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Syntactic Complexity and the Effects of Transfer in EFL Students' Writing at Universidad de Quintana Roo

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ABSTRACT

Writing is one of the most complex skills to achieve in second language learning. The production of written texts in L2 is often affected by the learner's knowledge of L1 and it is common to transfer the complexity of the language structures from one language to the other. This thesis explores the complexity that language holds in Spanish L1 and English L2 and how it affects the writing production in both languages. The use of the T-unit for analyzing provides this thesis with the most accurate measurement to get to know the level of complexity produced by the learner. The concept of language transfer is also explored to determine its positive or negative role in syntactic complexity.

Key words: **writing, syntactic complexity, T-unit, Spanish L1, English L2, L1, L2, language transfer**

Syntactic complexity and the Effects of Transfer in EFL Students' Writing at Universidad de Quintana Roo

CHAPTER ONE

1.1 Background

Learning a foreign language relies on the implementation of teaching methods, learning approaches and theories that promote the individual's specific, linguistic abilities directly related to the use and knowledge of the target language. Thus, the selection and efficacy of one or another approach depends on what is expected from students. As stated by Ellis (1994), methods and approaches vary from those that are based on structural language knowledge to those that are specialized in the use of communicative skills necessary for the acquisition based on the learners' quantitative and qualitative aptitude. Nowadays, the expansion of different enterprises in non-Anglophone countries, tourism, and commerce have made English one of the most important languages to be taught. Most of the institutions that teach English aim to provide students with the most effective tools to be able to communicate effectively both orally and in written.

The Universidad de Quintana Roo, Mexico offers an undergraduate English Language program, whose purpose is to train future English Teachers for all education levels; to design courses, develop programs; evaluate, design and modify teaching materials and to design and apply evaluation instruments. The English lessons in this major apparently follow a methodology based on the communicative approach to English teaching and learning. This is an assumption based on a quick analysis of texts that the English Language courses use as the

main instrument for teaching and assessing the students in the English Language major. These books are based on a communicative approach, which promotes the development of language skills through interaction, yet they include little content to develop a more profound knowledge of the language. Additionally, the undergraduate program requires that incoming students have a knowledge of Spanish, but it is not necessary to know any English to be accepted into the BA English Language program. The only requirement is that students must obtain an English level equivalent to C1 of the Common European Framework of Reference for Languages (CEFR) at the end of their major in order to graduate.[1] During their senior year, students take language courses that include CAE-like evaluations in order to prepare them for the tasks included in C1 evaluations in the version of the CAE examination.

Even though students must take the Certificate of Advanced English (CAE) as a graduation requirement, the writing production seems to be basic in the eighth, ninth and tenth semesters of the undergraduate program, with some of the using language structures that do not correspond to what it is required for the CERF. In other words, the writing tasks they produce do not seem to fulfill the required tasks in the CAE test that imply the use of basic and complex structures and more sophisticated vocabulary to express themselves clearly.

According to the Department of ESOL examination of Cambridge University (2007), the CAE exam includes two writing tasks to be done within 1 hour and 20 minutes in the

[1] The CERF describes C1 as a level in which students can read long texts and recognize implicit meanings. In the oral expression, they can use language in a flexible and effective mode for social, academic and professional purposes. Their texts are clear, well-structured and detailed on different subjects using organizational patterns, connectors and cohesive strategies. Along the major progress done by students is evaluated by means of continuous test divided into language skills (listening comprehension, use of English, reading comprehension and writing production) and for being promoted students should get 7 points –in a scale from 1 to 10- in each language skill.

following format: The first task consists of writing a text of up to 160 words, which can be either an e-mail or a letter using some prompts with a clear functional focus. Students are expected to respond positively to an invitation, give or request information, express an opinion, give reasons for doing or not an activity, express a preference or ask a question. The most important objective in this task is to demonstrate the writer's awareness of the audience he is addressing and understanding of the general scenario and their reasons for writing.

In the second part of the writing section, a choice has to be made. Students have to choose between an essay, an article, a letter, a story, a report or a review in an extension of maximum 180 words. The important part of the second task is that it has a specific purpose and aim. One of the main parts of this task is that students have to be aware of the type of language that will be used as well as to be able to demonstrate mastery and the appropriate use of all the following language functions: describing, narrating, explaining, expressing an opinion and giving information.

The tasks are assessed using the following criteria: a) the use of a wide range of language structures, vocabulary and expressions, the ability to organize the information, the ability to write effectively; b) effectiveness of the organization, paragraphing and linking words; c) accuracy of grammar and spelling, and; d) the awareness of the situation and the target reader (Cambridge 2007). In the English lessons at Universidad de Quintana Roo, students are trained in CAE-like exercises during the last semesters as stated in the course programs of the English lessons as well as in the type of exercises the textbooks include. However, the lessons must simultaneously include all skills and sub-skills, with reading and writing skills frequently being left for the student to work on independently, outside class time, thus students use their own

abilities and knowledge to produce writing tasks that are assessed later with little feedback. Most teachers highlight mistakes in writing tasks (from grammar to spelling and from punctuation to sense of the sentence), but very few of them take the time to work on the rationale behind writing.

All the elements previously stated about the CAE examination imply the use of basic and complex structures in the development of the tasks. Huddleston (1984) gives a clear idea of what a clause, simple, compound and complex sentences are. The author states that a sentence can be considered simple when it contains one subject and a conjugated verb. A compound sentence is the union of two simple sentences by a coordinated connector. Finally, a complex sentence is one formed by an independent clause (the sentence that has meaning by itself) and a dependent clause (the sentence that has meaning because of its relation with the independent clause). On the other hand, a clause is defined as a group of words that contains a verb and other components that might be part of a sentence or it might form a sentence itself (Oxford, 2013). Macola (2001) agrees with Huddleston and defines a basic sentence as a group of words that has only one clause or one idea and that idea is expressed with a subject and a predicate. A complex sentence that includes subordination is a sentence that contains more than an idea and the ideas they have do not have the same importance and one or more depend on a principal sentence. Subordinators or asyndeton joins these types of sentences.

Considering these definitions, it is possible to assume that in order to complete the tasks in the writing part of the CAE exam, it is required to use a higher number of complex sentences to show the proficiency students have in the target language. The Kentucky Department of Education through its Kentucky Standard for World Language Proficiency (2013) claims that

there are two characteristics of a proficient writer in a foreign language; the first is the clear knowledge of the audience, and the second is the adequate use of tone to communicate effectively. Furthermore, the ideas used in the texts have to be profound and supported by elaborate and relevant details with a controlled and varied sentence structure that demonstrates the use of appropriate grammar with few errors regarding length and complexity.

Considering the case of the Universidad de Quintana Roo, some of the senior students on the English Language undergraduate program are not seemingly prepared to completely fulfill the tasks of the CAE examination. Data taken from the Language Center at Universidad de Quintana Roo from the years of 2007 to 2010, a period during which 80 students took the CAE-like exam, show that 44 students out of 80 passed the exam; this is just slightly more than 50 per cent of all the people taking the CAE. This failure situation could be due to a variety of factors, the one possibility is that failing students can probably be missing the strategies for taking the exam or it might be also possible that there is a gap between what students actually know and the language proficiency level tested in the exam.

A closer analysis of the writing section of the CAE-like examination at Universidad of Quintana Roo has shown the following errors that make writing tasks inappropriate: a) Some of the main ideas are missing, unclear or inaccurate; b) the task and the writing are not completely related; c) there are some grammatical mistakes and incorrect use of words that make the writing difficult to understand; d) there is not specific support and development of the main points; e) the organization of the writing makes it difficult to follow due to the language use and the connectors used.

Thus, the students' lack of complex writing in English on the BA English Language Major at Universidad de Quintana Roo might be the result of a weak development of linguistic skills in their mother tongue, which leads to syntactic complexity weakness reflected in the students' writing tasks. Consequently, this might be one of the causes for not succeeding evaluations requiring a high degree of sophisticated language.

There are some research papers that analyze the lack syntactic complexity students have when dealing with some writing tasks, especially those that require the development of complex mental tasks in writing. Some other studies have been developed to better understand the problem some students go through when taking examinations or tasks they are not prepared to deal with. These studies offer diverse perspectives to look at the phenomenon. A more appropriate form of looking into the problem is through the language itself, and particularly, through a syntactic analysis. Syntactic complexity is understood as the range of forms that surface in language production and the degree of sophistication of such forms (Ortega 2003:493). In this regard, Torres (1993) in Spain researched and diagnosed the degree of syntactic complexity of three groups from different education levels: secondary, high school and universities, excluding professional formation and primary school education. This study aimed to know the language structures students have and which should be the ones that the following courses should include to obtain a better communicative competence. Similarly, Garrott (2001) investigated the syntactic complexity of a group of Spanish students and analyzed the procedures he used to extend students' degree of syntactic complexity.

Both studies highlight the importance that syntactic complexity has regarding communicative competence. Syntactic complexity or linguistic complexity is understood as the

range of linguistic forms that appear in language production and their level of sophistication, according to Ortega (cited by Iwashita, 2006). Givón and Shibatani (2009) mention that complex hierarchy structures (subordinate clauses) are the ones that hallmark human speech as they hold the highest level of transformations. This is to say, complex hierarchical structures include a larger number and type of embedded sentences (subordinate sentence); whilst simple hierarchy structures (coordinate clauses) are formed by a simple noun and verb phrase. Therefore, these represent a simplified speech used by infants mostly whereas complex speech is used by adults most of the time. In addition to the hypothesis that syntactic complexity is possibly one of the main factors that affect students' writing production in English on the English Language major at Universidad de Quintana Roo, it is important to consider other factors that might also be important.

One of these factors is the importance of writing as the basis of this thesis. Doctor Nowacek (2011), from Marquette University, points out that writing makes thinking process visible and it is the primary basis of a person's learning, expression that influences the individual's work, knowledge and intellect; it is the element that can be judged when it is presented. Some research has proved that writing well is one of the most important success predictors in university as Geiser and Studley (cited in McNamara D., Crossley A., McCarthy P., 2010) highlight. The same authors make an important point when they claim that writing is the ability of arguing opinions, articulating ideas and synthesizing multiple perspectives. At the end of the research, McNamara and her team concluded that well-skilled people are more likely to write well using sophisticated language. Taking this into consideration, it is important to note that when students write in a foreign language, the cognitive process of writing varies from L1 to L2, but they are still linked one to the other, thus the final writing production in the target

language is subordinated to the writing models the students store in both languages. Thus, it is important to consider the influence L1 has over the writing productions students develop. L1 influence is known as language transfer and is defined, according to Isurin (2005) as the application of linguistic knowledge from a students' first language to their second that can enhance or inhibit the learning process; this process can affect positively or negatively the syntactic complexity process and its application. Thus transfer (in writing) can be lightly described as the students' application of sentence structure from his own language to the target language that might create a mismatch or match in the structure and complexity of the writing process in the target language according to Nitschke, Kidd, and Serratrice. (2010).

