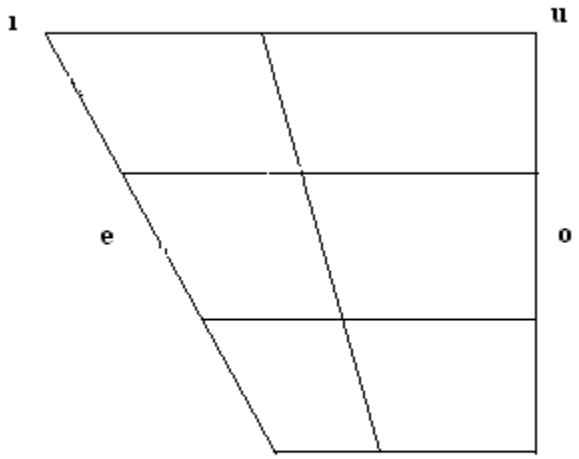
No.	Phonetic Symbol	Phonetic Transcription	Examples
1	[ɛiə]	[lɛiər]	‘layer’
2	[aiə]	[laiər]	‘liar’
3	[auə]	[pauər]	‘power’
4	[ɔiə]	[lɔiər]	‘lawyer’
5	[ouə]	[louər]	‘lower’

(c.f. http://www.paulmeier.com/ipa/charts.html)

Appendix XIV: Spanish Chart of Short Vowels

High/ Front

High/ Back



Low/ Front

Low/ Back

(c.f. Hualde (2005, p.54))

Appendix XV: Chart of Similarities and Differences in Consonants of L1, L2 and L3

No.	Arabic (L1)	English (L2)	Spanish (L3)	No.	Arabic (L1)	English (L2)	Spanish (L3)
1	[m]	[m]	[m]	**20**	-	[tʃ]	[tʃ]
2	[n]	[n]	[n]	**21**	[dʒ]	[dʒ]	-
3	-	-	[ɲ]	**22**	[f]	[f]	[f]
4	-	[ŋ]	-	**23**	-	[v]	-
5	-	[p]	[p]	**24**	[θ]	[θ]	[θ]
6	[b]	[b]	[b]	**25**	[ð]	[ð]	-
7	[t]	[t]	[t]	**26**	[s]	[s]	[s]
8	[d]	[d]	[d]	**27**	[z]	[z]	-
9	]tˤ]	-	-	**28**	[sˤ]	-	-
10	[dˤ]	-	-	**29**	[ðˤ]	-	-
11	[k]	[k]	[k]	**30**	[ʃ]	[ʃ]	-
12	-	[g]	[g]	**31**	-	[ʒ]	-
13	[q]	-	-	**32**	[x]	-	[x]
14	[ʔ]	-	-	**33**	[r]	[r]	[r]

15	[ɣ]	-	-	**34**	[w]	[w]	-
16	[ħ]	-	-	**35**	[l]	[l]	[l]
17	[ʕ]	-	-	**36**	[j]	[j]	[j]
18	[h]	[h]	-	**37**	-	-	[j̰]
19	-	-	[ɾ]	**38**	-	-	[ʏ]

Appendix XVI: Chart of Similarities and Differences in Vowels of L1, L2 and L3

No.	Arabic (L1)	English (L2)	Spanish (L3)
1	[iː]	[iː]	-
2	[i]	[i]	[i]
3	-	[ɜː]	-
4	-	-	[e]
5	-	[ɛ]	-
6	[a]		[a]
7	-	[æ]	-
8	[aː]	[*aː*]	-
9	-	[ʌ]	-
10	-	[ɔː]	-
11	-	-	[o]
12	[uː]	[uː]	-
13	[u]	[u]	[u]

Appendix XVII: Chart of Similarities and Differences in Diphthongs of L1, L2 and L3