1.2 Statement of the Problem

As stated previously, the lack of a considerably high degree of syntactic complexity in writing can be one of the factors that causes a raising amount of failing students taking the CAE –like language examination as a requirement to obtain their degree in the Universidad de Quintana Roo. In addition, it is observed that the foreign language learners' syntactic complexity can be conditioned by negative or positive transfer. This element might lead to a successful or unsuccessful writing experience. Considering these hypotheses, the aim of this thesis is to investigate the syntactic complexity of EFL advanced learners in both L1 and L2 and make possible comparisons in order to determine the similarities and differences between native speakers' writing production with those of EFL students. This will give the opportunity to set the degree of syntactic complexity in L1 and L2 of both groups and see how it varies from language to language.

In order to study the role of transfer, it was necessary to identify if there were any syntactic transfer processes that affected the writing production from L1 to L2 and vice versa. This will shed some light on the mental strategies EFL students at Universidad de Quintana Roo use in order to complete an improvised writing task, identify the type or types of language transfer that are mostly presented and analyse how these types of transfer affect positively or negatively the final piece of work. The result of this analysis provides important information about the most common mistakes and assets of students writing to be taken into account when teaching writing.

1.3 Justification of the Study

This research is expected to benefit English Language teachers and students in general, as well as the Universidad de Quintana Roo since the results may contribute to the understanding of the possible limits regarding syntactic complexity in L1 and how these limitations affect positively or negatively the development of writing skills in L2. The findings may be used by educators and decision makers to pay special attention to the subject matters in the curriculum which develop the writing skills in both L1 and L2. It might be also possible to adequate courses based on the linguistic level students have and use it as a platform for developing successful learning.

Professors and language instructors at Universidad de Quintana Roo may find this study useful since they can look at another possible reason why students face problems when learning a foreign language. Under the perspective of this study, teachers might look at mother tongue as the basis for the development of complex language abilities and then develop teaching

techniques regarding students' mother tongue to expand specific language tasks that can be applied in the foreign language learning process.

The Universidad de Quintana Roo can benefit from this research given that this study is one of the pioneer studies in Mexico in the analysis of the relationship of syntactic complexity in L1 and L2. This may mark a new trend of research at the university with further studies related to the development of foreign language learning through the complex processes students are able to observe in their mother tongue. Another important reason this research can benefit the institution is the fact that in Mexico only a few universities have taken up this topic under research in L1 and it can be an excellent opportunity to contribute with research based on topics as syntactic complexity processes in bilingual speakers learning a foreign language based on the linguistic background of the Yucatan Peninsula and Central America.

1.4 Objectives

There are three objectives that directed the development of the present study. First, this research intends to determine the participants' syntactic complexity level in their mother tongue. Second, the participants' level of syntactic complexity in the foreign language, English in this case, was measured to establish its level.

Last, a comparison between the syntactic complexity in L1 and L2 was made to determine whether the transfer process influences positively or negatively the degree of syntactic complexity in any of the languages. This was done by establishing the frequency and type of complex structures that go from one language to the other and their positive or negative effect on the L2 learning process.

1.5 Variables

This thesis was based upon two main independent variables divided into linguistic and extra-linguistic. These were:

LINGUISTIC VARIABLES:

1) Degree of syntactic complexity in L2: This variable was determined by the analysis of the Unit terminal or T-unit (UT), the length of the Unit terminal (LUT), the clause (CL), the length of the clause (LCT) and the subordinate index (SI) plus the number of the total number of subordinated clauses.

2) Influence of transfer processes into L2: This variable was determined by classifying the sentences that had evidence of transfer into Lott's (1983) classification: 1) transfer of complete structures; 2) analogical length or the absence of elements in L2 and its presence in L1; 3) substitution transfer; and 4) interlanguage transfer.

EXTRA-LINGUISTIC VARIABLES

1) Spanish as L1
2) English as L2

In the course of the research there were a group of secondary variables that were observed. These were:

1) *Degree of syntactic complexity in L1*: This variable was determined by the analysis of the Unit terminal or T-unit (UT), the length of the Unit terminal (LUT), the clause (CL),

the length of the clause (LCT) and the subordinate index (SI) plus the number of the total number of subordinated clauses.

2) *Type of subordination*: Classification of the different sentences into nominal subordination, adjectival subordination and adverbial subordination.

In order to refer from now on to the variables, it was necessary to create a table for further reference. The table below includes the main variables for each group and language analyzed:

Abbreviation	Meaning
UT_exe	Experimental Group in English: UT
UT_exs	Experimental Group in Spanish: UT
UT_rfe	Reference Group English: UT
UT_rfs	Reference Group Spanish: UT
LUT_exe	Experimental Group English: Length of UT
LUT_exs	Experimental Group Spanish: Length of UT
LUT_rfe	Reference Group English: Length of UT
LUT_rfs	Reference Group Spanish: Length of UT
LCT_exe	Experimental Group English: Length of clause
LCT_exs	Experimental Group Spanish: Length of clause
LCT_rfe	Reference Group English: Length of clause
LCT_rfs	Reference Group Spanish: Length of clause

Table 1: Main variables

In addition, a list of abbreviations and meanings are included in order to refer from now on to the secondary variables that were part of the analysis:

Abbreviation	Meaning
CL: Main	Main Clause
CL: Sub 1	Subordinate clause of level 1
CL: Sub 2	Subordinate clause of level 2
CL: Sub 3	Subordinate clause of level 3
Nominal	Nominal subordinate clause
Adjectival	Adjective subordinate clause
Adverbial	Adverbial subordinate clause

Table 2: Secondary variables

1.6 Hypotheses

Two hypotheses guided this study:

A. The level of syntactic complexity in L2 maintains a close relationship with the syntactic complexity level in L1, which means that the higher the complexity in L1, the higher the complexity in L2; and the lower the complexity in L2, the lower the complexity in L2.

B. The syntactic complexity in the target language can be affected either positively or negatively by the linguistic transfer process, which means that the higher the negative transfer, the lower the syntactic complexity in L2, and that the lower the negative transfer, the higher the syntactic complexity.

1.7 Limitations and Delimitations

One of the delimitations this thesis has to set was to focus specifically on the writing production of advanced English students of the English Language Major at the Universidad de Quintana Roo in Mexico because advanced English students already develop texts with a considerable high syntactic complexity level. A second delimitation was to process and to analyze only the subordinate and not coordinated sentences, because the latter do not give significant data for this study as this was found in diverse studies that analyzed the syntactic complexity process (Lu, 2010). It is important to mention that this research is based on the number of syntactically complex sentences students produced and not on the number of subjects involved. As it has been shown in previous studies that background and instruction were not determining factors that directly affect syntactic complexity (Torres 1993), these two variables were not taken into consideration in the development of this study.

One of the limitations this research faced was the scarce number of specialized references on syntactic complexity in general and studies related to syntactic complexity comparative studies English-Spanish. Another limitation was that most of the research on syntactic complexity was carried out during the 60s, 70s and 80s, so most of the findings and definitions are framed in studies of those decades. It is important to highlight that even though there are a few recent studies on syntactic complexity, most of them are based on the definitions, structures and methods the first studies used, which were also used in this study. Furthermore, early studies on syntactic complexity aimed to compare oral and written production and there is very little research done in order to explore the degree of syntactic complexity in a single ability.

CHAPTER TWO

THEORETHICAL FRAMEWORK

2.1 Literature Review

Since the publication of Noam Chomsky's *Current Issues in Linguistic Theory* in 1965, there has been a growing interest in the development of studies concerning the mental processes that enable people to use language adequately. According to Chomsky, human beings are endowed with a mental mechanism that enables the activation of a linguistic code in the mind and, consequently, the language acquisition process takes place. Among the different topics of linguistic research, one of the most promising has been the acquisition of syntactic complexity, as there are just a few studies that analyze this phenomenon. As stated previously, syntactic complexity is intended to be the ability of human beings of making utterances of more than two words towards adult-like speech (Garrot, 2001), and according to this definition, the acquisition of syntax is progressive, beginning from the word combination in nominal phrases to more complex degrees (verbal phrases and adverbial phrases) up to adult-like speech. From the moment in which humans start combining words, the process of language sophistication increases and it is enriched by social interaction and schooling until individuals get to the last complex degrees of subordination. Once formal education begins and the process of maturity starts taking place, syntactic complexity becomes the individual's capacity to write complex sentences in different levels with regard to a determined syntactic structure (Bartolomé, 2008). In other words, syntactic complexity means to write long sentences using conjunctions and other transformations to mark the subordinating and dependent sentences with accurate semantics and syntax.

Syntactic complexity studies began in the 1930's with research on the statistical counting of subordinate sentences present in texts written in the mother tongue. However, these studies do not formulate a direct relationship with syntactic complexity. It was not until the 1960's when Kellog W. Hunt (1965) decided to develop two studies to determine the type and number of incidences of subordinated structures produced. In the first study, Hunt researched students' writing compositions in fourth, eighth and twelfth grade in elementary schools. In the second, he analyzed the number of subordinated sentences that appeared in articles published in the *Harper's Atlantic* magazine. The research done by Hunt could be considered as a continuation of previous works done by La Brant in 1933 and Anderson in 1937. The difference between the works of La Brant and Anderson and those of Hunt relies on two innovations: a new measuring rate, the T-unit, and the Generative Grammar Theory on which the measuring unit is based on.

In his second study, Hunt gave nine students from different grades a writing task on common school matters over a three-month period. Students were asked to write more than a thousand words in class and under the teachers' supervision. Once the data was collected, it was divided into passages of complete sentences according to the correct use of capital letters, periods or punctuation marks that showed the end of a sentence. The total number of sentences was divided by the number of words to obtain an average of punctuated sentence length. In his results, Hunt (1965) found that the number of pieces of writing including garbles (or sentences with no syntactic or semantic sense) decreased as students moved up in their school grades. For that reason, in his second study, Hunt (1970) claims that the complexity in sentences increases with age and schooling; in other words, an individual acquires a more complex ability of writing as he grows up and changes grades at school. Schooling is a determinant stage for the

development of language and syntactic complexity; however, once syntactic complexity has developed, schooling is not determinant in the development of a deeper syntactic complexity transformation. Thus, Hunt established a relationship between the cognitive maturity and schooling that provided the pupils with the resources to start their own syntactic complexity process. From this perception, Hunt came up with a measure for complex writing called the T-Unit. This is defined as a way of measuring the main clauses and all the subordinated clauses and non-clausal structures attached or embedded to it (Hunt, 1970). This measure has been used in different studies to compute syntactic complexity in both L1 and L2.

Subsequent studies have followed a similar methodology. For example, very recently Xinhua (2008) offers a survey of research studies which have been carried out using T-Units as the basis of syntactic complexity in the oral and written production in L1 and L2. Among the examples of research done in L1, it is worthy to mention Cayer and Sacks (1979), O'Donnel, Griffin and Norris (1967), and O'Donnel (1974). In L2 it is necessary to consider research done by Vann (1979), Kim (1996, 1998 & 2000), Torres (1993), Véliz (1999), Ortega (2003), Checa (2006), Bartolomé (2008), and more recently Jimenez (2007). These studies are detailed in the following paragraphs.

Regarding English as L1 research, one of the first studies, according to Xinhua (2008), was done by Cayer and Sacks in 1979 (cited in). Their aim was to determine the similarities and differences among eight EFL English basic writers in the oral and written production. Xinhua (2008) does not mention the method employed but the results. Cayer and Sacks found that there are some analogies and parallelisms between the oral and written production and these analogies and parallelisms are visible when the writer has not yet acquired

all the linguistic elements to write a complex thought being the oral expression that has a more predominant syntactic complexity over the writing.

O'Donnel, Griffin and Norris in 1967 (cited also in Xinhua, 2008) carried out a research with two groups of students from the third and fifth grade in elementary school to determine the length of T-Units in English as their L1 in the oral and written productions. The method used by these researchers is not stated by Xinhua (2008) but the most important findings of this research is that students in their third year present a higher oral linguistic complexity, expressed in a larger number of T-Units, than they present in the written expression. However, students in the fifth grade produced more T-Units in written production than in oral performance, which shows that the more education a person receives, the more complex structures they use.

The last study Xinhua (2008) presents regarding syntactic complexity in EFL was one carried out by O'Donnel (1974) in which this researcher analyzes the T-Units production of an editor and a writer in order to find a method of analysis and prove the hypothesis that there are differences in speaking and writing. The method used is not detailed, but the findings showed that the average length of T-Units presented in a written structure correspond to the total of an oral structure. This also showed that there is a greater amount of dependent clauses in writing than in speaking. The most important finding of this research was that it demonstrated that T-Units can be objectively defined and used as a functional unit of syntactic analysis.

Xinhua (2008) also refers to some specific research done in L2 using T-units as the basis of the analysis. Vann (1979) did a study with Arabic students of English in the United States using the same methodology utilized with native speakers. The author found that complexity in oral production was almost twice longer than that in written production and "both mean T-unit

length and mean error-free T-unit length were longer in written than in oral discourse." (Xinhua, 2008:4).

Kim (1996, 1998, 2000) developed a longitudinal study in which she studied an L2 college student. The author analyzed the errors and syntactic complexity in the writing and oral production of the informant in order to see if the development of L2 corresponds to that of L1. Kim found that L2 developed the same way as L1 with the same errors and the same syntactic complexity growth, in other words, the findings showed that the development of L2 follows the same pattern as L1; therefore, mistakes in both language have the same cause, for example, overgeneralization. This study also highlights that there is more syntactic complexity in written production than in oral in both L1 and L2.

Other studies have paid only attention to the T-Units production in L2, like the study conducted by Ortega (2003), who examined the use of L2 writing features of college students especially in the language proficiency in the target language. The author analyzed other 25 studies similar to hers and she found that proficiency in L2 and syntactic complexity in writing in L2 varied in the studies based on second and foreign language learning. Thus, Ortega determined that the degree of syntactic complexity varies according to the oral tasks the subjects were presented and to the holistic evaluation of the syntactic complexity's objective measures.

Ortega (2003) focused mainly upon the six measures that syntactic complexity relies on in order to determine the impact of sampling conditions on the relation syntactic complexity-proficiency, the magnitudes at which between-proficiency differs from second and foreign language teaching and finally, the impact of the length of instruction in order to provoke significant changes in the syntactic complexity of second language writing to occur. The results

were significant as the specific complexity measures used were more consistent in the second language formation than in the foreign language formation, not only between proficiency and syntactic complexity. In her own analysis, Ortega determines critical magnitudes for between-proficiency differences in syntactic complexity. Finally, Ortega affirms that at least one year of observation would be necessary to clearly determine the progression in syntactic complexity.

There are also studies in syntactic complexity in Spanish as L1 and Spanish as L2. One of the most important studies conducted in L1 is the one by Véliz (1999) in Chile. She wanted to know whether there is a relationship between the way of structuring a text and the syntactic complexity used to write it. In order to do the research, Véliz selected sixty texts classified into argumentative, descriptive and narrative, produced by linguistically competent adults. The author chose 20 narrative, 20 descriptive texts, and 21 argumentative texts, all produced by contemporary authors and writers. After selecting the texts, she proceeded to divide the text into T-units to determine the subordinating and subordinated elements embedded to them. Once the T-units were obtained, she gave a progressive number to show the complexity level each sentence held. Next, she analyzed the data and this showed that there is a change in the level of syntactic complexity according to the discourse mode used in each task.

Her results show that there is a significant variation in the way individuals organize the discourse and the syntactic complexity they use when producing these tasks. This can be shown in the number of subordinate clauses presented in the different types of texts. Véliz proved that there is a complete match between the T-units and subordinate sentences establishing with this that every T-unit contains at least one subordinate sentence. Summing up the results, Véliz classified the tasks according to the linguistic characteristics of every type of text. The

researcher lists first the argumentative texts since they include the largest amount of nominal and adjectival subordination. Right after argumentative texts, the narrative discourse includes the three types of subordination (nominal, adjectival and adverbial) in an average number and frequency. Finally, the descriptive discourse includes a high number of adverbial subordination and very few nominal phrases and almost none of the adjectival phrases. In sum, an argumentative text would be the most complex one as it should incorporate most of the transformations and complex language required to accomplish the aim of the piece of writing by engaging the author into a series of mental processes and a search of the most appropriate manner to present their thoughts as descriptive texts in adults provide a source of already mastered and unconscious transformations that can be easily measured. At the end of the study, Véliz compared the production of these adults with the results of a similar study carried out with high school senior students. Her comparison showed that adults have the highest amount of syntactic complexity in all the categories. Additionally, the argumentative and narrative syntactic features are the ones that mark and highlight the difference between adult and adolescent speech.

Another study which considered Spanish as L1 was that of Torres (1993), conducted in Tenerife, Spain. Her first objective was to determine which syntactic structures were already present in primary and secondary students 'speech, which ones were partially acquired and which were missing. Second, to know how they distribute with the variables of gender, course, type of school and socio-cultural background; and finally, to compare the obtained results with different research done in other parts of the world in order to find the parallelisms or differences produced in the syntactic complexity process. As most of similarly to the research done on the syntactic complexity, Torres analyzed one hundred forty writing tasks on different topics with

a minimum length of two hundred words each. Then she divided the texts into clauses to determine the length and clauses. Her findings show that there is a relationship between schooling and syntactic complexity. Additionally, she determined that there is neither a relationship between the institution and the syntactic complexity each subject develops nor between sex and syntactic complexity. No significant relationship was discovered between the socio-cultural level and the syntactic complexity development.

In Mexico, Jimenez (2007) conducted a syntactic complexity research in a secondary school to determine first year students' syntactic complexity level and to establish any possible relationship between the syntactic complexity level and the socio-cultural level in which they are immersed. She used a one-page anecdote in which students had to produce a text taking into consideration syntax, spelling and punctuation and coherence in order to set students' syntactic complexity level. To know students' socio-economical level, they were asked to answer a questionnaire. The results show that students know the structure of simple sentences but they find it extremely difficult to develop a complex text, meaning that their syntax complexity lacked some aspects that should be present at that age. Thus, there is little relationship between the socio-cultural level and the syntactic complexity presented by the students.

Research regarding Spanish as L2 was done by Checa (2006), who analyzed 30 fragments of texts in order to determine if they presented vocabulary richness and growth in the syntactic complexity of students of ages 12 to 18 from Almeria, Spain according to the Hunt's T-Units. Checa divided the 30 fragments into three main categories: a) level of difficulty; b) type of text; and c) the source of the text; for example newspapers, journals, school task, etc. Checa found a complexity progression in the fragments studied; meaning that the progression

in which the fragments were classified was from the lowest syntactically complex towards the most syntactically complex. However, the increasing fragments are not always significant and there is not a rational continuity. She also found an increase in the syntactic complexity of the text in all classification groups, but a consistent relation between the content of the text and the level of difficulty was present in only one.

To summarize, the research done regarding syntactic complexity has gone in two main directions. The first studies syntactic complexity in the mother tongue. These studies have shown that there is a relationship between instruction (during the first stages of acquisition of language), age and syntactic complexity. This leads us to the conclusion that as children grow older, they are exposed to more complex grammatical structures (more subordinate clauses, conjunctions, inversions, etc.) that people acquire and subconsciously incorporate into their day-to-day speech. This may be done passively, meaning that the individual already understands the meaning and incorporates it naturally into speech, or actively, meaning that the structure must be considered before it can be included in the day-to-day speech of the individual. There is also evidence of a major presence of complex sentences in writing rather than in speech. Another important fact presented in the studies is that most of the researchers believed that there was an important relationship between syntactic complexity and the subjects' socio-cultural background. It was proven, however, that there is not a direct correlation between these two elements.

All the previous studies have referred to students in primary and secondary education, as it is during this period that syntactic complexity is acquired. By adulthood syntactic complexity growth should be complete; for this reason, there is little research regarding

syntactic complexity in adult speech. The most notorious research on adult speech was the analysis Véliz (1999) performed in the writer and author's pieces of writing.

The second direction that research on syntactic complexity has gone in is that of second language acquisition. Most of the research has shown that syntactic complexity is more advanced in written production than in oral production. Furthermore, Kim (1996, 1998 & 2000) demonstrated that syntactic complexity in L2 develops in the same way as in L1 with the same errors and the same growth.

Regarding the relationship of syntactic maturity in L1 and L2, Bartolomé (2008) did an important early years education study. He analyzed the production of L1 and L2 syntactic complexity with the objective of proving that students in the first years of primary school use a high number of adjectives when writing due to their age. The second objective was to prove that students of Spanish as a foreign language use a greater number of nominal modifiers, possessive determiners and prepositional phrases. Despite Spanish not being their mother tongue, the students' age and cognitive capacity should help them to better organize the discourse. In this study, two groups were used, one of Spanish speakers from two different primary schools (one public and the other private) in Madrid as the L1 group and a group of American adults enrolled in Spanish courses in a private university as the L2 group. The data collected was completely written in Spanish. In the L1 group, the data was obtained only from native speakers; students who had Spanish as second language were not taken into consideration. The 7-year-old students wrote 57 compositions in total in a fixed time of 30-40 minutes in class under the researcher's control. In the L2 group the data was collected from students between the ages of 18-22 enrolled on a basic course of Spanish.