No.	Arabic (L1)	English (L2)	Spanish (L3)
1	-	[iə]	[je]
2	-	-	[ja]
3	-	-	[jo]
4	-	-	[ju]
5	-	[ɛə]	-
6	-	[ei]	[ei]
7	-	-	[eu]
8	[aj]	[ai]	[ai]
9	-	[ɑə]	-
10	[aw]	[au]	[au]
11	-	[ɔi]	[oi]
12	-	[ɔə]	-
13	-	[ou]	[ou]
14	-	-	[wi]
15	-	[uə]	[we]
16	-	-	[wa]
17	-	-	[wo]

Appendix XVIII: Chart of Similarities and Differences in Triphthongs of L1, L2 and L3

No.	Arabic L1	English L2	Spanish L3
1	-	-	[jei]
2	-	-	[jai]
3	-	-	[joi]
4	-	[ɛiə]	-
5	-	[aiə]	-
6	-	-	-
7	-	[ɔiə]	-
8	-	[auə]	-
9	-	[ouə]	-
10	-	-	[wei]
11	-	-	[wai]

Appendix XIX: Chart of the only Spanish Hiatuses

No.	Arabic L1	English L2	Spanish L3
1	-	-	[jj]
2	-	-	[ee]
3	-	-	[ea]
4	-	-	[eo]
5	-	-	[ae]
6	-	-	[aa]
7	-	-	[ao]
8	-	-	[oe]
9	-	-	[oa]
10	-	-	[oo]
11	-	-	[wu]

Appendix XX: Other Examples of Errors in Consonants

No.	Phonetic Symbol	Learner's Performance	Target performance	*Spelling*	Meaning
1	[ɲ]	[nudo]	[ɲudo]	*ñudo*	'knot'
		[puno]	[puɲo]	*puño*	'fist'
		[kano]	[kaɲo]	*caño*	'spout'
		[pekeno]	[pekeɲo]	*pequeño*	'small'
		[manana]	[maɲana]	*mañana*	'tomorrow'
2	[p]	[belo]	[pelo]	*pelo*	'hair'
		[koba]	[kopa]	*copa*	'cup'
		[roba]	[ropa]	*ropa*	'clothes'
		[abɾetaɾse]	[apɾetaɾse]	*apretarse*	'to tie'
		[rebosaɾnos]	[reposaɾnos]	*reporsarnos*	'to rest'
3	[b]	[parra]	[barra]	*barra*	'bar'
		[kompita]	[kombita]	*combita*	'diminutive of *comba*; rope'
		[kalpo]	[kalbo]	*calvo*	'bald'
		[poron]	[boron]	*borron*	'blot'
		[puʎa]	[buʎa]	*bulla*	'noise'
4	[t]	[kandaɾle]	[kantaɾle]	*cantarle*	'to sing to someone'
5	[k]	[kaθo]	[kako]	*caco*	'thief'
		[θweɾpos]	[kweɾpos]	*cuerpos*	'bodies'
	[g]	[xoma]	[goma]	*goma*	'eraser'
		[pexa]	[pega]	*pega*	'hit'
		[rexo]	[rego]	*rego*	'I make watering'
		[tɾixo]	[tɾigo]	*trigo*	'wheat'
7	[tʃ]	[θiʎaɾ]	[tʃiʎaɾ]	*chillar*	'to scream'
		[kiʎaɾ]			
		[ʃiʎar]			
		[pozo]	[potʃo]	*pocho*	'pale'
		[kapas]	[katʃo]	*cacho*	'piece'
		[kuʃiʎo]	[kutʃiʎo]	*cuchillo*	'knife'
		[diʃosas]	[ditʃosas]	*dichosas*	'happy'
8	[θ]	[kinta]	[θinta]	*cinta*	'rope'
		[tʃinta]			
		[pozo]	[poθo]	*pozo*	'well'
		[poza]	[poθa]	*poza*	'well'