The subjects were asked to describe a series of nine images that told the story of family on television. After receiving their work, the researcher proceeded to divide the texts into t-units, in the same way as Hunt (1965), in order to analyze the frequency of the noun modifiers that contribute to the complexity of the noun phrase. Her findings show a marked difference between both groups; children were more competent than EFL students in the oral task, but had not yet acquired the writing abilities to express their ideas on paper. For this reason there were fewer adjectives, prepositional phrases and possessive determiners found in their work. Contrary to this, adults were more likely to determine locative, possessive and temporal relations which proves that adults use their cognitive capacities to write syntactically complex texts. Furthermore, Bartolomé (2008) proved that the process of transfer is closely related to the cognitive capacities of non-native speakers who transfer patterns from their mother tongue to the language they are studying.

Therefore, despite research being done on syntactic complexity separating L1 and L2; there is no research determining a possible relationship between L1 and L2. In addition, the previous researchers in L2 only paid attention to the level of the syntactic complexity and little attention was paid to the transfer process embedded in it. For this reason, this research aims to establish the possible influence of this element on the process of becoming more mature syntactically. Even though age seems to be one determinant factor during the first ages and it remains invariable during adulthood, syntactic complexity in L2 develops in the same way it does in L1 according to Kim's research (1996, 1998, 2000). Adults acquiring a second language system requires the very same development of language growth and syntactic complexity; furthermore, the existence of a previous language system, and the influence of L1 and L2 could be an asset in order to reach L2 in a shorter timeframe.

2.2 Theoretical Framework

2.2.1 Syntactic Complexity

This research is part of a branch of Applied Linguistics that deals with the process of learning English as Foreign Language (EFL). Applied Linguistics is the field of linguistics that identifies, investigates, and offers solutions to language-related real-life problems. Until the sixties, the theory that ruled language acquisition theories was the Behaviorism Approach that perceived language acquisition as the result of stimulus-response processes which enabled communication and learning. However, Noam Chomsky's (1965) theories of Generative and Universal Grammar stated that all humans share an innate set of linguistic principles that enable them to acquire and develop linguistic features in different languages. Thus, Chomsky highlights the gaps in behaviorism and concludes that all languages have a structure and follow the rules of grammar and syntax in order to be understandable.

To better understand the origins of syntactic complexity, it is important to know their origins and how the term has evolved until now. As stated in the previous paragraph, Noam Chomsky began to look at language acquisition in a different way. His work has been confirmed as one of the most important language theories, known as *Generative Grammar Theory*. Chomsky (1980) defines it as a set of rules that combine all the linguistic elements in an understandable order to form grammatically correct sentences. Chomsky also argues that most of the properties of Generative Grammar have come from the "innate" use of language that all human beings possess called *universal grammar*.

Among the series of terms that Chomsky coined, he identified two main linguistic aspects known as competence and performance that enable language production and thus communication in all languages. According to Chomsky (cited in Ottenheimer 2006), *linguistic competence* refers to the knowledge an individual has about the language rather than the use of the language itself. This statement affirms that a person can understand more than he can produce at an early age; for example, children understand their mothers' speech even though they are not able to produce an oral answer to the auditory stimuli. Linguistic knowledge allows people to hear and incorporate words, sentences and other elements which enable them to produce sentences of different levels of complexity. *Linguistic performance*, on the other hand, is the speakers' ability that allows linguistic knowledge to take place correctly or incorrectly in order to enable communication (Malmkjær 2002). This definition refers to an individual's use of the language as a means of transmitting their thoughts into words, comprehensible sentences and other elements that allow communication.

Generative grammar can be described and compared to Chomsky´s classification (1956) or 'Chomsky's hierarchy'. This hierarchy is more of an algorithm in which it is possible to understand the relationship among the elements that need to be combined in order to form grammatically correct sentences. He depicts four main grammar categories, staggered in order of quality of expression: Type 0 grammar or the unrestricted grammar, Type 1 grammars or context-sensitive grammars, Type 2 grammars or context-free grammars, and Type 3 grammars also known as regular grammars. Unrestricted grammars refer to an arbitrary combination of grammar elements that is set at the beginning of any language. Type 1 grammars are known as context sensitive grammars; referring to a more elaborate combination of grammar elements at a very elemental level. However, this combination is not appropriate, as the speech may include

words that are incongruous with the sense and context. Type 2 grammars, also known as context-free grammar, is where language belongs. According to Chomsky (1956), context-free grammar describes the structure of sentences and words in language. The rules of generative grammar work as an algorithm and are organized hierarchically in the form of a derivation tree because, according to Chomsky, a sentence is not formed randomly as a string of words but as a tree with subordinated and superordinate branches connected at nodes. Thus, it is possible to understand that language functions at two levels. On the first level, human beings store words. On the second level, they elaborate the structure and then integrate words to the structure to organize speech. Similarly, in order to understand speech, a humans' mind deconstructs the message into the same two levels. Finally, Type 3, or regular grammars, are the fully completed grammars able to combine the elements in the most appropriate order and decode them without losing the original meaning.

Syntactic complexity does not derive directly from Generative Grammar, but is instead the result of combining three different approaches: the innatist, the developmental and the diachronic. The innatist approach claims that every single human being is born with a set of knowledge that could potentially facilitate future acquisition, storing and use of new knowledge. Applying this concept to language, it is possible to say that all human beings' brains contain prior linguistic knowledge that permits them to learn a new language in a relatively short period of time (Chomsky, 1975). This approach is relevant to syntactic complexity as it can be inferred that humans are born with the capacity of transforming language from simple to more complex structures in a natural way due to the fact that we are endowed with this capacity.

The developmental approach (Brown, 1958, 1970, 1971. Lindesmith, Strauss and Denzin, 1978. Hymes, 1964. Cotterll, 1969. Greenfield and Bruner, 1969. Blumenthal, 1970. Kohlberg, 1969. Bandura, 1969. Gumperz, 1969. among others) emphasizes the relationship between personal development (age, sociocultural background and culture) and the acquisition of language (Butler, 2003), focusing on the progression of speech. Denzin (2009) suggests that the language acquisition process is divided into three stages: in the first stage, an individual starts with the incorporation of phonemes; once the incorporation of these elements has been reached, the individual moves on, integrating the functional parts of speech (nouns, verbs, adjective and adverbs.) Immediately after the individual has mastered the functional parts of speech, he learns the rules for constructing sentences in his own language. Finally, in the third and last stage, the sentences begin to make sense. Denzin (2009) also affirms that the developmental approach of linguistics focuses on the inventory of the elemental sounds of a child as the basis for the progressive development and acquisition of speech. This approach uses Brown's (1958) word game as the main means to look at the developmental analysis of syntax based on the principles of *linguistic performance* and *linguistic competence*.

Lastly, the diachronic approach to language, also known as historical linguistics, (Aitchison, 1980, 1981. Ashby, 1981. Chen, 1972. Chen, Wang, 1975. Hock, 1986. King, 1969. Labov, 1972. Lighfoot, 1979. Vincent, 1978. among others) makes reference to language change and variation. At first, this branch of linguistics was comparative linguistics since researchers and scholars were concerned with recreating the families of languages back to a unique mother language. Nowadays comparative studies are merely a branch of study within diachronic linguistics; some of the main areas of diachronic linguistics study being comparative linguistics, etymology, dialectology, phonology, morphology, syntax and language in contact,

as in the case of pidgin and creole languages and the way these consolidate as a language. The relationship between syntactic complexity and the diachronic approach to language relies on the fact that language evolution can either simplify or make language more complex; in which case, diachronic studies would be focused on the changes within the language structure to determine the each individual's use of his own language system in order to fulfill communication requirements, understand and make himself fully comprehendible in all written and oral acts, in a variety of languages, creoles and pidgins.

Additionally, syntactic complexity is a recurrent element of the adaptive approach to grammar, which affirms that the use of a simple or complex language structure depends directly on the context the individual is immersed in. This approach to grammar states that, according to the cognitive level students present, it is possible to adapt their linguistic knowledge and present it in a wide diversity of forms; simple, complex or vice versa, in order to fulfill the communication needs the speaker/writer faces. Thus, if a speaker/writer needs to communicate in a colloquial context, he should use more basic language, thus, in a more formal situation, language should become more sophisticated. The aim of this thesis is to analyze the phenomenon of syntactic maturity in English and Spanish presented at Universidad de Quintana Roo using the Innatist, Adaptive and Cognitive approaches. These approaches provide us with a theoretical framework which takes into consideration the independent development of languages, the application of cognitive abilities and time as factors that incorporate the necessary elements that human beings require to form mental connections to express more complex thoughts orally and in written. Additionally, this thesis takes into consideration different elements that belong to the adaptive approach to grammar, in which schooling has a primary role and provides opportunities where language may be adapted to the context of

speech, to then establish the psycholinguistic correlation that exist between syntactic complexity and these approaches.

Givón and Shibatani (2009) establishes the relationship between syntax and complexity; the neuro-cognition and its connection to syntax complexity; the adaptive approach to grammar; diachrony and ontogeny and their relationship with syntax. The relationship between syntax and complexity draws upon the mental processes that humans have to go through to form sentences. This is the use of the two levels in which language works, according to Chomsky (1965): the surface and deep structures. Givón (2009) points out that languages are acquired progressively from single words to more complex nouns; for example, from *water* to *water-bottle*. Thus, it has been proven that language responds to a hierarchal organization that goes from single words to simple sentences. For instance, a child would start asking his parent for water using the single word "water" then "I want water". Regarding the cognitive mind processes, Givón (2009) presents a chart in which a comparison is made between cognition and language. The author establishes the following chart based on Atkinson and Shiffrin's (1968 cited in Givón, 2009.)

Cognition		Language/grammar	
System	Units	System	Units
Semantic memory	concepts	Lexical semantics	words
Episodic memory I	events/ states	Propositional semantics	clauses
Episodic memory II	event chains	Discourse pragmatics	clause chains

Table 3: Relationship between cognition and Language

This chart shows that cognition maturity is proportional to the syntactic maturity development. Thus, it is possible to assume that when an individual reaches the third degree of cognition maturity, he is capable of producing a major number of complex sentences. On the other hand, the neuro-cognition (or the functions of parts of the brain related to information processing) relates to the degrees of maturity, since it involves the processing of sequential information; complex sentences in the case of language, in hierarchic chunks. However, the process of organizing in chunks, according to Givón (2009), increases with continuous exposure. She argues that dividing the speech into hierarchic chunks is easier for individuals that have been exposed to speech containing a high number of complex structures; consequently, after being exposed for a period of time, these individuals develop an automaticity of processing that decreases mental effort and intentional demands.

The relationship between the adaptive approach to grammar and syntactic complexity rely on the same cognition stages that Atkinson and Shiffrin (1968 cited in Givón 2009) established. According to cognitive research, there are three levels of human cognition that, when compared to language, correspond to the language trees proposed by Chomsky (1965). The representation is the following:

Cognitive Label	Linguistic Equivalent
Permanent semantic memory	The mental lexicon
Episodic memory	The current text
Working memory and attention	The current speech situation

Table 4: Levels of human cognition and its linguistic equivalents

Semantic memory is intended to be a long-term source of nouns, adjectives, adverbs and verbs (Givón 2009); it is a representation of our cultural and social background. It is also organized as a network of nodes and connections, according to Givón (2005). Episodic memory is the source of propositional information about unique events, states or specific events learnt through life experiences or their concatenations in longer chunks of discourse. The information that comes into the episodic memory is through sensations and linguistic channels. Linguistically speaking, the working memory buffers short chunks of information where they are verbatim waiting for some future processing decision (Gernsbacher 1990 cited in Givón 2009).

Givón (2010) highlights the fact that linguistic competence is uniform and relies on the infallibility of the speakers' intuition. Thus, it is the context in which the speaker is immersed that motivates him to use a certain level of complexity. At the educative level this thesis has taken place, subjects were expected to have already reached a mature cognitive level that allowed them to use an appropriate language register in different speech situations, orally and written. These characteristics are a must at a university level due to the complex academic language used; language comprehension and production would not be able to succeed otherwise. Thus, it is possible to agree that all the participants tested in this thesis had reached a considerable degree of language corresponding to the third degree of language sophistication according to Atkinson and Shiffrin (1968 cited in Givón, 2009) and Chomsky (1965).

On the other hand, *linguistic performance* refers to the capacity to use these combinations in everyday speech. Apart from those already stated, Chomsky (1965) also coined two other elements known as *deep structure* and *surface structure.* In early transformational

syntax, deep structures – the representation of the core semantic relations of a sentence- are derivation trees of a context free language. These trees are then transformed by a sequence of tree rewriting operations also known as transformations into surface structures –or the final production of speech. The terminal yield of a surface structure tree, the surface form, then evolves into a fully functional, grammatical sentence.

To describe the relationship between ontogeny, diachrony and syntax, it is necessary to define each term. In linguistics, *ontogeny* refers to the origin and development of a structure. *Diachrony*, as mentioned before, makes references to language change and variation, and *syntax* is the study of the principles and rules for constructing sentences in native languages. Givón (2009) mentions that the relationship between the elements evolves at the same rate as individuals, and that in the first stages of language, individuals develop lexicon to produce pre-grammatical communication before they actually acquire grammar.

2.2.2 Measuring Syntactic Complexity

Once Syntactic complexity has been defined, it is important to know how it can be measured. Bartolomé (2008) points out that syntactic complexity can be measured by considering the number of words and subordinate clauses used in a written text as well as the number of descriptive adjectives, possessive determines, gerunds and participles in the phrase. The more elements that are present in a sentence, the more advanced the speaker's syntactic complexity. According to Hunt (1965), the number of transformations (or the ability to add information or even change the sentence structure to give more specific information) a sentence undergoes is proportional to the level of schooling. This hypothesis postulates that a child in an early stage of schooling should be able to write copulative sentences; for example:

(i) My dog is big,

(ii) Nick is tall

(iii) Mom is back,

while a child in an upper stage of schooling should be able to write complex sentences that are not purely copulative. Consequently, students' speech in higher education is expected to be more consolidate in terms of syntactic complexity; this should be reflected in their use of more structured language and their organization and use of the language.

Torres (1993) mentions that the transformational mechanisms which syntactic complexity rely on are **insertion**, **elision**, **substitution** and **transfer** of phrases that combine to form one. An insertion is a spoken or written message or unit that is inserted in speech. For example:

(iv) Emma, who works in a bank, bought the house next door.

(v) The woman that bought the house next door works in a bank.

In grammar, the simplest examples of insertion are the restrictive and non-restrictive adjective clauses. Grinker (1994) explains that a restrictive insertion limits the possible meaning of a preceding subject; for instance, in the following sentence:

(vi) The suspect in the lineup who has red hair committed the crime.

Professor Grinker explains that the subject of the sentence *suspect* is restricted in two ways: first, because it is known this suspect is both in the lineup and has red hair. Second, the other suspects, who are in the lineup, could not have committed the crime because they do not have red hair. Thus, a restrictive clause is necessary to identify a specific subject among others that share almost the same characteristics or states. A non-restrictive clause, according to Grinker (1994), gives additional information about a preceding subject, but they do not limit, or restrict, the meaning of that subject. For example, in the sentence:

(vii) The suspect in the lineup, who owns a red car, committed the crime;

Professor Grinker explains that the restrictive clause *"in the lineup"* gives the idea that from all the possible suspects in the world, the one who committed the crime is in the lineup. However, while the nonrestrictive clause "*who owns a red car*" expresses something particular about the suspect, it does not exclude the possibility that there are several different suspects in the lineup with red cars. The car color may give some useful information, but it does not restrict the sentence to only one possibility.

It is necessary to make a distinction when explaining the second transformational mechanism, elision, since the term can be seen from two different perspectives: syntax and phonetics. The term **elision** is more closely related to phonetics and it refers to the omission of one or more sounds (this could be a vowel, consonant or whole syllable). However, the elision in syntax is better known as ellipsis. SIL International (2004) defines ellipsis as a construction that lacks an element that is recoverable or inferable from the context. Research based on Generative Linguistics such as Sag (1976), Lobeck (1995), Lappin (1996), Jhonson (2001), Merchant (2001) shows that the term ellipsis has been widely applied to different data and three different types of ellipsis have been obtained: Sluicing, Verb-Phrase Ellipsis and Noun-Phrase Ellipsis. The first refers to a sentence construction in which the sentential part of an interrogative clause is elided, this mostly occurs in the constituent questions.

An example of **sluicing** is the following:

(viii) John can play something, but I don't know what

instead of

(ix) John can play something, but I don't know what <u>John can play</u>.

The ellipsis in this case allows the speaker not to repeat the information that can be understood by the first expressed clause. In a **Verb-Phrase Ellipsis** a verb form has been left out in the second clause. E.g.

(x) John can play the guitar; Mary can, too

instead of

(xi) John can play the guitar and Mary can <u>play the guitar</u>, too.

Finally, in a **Noun-Phrase Ellipsis** a noun or noun phrase has been elided, for example:

(xii) John can play five instruments, and Mary can play six

instead of

(xiii) John can play five instruments, and Mary can play six instruments.

These three different types of ellipsis can be identified by the distributional facts that characterize each type of sentence; in other words, in sluicing sentences, the wh-phrase requires a clausal source: (ix) … *what* ***John can play*** and this is the element that can be elided. Modals like *can* are more likely to be elided in Verb-Phrase Ellipsis because it takes verb phrase complements, e.g. … (xi) *can* ***play the guitar,*** *too*. The modal *can* can be also elided in Noun-Phrase Ellipsis because it can also take noun phrase complements, e. g. …(xiii) *can play* ***six instruments***. The selection and the subcategorizing properties of particular elements in the sentence lead to the omitting of structures where these elements are uniform across grammar.

Further research on ellipsis (Sag, 1976; Lobeck,1995; Lappin, 1996; Johnson, 2001; and Merchant, 2001) demonstrates its application to other types of constructions, known as stripping (or bare argument ellipsis), gapping and fragmenting answers and other cases that fall into what is known as conjunction reduction.

Stripping ellipsis is a kind of ellipsis in which only a single constituent remains and everything else in a clause is deleted, for example:

(xiv) Laura drank the milk last night, or perhaps the juice

instead of

(xv) Laura drank the milk last night, or perhaps Laura drank the juice.

Gapping ellipsis was first introduced by Ross (1967) as a conjunction reduction rule and it refers to the omission of repeated verbs in coordinate sentences, for example:

(xvi) The boy eats a burger and the girl a sandwich

instead of

(xvii) The boy eats a burger and the girl eats a sandwich.

Fragment answers occur in oral speech when the answer contains the essential information, for example:

(xviii) –Who didn't come to the meeting? –Nicole

instead of

(xix) –Who didn't come to the meeting? –Nicole didn't come to the meeting.

The third way to measure syntactic maturity, according to Torres (1993), is through substitution of constituents (Burton-Roberts, 1997; Carnie, 2002; Haegeman, 2006). A *constituent* is a word or group of words that function as a unit within a hierarchical structure. Thus, phrases, such as noun phrases, verb phrases, adjective and adverbial phrases, constitute clauses, but at the same time they can be embedded into a more complex structure, adopting the corresponding syntactic function (subject, direct object, indirect object, subjective complement of a sentence, object of the preposition, adjective, or adverb) that usually corresponds to a single word. Substitution occurs when one of the constituents is replaced by a pronoun, for example:

(xx) He knows the terrible secret you keep;

the constituent ***the terrible secret you keep*** functions as a direct object; consequently, it can be substituted by a pronoun, in this case the object pronoun: *it*. Therefore, the original sentence (xx) *He knows* ***the terrible secret you keep*** would become (xxi) *He knows* ***it***. The chart

below shows examples of sentences that contain simple and compound constituents of the different types of syntactic functions:

Syntactic Function	Simple Constituent	Compound Constituent
Subject	**I** want to go on vacation.	**What I want** is to go on vacation.
Direct Object	He knows **the truth**.	He knows the terrible secret you keep.
Indirect Object	Tell **her** the truth.	Tell **whoever wants it** the truth.
Subjective Complement	The story is **thrilling**.	The story is that he will never know the truth.
Object of a Preposition	Don't be afraid of **him**.	Don't be afraid of **what I know**.
Adjective	The **tall** man knows the truth.	The man **who wears a black jacket** knows the truth. (Restrictive)
		John, **who wears a black jacket**, knows the truth (Non-restrictive)
Adverb	He put the book **there**. (place)	He put the book **where we couldn't find it**. (place)
	The class finishes **at 6:30**. (time)	The class finishes **when the teacher says so**. (time)
	He speaks **fast**. (manner)	He speaks **as if he was drunk**. (manner)
		He didn't come to class **because he was tired** (cause/reason)
	He studies harder **than me**. (comparison)	He studies harder **than all his friends do**. (comparison)
		If he comes to see me, I'll go out with him. (condition)

Table 5: Table of Syntactic Functions (own elaboration)

According to Torres (1993), the final transformational method is the linguistic transfer of phrases. The author, following Hunt, considers the two forms required to make a complex sentence. The first consists of phrases and sentences that are inserted into another sentence as nominal modifiers; the second is the elision of a sentence or phrase to make it nominal, adjectival or adverbial. Thus, for Hunt, syntactic complexity depends on the length of the complex sentence. There is another form to determine the complexity in a sentence, which is to simplify a complex sentence (Christensen, 1968 cited in Torres 1993). To distinguish between a simple and a complex sentence, Hunt (1965) carried out analysis using a variety of texts from students in primary school. He found that a non-complex sentence is formed by juxtaposition and coordinate sentences that tend to be reduced with the different stages of schooling.