		[kapas]	[kapaθ]	*capaz*	‘capable’
		[aseɾ]	[aθeɾ]	*hacer*	‘to make’
		[lukeɾo]	[luθeɾo]	*Lucero*	‘Lucero’
9	[s]	[θensoɾ]	[sensoɾ]	*sensor*	‘sensor’
		[abɾazaɾ]	[abɾasaɾ]	*abrasar*	‘to burn’
		[reɲiz]	[reɲis]	*reñis*	‘you argue’
10	[x]	[dʒara]	[xara]	*jarra*	‘jar’
		[paʒa]	[paxa]	*paja*	‘straw’
		[roʒa]	[roxa]	*roja*	‘red’
		[rodʒa]			
		[dedʒes]	[dexes]	*dejes*	‘you leave’
		[dʒaka]	[xaka]	*jaca*	‘pony’
11	[ʝ]	[ʒudo]	[ʝudo]	*yudo*	‘judo’
		[λudo]			
		[radʒa]	[raʝa]	*raya*	‘line’
		[raʒa]			
		[maʒa]	[maʝa]	*maya*	‘mayan’
		[madʒa]			
12	[r]	[ɾiko]	[riko]	*rico*	‘rich’
		[peɾo]	[pero]	*perro*	‘dog’
		[eɾero]	[ereɾo]	*herrero*	‘blacksmith’
		[jeɾo]	[jero]	*hierro*	‘iron’
13	[ɾ]	[para]	[paɾa]	*para*	‘for’
		[karo]	[kaɾo]	*caro*	‘trolley’
		[bolar]	[bolaɾ]	*volar*	‘to fly’
		[fjera]	[fjeɾa]	*fiera*	‘beast’
14	[l]	[caλa]	[kala]	*cala*	‘he soaks’
15	[λ]	[dʒama]	[λama]	*llama*	‘call’
		[jama]			
		[lama]			
		[baʒe]	[baλe]	*valle*	‘valley’
		[badʒe]			
		[bale]			
		[piʒa]	[piλa]	*pilla*	‘catch’
		[pidʒa]			
		[pila]			

		[arodiʒado]	[arodiʎado]	*arrodillado*	‘kneeling’
		[arodidʒado]			
		[leban]	[ʎeban]	*llevan*	‘they get’
		[ʒeban]			
		[dʒeban]			

Appendix XXI: Other Examples of Errors in Vowels

No.	Phonetic Symbol	Learner's Performance	Target performance	*Spelling*	Meaning
1	[i]	[ego]	[igo]	*higo*	'fig'
		[peso]	[piso]	*piso*	'flat'
		[bole]	[boli]	*boli*	'pen'
		[estoriko]	[istoriko]	*historic*	'historical'
		[desθipulo]	[disθipulo]	*discipulo*	'disciple'
2	[e]	[pribjene]	[prebjene]	*previene*	'prevent'
		[ibokar]	[ebokar]	*evocar*	'evoke '
		[paxi]	[paxe]	*paje*	'page'
		[tingo]	[tengo]	*tengo*	'I have'
		[mixor]	[mexor]	*major*	'better'
3	[a]	[ixe]	[ixa]	*hija*	'daughter'
		[nwebe]	[nweba]	*nueva*	'new'
4	[o]	[uso]	[oso]	*oso*	'bear'
		[morenu]	[moreno]	*Moreno*	'brunet'
		[buθ]	[boθ]	*voz*	'voice'
		[kulorastes]	[kolorastes]	*colorastes*	'you colored'
5	[u]	[oʎa]	[uʎa]	*hulla*	'flee'
		[bola]	[bula]	*bula*	'bull'
		[te]	[tu]	*tu*	'you'
		[albom]	[album]	*album*	'album'
		[podo]	[pudo]	*pudo*	'you could'
		[pedo]			