Torres (1993) provided evidence for Hunt's theory through the analysis of different texts of students in a Spanish primary school in Tenerife, Spain. In his research, Hunt (1970) stated that coordination is one of the processes that provides evidence of non-complex writing and tends to be substituted by more complex sentences as students develop more complex mental processes. Additionally, the author mentioned that coordination is divided into three stages that are helpful to identify the cognitive process of syntactic complexity. The first type of coordination is the one in which there is no substitution of any element in the sentences, for example:

(xxi) Aaron works in a police station and Spencer works in a hospital.

In the second type of coordination, the redundant subject is substituted, for example:

(xxii) Aaron plays the piano and Aaron plays the guitar

instead of

(xxiii) Aaron plays the piano and the guitar;

In the third type, the redundant subjects and verbs are both substituted, for example:

(xxiv) Aaron works in a police station and Spencer works in a hospital. Nicole works in a hospital and Pablo works in a police station

instead of

(xxv) Aaron and Pablo work in a police station and Spencer and Nicole in a hospital.

The substitution in coordinate sentences is an indicator of the cognitive process in which the syntactic complexity takes place, after maturing the formation of coordinated sentences, for example:

(xxvi) I like the cinema and the theater

or

(xxvii) Do you want to go to the park or to the mall?

The substitution of elements leads to the formation of subordinate sentences, which should develop with each new grade. Furthermore, the substitution of elements in coordinate sentences is the only element in written and oral speech that demonstrates an increase and complexity in syntactic complexity process. For this reason, Hunt (1965) considers subordinate clauses as a measurable unit for determining the degree of an individual's syntactic complexity.

At university level, students are expected to produce and understand a high level of coordinate and subordinate sentences, which should also be present in their written work. As language transformation has already been mastered, they are unconsciously included in the written form; for this reason, it is a perfect opportunity to isolate language and analyze it in a more profound manner.

Hunt (1970) also states that even though the subordinate clauses in English are the ones that native speakers develop through the course of the different stages at school; they are not developed in the same way. Nominal and adverbial clauses develop according to the topic and verb mood of the discourse. However, the adjective clauses are the ones that maintain a progressive development through the different school levels and for Hunt this is the only valid measure for syntactic complexity. This procedure is only applicable for first language acquisition.

Cheka (2006) points out that for second language research, it is necessary to take into consideration the error-free structures, including mistakes that the learner should produce in an attempt to produce correct sentences. As adults attempt to construct grammatically correct sentences, they have a propensity to bring mistakes from L1 to L2. With regards to this thesis, the variables that were analyzed included the degree of syntactic complexity in L1 Spanish and L2 English, the influence L1 has over L2 and vice versa, the type of subordination, and the role that transfer might play in the development of syntactic complexity.

In terms of language research, syntactic complexity can be measured by both quantitative and qualitative methods. Qualitative methods vary according to the linguistic schools. Linguists from the Structural school measure quantitatively sentences by fragmenting

them in their essential components and by dividing sentences into coordinate and subordinate clauses in order to study them. Generative linguists use a quantitative method in which deep structures are the result of syntactic processes in the superficial structures through the number each sentence manifests. Givón and Shibatani(2009:2) give an example of the analysis of two simple sentences conjoint by coordination:

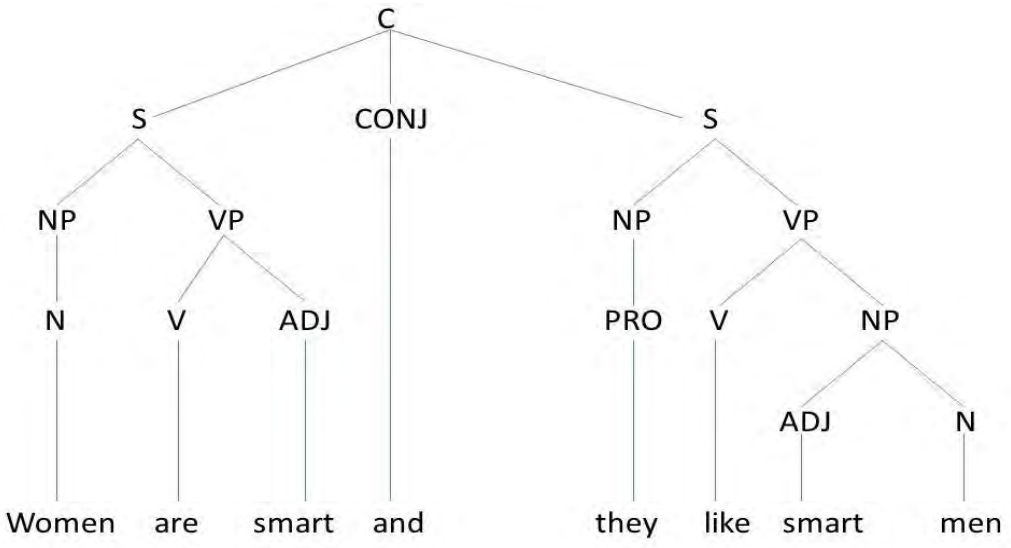

Figure 1: Syntax tree

On the one hand, Structural researchers measure the degree of complexity by identifying the number of elements that form part of each part of the sentence. On the other hand, Generative linguists would focus on the deep structures or the syntactic function the words have and their combinations to produce speech.

Torres (1993) proposes another form to measure syntactic complexity quantitatively, which is by means of comprehension, production and short term memory tests. Thus syntactic complexity is calculated through understanding, reproducing and remembering simple

sentences as they are easier than the complex ones; when the individual can abstract, produce and remember a larger number of complex sentences, it is easier to recognize the degree of syntactic complexity.

Syntactic complexity is measured quantitatively using statistical tests including the longitudinal growth of T-unit length method. This method proposes that the length of a sentence is directly proportional to its complexity. Nevertheless, not all long sentences contain complex structures; on the contrary, there are short sentences that include elements of highly complex sentences, for example: *the air, sweetly scented, filled in my lungs* where *sweetly scented* could substitute a complete subordinate sentence: *the air, that had different sweet aromas, filled my lungs*. A second test used in quantitative research is known as the longitudinal growth of T-unit length in morphemes. The difference between longitudinal growth of T-unit length and longitudinal growth of T-unit length in morphemes is based on the fact that the former counts morphemes and not words, whereas the latter counts words and not morphemes. Longitudinal growth of T-unit length in morphemes can begin from as young as 42 months old as nominal and verbal inflections are analyzed; this is due to the fact that the use of the coordinator *and* increases considerably with children of this age. The use of the indicative present tense has already been acquired and it forms the basis of most children's speech; consequently most of the sentences include, on average, a similar number of syntactic elements.

However, there could be some difficulties in phrases with the same amount of morphemes as they may have different syntactic complexity levels. Interestingly, at this age children start acquiring the indicative simple past tense; thus, their maturity level increases as they begin to include past tense verb structures, even in sentences that include the same number

of elements but that use the indicative present tense instead. Another limitation for this quantitative procedure is that it has mainly been used to measure syntactic complexity in children; when applied to adults, it is necessary to add additional measuring elements since the acquisition period of language in an adult has already ended. In order to use this approach in L2 research, it is necessary to analyze the whole text to identify tenses and modes that demonstrate mastery of the language. A beginner would not be able to demonstrate the degree of syntactic complexity he possesses due to a lack of vocabulary and tenses that are required in order for him to express himself adequately.

The third quantitative method to measure syntactic complexity is based on frequency since it is considered that at larger use of frequencies corresponds to a lower level of syntactic complexity. Hunt (1965) proposed a method to measure syntactic complexity through what is known as T-units. A T-unit is the minimal grammatical unit in which a text can be divided; in other words, a T-unit is an independent clause and its dependent clauses. Lutz & Stevenson (2005) define an independent clause as a group of words containing a subject and a verb. These words are distributed into subject and predicate and they express complete thoughts that can be added to other independent clauses through coordination and juxtaposition. An independent clause can be, for example:

(xxviii) He watches television in the afternoon

or

(xxix) I arrived home, opened the door and turned the lights on.

Stilman (1997) mentions that a dependent clause begins with a conjunction that indicates a dependent relationship with information in a different place of the sentence;

independent clauses never express a complete thought, instead they need an independent sentence to express the complete thought. Examples of independent clauses are:

(xxx) He watches television **while he tides the room**

or

(xxxi) I turn on the television **when I arrive home**.

With the definitions of dependent and independent sentences, it is possible to identify more precisely the T-unit. For example, the sentence

(xxxii) I was eating a pear while I was studying

This sentence contains an independent clause, *I was eating a pear*, and a dependent clause, *while I was studying*; thus, it can be considered as a T-unit.

In the study conducted by Hunt (1965), it was found that the length of T-units vary according to school level; this means that at a higher education level, sentences tend to become more complex. Hunt also established two forms for increasing the length of T-units. Firstly, extension can come from independent clauses, and secondly, the amount of elements that included in a clause can lead to the formation of independent and dependent clauses. Gaies (1980) affirms that studies based on T-unit counting have been applied to L2 teaching in order to ascertain the syntactic nature of the linguistic contribution and to evaluate syntactic complexity in writing productions.

Gaies (1980) also analyzed the widely used T-unit measurement method for syntactic complexity. In her paper she mentions that measuring L1 and L2 syntactic complexity using T-units has two main advantages: the first is that it provides a global measure of linguistic

development independent from any other type of data; and the second is that it promotes a method of comparison between L1 and L2 results. Nevertheless, among the studies analyzed by the author, some instrumental and procedural problems in the use of T-units were uncovered. Other criticisms have been made regarding the use of the derived form of T-unit analysis as the main factor to determine the overall development and proficiency of L1 and L2.

One of the most important criticisms that T-unit measurement has received is the fact that it is an "index" that measures a phenomenon, and therefore does not completely reflect the process that occurs inside human beings' minds. This is because syntactic complexity is an elaborate mental process that is impossible to follow from the outset, thus we can only collect data when human beings actually perform oral or written speech. Furthermore, Ney (1966) points out that T-unit only takes into consideration isolated data (sentences) and does not deal with complex writing text, considering, for example, the high amount of coordination sentences within a text. Regarding L2, research has shown that T-units can be used as a secondary means of measure due to the fact that they do not consider sentences having errors, since native speakers do not always produce them in their speech. The incidence of mistakes in L2 is relatively frequent and research carried out by Scott and Tucker (1974); Gaies (1980); Larsen-Freemana and Strom (1977); Larsen-Freeman (1978) and Vann (1978) has shown the need for a measurement index that takes into consideration these mistakes. Thus, the length of error-free speech is a more suitable index as proved by Vann (1978): with the absence of correlation between mean T-unit and TOEFL scores, and a significant correlation between TOEFL and the length and ratio of error-free T-unit. Regarding this criticism, the present thesis did not release any sentences that contained any spelling or punctuation mistakes. The ones that contained grammar mistakes in the concordance of subject-verb or tense were considered valid for the

purposes of the research. However, the data also included some sentences that contained structures that were not defined in terms of connectors, and were therefore invalid to measure the degree of syntactic complexity but used to determine the transfer processes instead.

Another strong criticism that T-unit receives is the validity as overall language development means of measurement. Moffett (1968) questions the validity of T-units arguing that the proficiency of circumlocutions is low in a second language, as non-proficient users add circumlocution into their speech in order to better express. The authors affirm that there is no relationship between the length of a sentence and the competence of language, but despite this, T-unit measurement should not be considered the best and only way to measure syntactic complexity. As Gaies (1980) points out, it is one of the most suitable ways to measure a proficient speaker's ability to use subordinate clauses and reduce clauses to non-clause embeddings. Thus, despite the discussion surrounding T-unit measurement, Gaies (1980) claims that it is one of the first and most reliable methods applicable to a study of language and its transformation from simple to complex. Even though there is a considerable amount of criticism, the T-unit is still the most used measurement, providing the most efficient way to look at this phenomenon in a quantitative form. Furthermore, most of the research done in syntactic complexity is based upon T-unit premises.

There are a series of elements that influence the length of the T-Unit, listed and outlined by Checa (2006) as derived from the Unit terminal (UT):

- Unit terminal or T-unit (UT) is the main clause plus all the subordinate clauses added to it. It ends with a period and any element is left out of it. Example: (xxxiii) *I was eating a pear while I was studying.*

- Clause (CL) is the subordinating or subordinated sentence or proposition with expressed or not expressed subject that includes infinitives, gerunds and present and past participles. Example: (xxxiv) clause 1: *I was eating a pear* clause 2: *while I was studying.*

- Length of the unit terminal (LUT) is the total number of words dived for the total number of unit terminals. Example: (xxxv) *I was eating a pear while I was studying* = 9 words / 1(a single unit terminal) = 9.

- Subordinate index (SI) is the total number of clauses divided for the total number of unit terminals. Example: (xxxvi) *I was eating a pear while I was studying.* Number of clauses: 2 / total number of T-units: 1 = 2.

- Length of the clause (LCT) is the total number of words divided for the total number of clauses. Example: (xxxvii) *I was eating a pear while I was studying* = 9 words / total number of T-units: 1 = 9

Mathematically, Checa (2006) mentions that LUT = SI x LCL. This is because each time a new clause is added to the unit terminal, the subordinate index increases. On the other hand, if more complements (arguments and adjuncts) are added to a clause, then the length of the clause rises. In any case, the number of basic prepositions would increase, resulting in a more complex phrase. This T-unit procedure has been applied to different research studies in both L1 and L2. In this study the procedure was applied to English as a foreign language and included some of the processes that affect learners go through to communicate in written

English. One process that affects language learning is language transfer, which is analyzed in the following section.

2.2.3 The Language Transfer Process

One of the factors that might affect syntactic complexity in L2 is the *language transfer* process. Crystal (2003) defines this concept as the influence of an individual first language on the second or third language he acquires. Sharwood Smith (1983) points out that two language systems or language varieties interact and affect either the linguistic performance, the linguistic development or both. This process is also known as L1 interference, linguistic interference or cross-linguistic influence. Some authors such as Debyser (1970) highlight the difference between transfer, as the positive exchange of linguistic knowledge from L1 to L2; and interference as the negative exchange of linguistic knowledge. Other authors as Odlin (2003) point out that terms such as *language transfer* and *cross-linguistic interference* can be interchangeable as they are the most common terms used in contemporary linguistic research; ergo, the term *language transfer* will be used throughout this thesis indistinctively. When talking about foreign language learning and second language acquisition, it is important to notice that individuals possess a previous linguistic system known as their mother tongue, which is used as a referent to understand the use and meaning of L2 sentences and which continues to play a very important role in the production and comprehension of simple and complex sentences.

According to Odlin (1989), linguistic transfer is the result of language mixing or the merging of linguistic characteristics of two or more languages during verbal communication.

When mixing occurs, so do borrowings (the process of absorbing words or expressions and sometimes sounds and grammar forms from a foreign language and their use in explaining terms) and code-switching (the use of more than a language or language variety in a conversation in the form of words, phrases or sentences when the individuals involved in the conversation use or know the languages or language variety). Odlin (1989) also mentions that long language contact brings with it pidgins and creoles. Some of the first studies of this phenomena identified transfer as the basis of pidgins and creoles; for instance, Schuchardt's studies (cited in Odlin 1989) of Spanish creole in the Philippines or the Portuguese creole in India. In these types of creole languages, Spanish and Portuguese form the structural basis to incorporate words from other languages in order to complete the process of creolization. However, transfer is not always the main feature of creoles and pidgins; Singler's statement (cited in Odlin 1989) explains that only few languages in oral contact show strong transfer processes. Further research carried out in the 70's and 80's show the importance of additional factors as the basis of pidgins and creoles, in which transfer remains a secondary factor.

More recent researchers such as Jarvis and Pavlenko (2008) present a taxonomy of the different types of transfers that have been researched. The first type they identified was the distinction between semantic transfer and conceptual transfer. **Semantic transfer** refers to a transfer that originates at the mind's stage that links words and concepts, words and words but that does not include any concept per se. Conceptual transfer, on the other hand, refers to the relationship between concept and objects with words (even though it includes a relationship with semantics). Jarvis and Pavlenko (2008) offer some examples to better understand the difference between both types of transfer. A Finnish speaker learning English would say:

(xxxviii) *He bit himself in the language*

This means that the person actually bit his tongue, as in Finnish there is only one word that includes both terms. The authors then explain that the transfer process occurs at the level of mapping in which the individuals have to make a decision about which term fits into the sentence more naturally, unrelated to the concept. The authors also provided an example to better understand the process of conceptual transfer; they state that if an English speaker learning Russian would need to ask for a paper cup, the word that he would use would be conceptually linked to cup since in his mind the object he needs belongs to that specific category. However, in Russian the concept of paper cup is more related to a glass rather than to a cup. Thus, the selection that the English speaker used would be wrong compared to that of Russian people.

The second type of transfer that Jarvis and Pavlenko (2008) propose relates to different types of transfer that exist in linguistics and the mental concepts that underlie these concepts. The authors also classify transfer into diverse categories that include phonology, orthography, lexicon, syntax, morphology, semantics, discourse, pragmatics and sociolinguistics. Transfer can be both negative and positive and it varies according to the degree of knowledge that the speakers have of the first language over the second.

Phonologically speaking, an example of negative transfer is the lack of distinction between the vowels /i/ and /I/ in English. Escudero and Boarsama (2004 cited in Jarvis and Pavlenko 2008) carried out a study of these vowels with Spanish speakers and concluded that the lack of distinction depends on the degree of influence of Spanish and the exposure to the variety of English the speakers go through. An example of positive phonological transfer is the

pronunciation of cognates since they have almost the same phonemes and word combination that facilitate their incorporation to the speech. Regarding orthography, Rafat (2010) mentions that orthography transfer is related to phonetics. His research has demonstrated that positive transfer occurs with words containing sounds that are the same in English and Spanish (for example <m> and <n>). Positive transfer can be both positive and negative when there are sounds that are partially the same in English and Spanish, (for example <d> - [d] word initially and <d>- [ð] intervocalically, <b> and <v> - [b] word initially, <s> and <z> - [s] word initially, and <h> - [O]) and negative transfer mostly occurs with sounds that are different in English and Spanish (<ll>- [j]).

An example of positive lexicon transfer is the use of cognates (words that have the same etymology in two or more languages) like *brother* in English and *Bruden* in German or *stella* in Italian and *estrella* in Spanish. An example of negative lexicon transfer; on the other hand, is the use of false cognates (words that are usually thought to be related to others but they are not actually) like the English word *advertisement* and the French *avertissement* (warning) or *parents* in English and *parientes* (relatives) in Spanish.

Syntactic transfer can be both positive and negative depending on the sentence structure; it depends upon the speakers' preferences over certain grammatical structures and occurs in language interpretation/comprehension and production. However, not all syntactic transfer can lead to errors; if a sentence structure corresponds in both languages, then it is possible to say that there could be a positive transfer when the speaker uses the first language sentence structure as the basis for his/her performance. Obviously, in negative syntactic transfer the sentence production is not the same in the source and the target language but the sentence structure of

the source language uses the string of words in the target language to produce sentences. For example, 'after come back the fire brigade'[2]. Another example of wrong syntactic transfer is the absence of subjects in sentences when the source language is Spanish or Italian since the subjects in these languages can be inferred by the tense and form of the verb

(xxxix) E.g. is raining a lot instead of it is raining a lot.

Some examples of positive morphology transfer from Spanish to English are the regular plural suffix (–s) *mesa-mesas* and *chair-chairs* while a negative example could be the overgeneralization of the rule for the irregular nouns in English: *child-childs* instead of *children* or *sheep-sheeps* instead of *sheep*.

Regarding semantic transfer from Spanish to English, the function of coordinate conjunctions can be considered as positive transfer since they express the same semantic meaning in both languages. However, the semantic function of prepositions is usually considered as negative transfer because their semantic function varies from language to language. Thus, if a speaker transfers from Spanish to English the semantic meaning of the preposition *en*, then there will be a mismatch with expressions that use the preposition *on* instead of *in*. Discourse transfer is usually understood as the way students organize and express their ideas based on idiosyncratic background from the first language to the language they are learning. Positive transfer occurs when the discourse in the first language matches the discourse characteristics of the target language; the polite requests in English and Spanish, for example. On the other hand, negative transfer occurs when the discourse characteristics of the source

[2] This utterance was taken from the European Science Foundation (ESF) corpus and produced by an adult Italian learner of English known as Andrea.

language do not correspond to the ones of the target language but still the learner uses discourse forms from the first language to express himself. For example, Chinese people's use of rhetoric arguments instead of the direct patters people use in English (Zhang, 2005).

Pragmatic transfer refers to the contribution that context has over the meaning of a language. Weizman (1993 cited in Bou Franch 1998) presents a specific example of positive pragmatic transfer of the use of nonconventional indirectness in requisite hints of students whose L1 was German and Danish that speak Hebrew and English as L2. The author states that these requests are very similar to the ones a native speaker would use; thus, it is possible to say the nonconventional indirectness requisite hints have been transferred from one language to the other. However, most of the pragmatic transfer is negative. Garcés (1995 cited in Bou Franch, 1998) gives an example of this negative transfer in this interaction between an English speaker and a Spanish learner of English:

A: Will you be coming to my party on Saturday?

B:Well

A: Well What?