Appendix XXII: Other Examples of Errors in Diphthongs

No.	Phonetic Symbol	Learner's Performance	Target performance	Spelling	Meaning
1	[je]	[hilo]	[jelo]	*hielo*	'ice'
		[pidra] [pedra]	[pjedɾa]	*piedra*	'stone'
		[pi] [pei]	[pje]	*pie*	'foot'
		[algin]	[algjen]	*alguien*	'somebody'
		[metindo] [metendo]	[metjendo]	*metiendo*	'putting'
2	[ja]	[pedo] [piedo] [peado]	[pjado]	*piado*	'being cheeped'
		[vaɾjes]	[baɾjas]	*varias*	'various'
		[medje]	[medja]	*media*	'half'
3	[jo]	[aɾo]	[arjo]	*ario*	'Aryan'
		[apaɾiθo]	[apaɾiθjo]	*Aparicio*	'Aparicio'
		[sobeɾbo]	[soberbjo]	*soberbio*	'arrogant'
4	[ju]	[peular] [pjolaɾ]	[pjulaɾ]	*piular*	'asking for something'
5	[ei]	[rena] [rjena] [raina]	[rejna]	*reina*	'queen'
		[le]	[lej]	*ley*	'law'
		[aθite] [aθete] [aθjete]	[aθeite]	*aceite*	'oil'
		[ses] [sjes]	[seis]	*seis*	'six'
6	[eu]	[iɾo] [eɾo] [oɾo] [uɾo] [juɾo] [oiɾo]	[euɾo]	*euro*	'euro'
7	[ai]	[bes] [bas] [baes]	[bais]	*vais*	'you go'
8	[au]	[oɾa] [uɾa]	[auɾa]	*aura*	'dawn'
		[funa]	[fauna]	*fauna*	'wild life'

		[fwana]			
9	[oi]	[bwina] [bwena]	[boina]	*boina*	‘beret’
10	[wi]	[rido] [roido] [rwedo]	[ruido]	*ruido*	‘noise’
11	[we]	[wibo]	[webo]	*huevo*	‘egg’
		[bula]	[buela]	*vuela*	‘he flies’
		[kenta]	[kwenta]	*cuenta*	‘account’
		[swilo]	[swelo]	*suelo*	‘ground’
12	[wa]	[buriʎo] [bauriʎo]	[bwaɾiʎo]	*buarillo*	‘type of eagle’
		[kuɾenta]	[kwaɾenta]	*cuarenta*	‘forty’
		[legu]	[legwa]	*legua*	‘kind of measurement’
13	[wo]	[antigo]	[antigwo]	*antiguo*	‘old’

Appendix XXIII: Other Examples of Errors in Triphthongs

No.	Phonetic	Learner's Performance	Target performance	Spelling	Meaning
1	[jei]	[krjes] [krjais]	[krjeis]	*crieis*	'you raise up'
2	[jai]	[ljes] [ljas] [lais] [ljeis]	[ljais]	*liais*	'you foul up'
3	[wai]	[gwei]	[gwai]	*guay*	'nice (informal)'
4	[joi]	[diko] [djoko] [djuko] [doiko]	[djoiko]	*dioico*	'a type of flower'

Appendix XXIV: Other Examples of Errors in Hiatuses

No.	Phonetic Symbol	Learner's Performance	Target performance	Spelling	Meaning
1	[ii]	[tito] [teto]	[tiito]	*Tiito*	'diminutive of *tio*: uncle'
2	[ee]	[lis] [les]	[lees]	*Lees*	'you read'
		[kɾi] [kɾe]	[kɾee]	*Cree*	'he thinks'
3	[ea]	[aɾe] [aɾja]	[aɾea]	*Area*	'area'
		[pale] [palja]	[palea]	*Palea*	'shovel'
		[linja] [lina]	[linea]	*Linea*	'line'
4	[eo]	[kɾjo]	[kɾeo]	*Creo*	'I think'
		[poljo]	[poleo]	*Poleo*	'penny royal'
5	[ae]	[peʎa] [paiʎa]	[paeʎa]	*Paella*	'paella'
6	[ao]	[kas] [kaus]	[caos]	*caos*	'chaos'
8	[oa]	[rono] [rwano]	[roano]	*Roano*	'roan'