In this example it is possible to see that the transfer process here is completely attached to the way Spanish people accept invitations and far from the way English speakers do. Sociolinguistic transfer varies according to the social variables of language use and the process of becoming socialized into a new speech community (Jarvis and Pavlenko, 2008). Examples of these views are gender and personhood. In these cases learning to be a man or a woman in another language can be influenced by the subjects' previous sociolinguistic and sociocultural

background. The specific use of certain words, the voice's pitch in which a sentence or word has to be pronounced, the words that have to be used and avoided.

Jarvis and Pavlenko (2008) also conclude that transfer can vary in the subsystems due to the fact that it is the individual who adapts it according to the cognitive level, the type of knowledge involved, the intention of the speaker/writer and the mode and channel of the language being used. However, these factors are influenced as well by the language universals, the typological distance between the mother and target languages, the individual's proficiency of both languages and the type and complexity of the task among others.

According to Lott (1983), linguistic transfer can be classified in four groups that affect all the systems and subsystems in language. The first group corresponds to the transfer of complete structures and it occurs when the individual does not know a phrase correspondence in L2, so he transfers it from L1 to L2; for example in Spanish the expression *poner atención* can be literally transferred into English as *put attention* without taking into consideration the appropriate form *pay attention*. The second group is about analogical length or the absence of a certain word meaning in L2 and its translation directly from L1; a clear example is the adaptation Spanish students of Spanish word *esquina* (corner) into English as *esquiny*. The third group is known as substitution and it occurs when the individual does not know the correct equivalent for a word or phrase in L2 and substitutes these terms for the ones that belong to his mother tongue;

(xxxix) when I went to the desert I saw a **zopilote** (vulture).

The fourth group, identified as interlanguage mistakes, is produced when in L2 there is a word with more than a meaning and in L1 the same word corresponds to a single meaning.

The sentence (xl) "*there are many pictures **in** the wall"* includes the preposition *in* which is, in this specific case, an interference example of the preposition *en* in Spanish.

Alonso (1997) divides transfer into two theoretical perceptions based on Behaviorism. In the first perspective, she states that Odlin's (1989) definition of transfer as the result of language mixing or the merging of linguistic characteristics of two or more language in verbal communication; Kellerman and Smith's (1986, cited in Gullberg & Bot, 2010) definition of cross-linguistic influence as "*the interplay between earlier and later acquired languages*" and Ellis's (1997) terms of interference and transfer as "*the influence that L1 exerts over the acquisition of an L2*", belongs to Behaviorism since the knowledge of the first language is considered to have an influence on the learning process of the second language. The second perspective proposed by Ellis (1994) does not totally agree with the fact that it is only the first language that influences the second languages but his research proved that also second language can transfer elements from second languages to third languages.

Alonso (1997) also mentions that the second perspective, in which transfer can be placed, is that of contrastive linguistics. Lado (1957) established that transfer and interference are deviations of the norms of both languages that occur in bilinguals' speech due to their functionality with two or linguistic systems as a result of the phenomenon of language in contact. Nevertheless, the contrastive linguistics did not take into consideration psychological and sociolinguistic factors as proved by the research carried out by Dulay et al. (1982). They found that the influence of L1 on L2 is minimal; in their studies, the researchers discovered that only 5% of the total mistakes a child generates come from interference and transfer, and 20% of the total mistakes adults make for the same reason. On the other hand, Selinker (1984)

mentions that the definition of transfer should include aspects such as class behavior, processes and constraints that deal with the use of a previous linguistic system, specifically native-language, and the interaction and input of the second language to be learned/acquired. In 1989, Odlin altered his definition of transfer adding that transfer is the result of similarities and differences between the target language and the language or languages that have been completely or partially acquired.

After analyzing the Behaviorism and Contrastive linguistics perspectives, Alonso (1997) classifies transfer into three main groups. Group one is known as the positive or negative transfer. Behaviorist psychology identifies a positive and a negative influence in language transfer. Positive transfer facilitates acquisition processes from L1 in L2. Contrary, negative transfer, instead of facilitating, produces mistakes in the acquisition process in L2. VanPatten and Williams (2006) express that negative transfer interferes with the acquisition of a new set of linguistic habits that do not belong to the target language. These authors also highlight the importance of the difference between the languages and the production of errors. Therefore, if there is a slight difference between language structures, then the production of errors would be minimal, if not absent; whereas, if the difference between both languages is greater, an elevated number of mistakes and a greater level of difficulty in the production of correct sentences would be expected.

The second group is known as the learning process versus the production process. Kohn (1986) considers the role of these two aspects in the transfer process, as the influence of L1 is based on processes. Thus, the final product is not the most important factor, since transfer can be seen as a production process as pointed out by Alonso (1997). From this perspective there

were two main branches to study the transfer process in L2: the production and the learning process. The first one took into consideration the production process and it was studied under the light of the contrastive analysis. The second one, the learning process, was analyzed based on the type of data each subject produced in order to determine the progress of each individual.

Alonso (1997) placed in third place the concept of transfer that Håkan Ringbom (1987) worked on. This author conceives transfer in terms of production and comprehension. The main particularity in this distinction of transfer is the role of the individual's perception. In the production of transfer the author makes another distinction regarding the similarities the languages the individual is using. The first subdivision is in the production of transfer, the individual does not set the knowledge of L1 and L2 in a common reference framework and thus the flow of information is unconscious. In the second subdivision, the individual actually does set the similarities between the languages. The similarities between the languages can be classified as lexical and borrowing transfer. Ringbom (1987) affirms that the borrowing transfer implies that the search for an individual item activates a word in another language, thus this is transferred unmodified or partially modified but does not exist in the target language; another option of transfer is that the transferred word is formally similar but semantically different from the L2-word. Lexical transfer occurs when the individual identifies similarities in both language systems and one lexical item is taken over and sometimes used as an equivalent; another possibility is to combine items from L1 and L2 into analogical phrases with the source language structure. Ro (1994) gives the following examples regarding English and Spanish: The Spanish sentence: (xli) "*No podía responder a Peter.*" is produced in English as (xlii) "*Not could answer to Peter.*"

Borrowing transfer and substratum transfer are the fourth category in which Alonso (1997) categorizes the transfer process. The latter refers to the influence the second language has on the first. The former refers to the influence the mother language has over the second. Alonso (1997) also points out that the borrowing transfer acts in a lexical level whereas the substratum appears in the pronunciation level. Odlin (1989) affirms that the substratum transfer is the most studied in the cross-linguistic research; the author also mentions that these types of transfer are similar in some aspects but in some they are different, specifically in social and linguistic factors.

So far, transfer has been defined as the influence a previous linguistic system has over a new one. However, Selinker (1972) coined a new concept: interlanguage. This term refers to an emerging linguistic system that does not belong to either L1 or L2. However, this system does have some features from the first language; it is also characterized by some overgeneralization from the rules of the first language in the target language. Schachter (cited in Harris, 1992) points out that some notions can fossilize at the ultimate attaint of second language learning due to the fact that some features from L1 are exported to L2. However, a study carried out by Hopkinson (2007) showed that it is possible to treat interlanguage as a stable system in which it is possible to individualize a number of fundamental differences between the two language systems to determine the sources of the errors.

Angelis and Selinker (cited in Cenoz et al., 2001) established two types of interlanguage system: lexical and morphological. They define lexical interlanguage as the use of words that do not belong to those of the target language; and morphological interlanguage as the production of interlanguage forms in which two parts of a word, one from the source language

and another from the target language, combine to form an approximated word in the target language. The authors highlight the fact that the study of interlanguage between only two linguistic systems is limited. They mention that interlanguage cannot occur without a minimum of three languages involved in the process since it is possible to have at least two systems interacting at the same moment to influence the production of the acquiring language system. So according to Angellis and Selinker, an individual has to have different languages to choose from and, once he has made his choice, the other languages are latent and could be used at any time during the production. Some studies reported by Cenoz et al. (2001) show that frequency is a key factor in the choice of the system that would influence the acquisition of a new one.

The classification that was used in order to develop this thesis was coined by Lott (1983), because the main objective was to analyze the syntactic complexity of structures and then determine the type of transfer process that the sentences might contain, rather than analyzing consciously the transfer processes. Lott's classification is concise and identifies the main elements that need to be taken into consideration in order to effectively analyze the processes that go from the source to the target languages and vice versa. Even though transfer is regarded as part of Behaviorism, one thesis claims that there might be an important transfer influence of L1 on L2 and vice versa, making transfer an essential element to be considered as there might be an immigration of words and complete structures from one language to the other; this would have a significant influence on the degree of syntactic complexity. For this reason, the variable related to language transfer is that language transfer might influence syntactic complexity in L1 and L2.

2.3 The Writing Process

The main purpose of this thesis is to analyze the syntactic complexity that is present in the writing tasks of senior students of the English Language major at Universidad de Quintana Roo. However, this thesis would be incomplete if there was not a section on the writing process and how syntactic elements are acquired.

Owen (2003) has widely researched language development and how the formal language is acquired, depurated and adequated through school to communicate appropriately in social contexts orally and written. In his book, Owen (2003) shows a pattern that most children follow from the age of 5 in order to fully develop a proper reading-writing process. On one hand, the author mentions that children of 5 or 6 have already acquired a basic structure of the phrase; however, some research has shown that less than the 50% of children in their first year of primary school could correctly produce all the pronouns, connectors among clauses and gerunds; and less than the 20% of these children can correctly produce conditional sentences and participles. Thus, Owen establishes that the first two linguistic elements that are developed are syntax and morphology. Considering that L2 develops in the same way as L1, according to Kim's research (1996, 1998, 2000), the development of writing in L2 should follow similar patterns to L1.

Morphologically speaking, school aged children refine some suffixes, but their main development is that of the acquisition of the main inflexion prefixes (in-, re-, dis-, ex-, etc.) and derivation suffixes (-er, -or, -ism, -able, -ify, -fy, etc.), according to Nagy, Diakidoy and Anderson (1993). Derivation suffixes are more complex than inflexion prefixes because they are more irregular and more than 80% of the words that contain derivation suffixes do not mean what the components intend (Nagy and Anderson, 1984; White et al., 1989). Even though these

suffixes are acquired through adolescence, they are necessary for the understanding of new words, according to Lewis and Windsor (1996). Derivation suffixes are acquired initially through oral practice, then perfected through reading, according to Carlisle (1987). This process is important for the future writing process as it encourages more sophisticated sentences in the future writing production of individuals at a higher level of schooling.

Two other important aspects to consider in the development of writing is the process of acquisition of the noun and verbal phrases. This process will subsequently lead to the development of writing. Regarding noun phrase acquisition, there are different studies that have proved that children tend to omit the subject in their first speech regardless of whether the language allows the omission, as in the case of Spanish, Italian or Catalan, or not, as in the case of English and French (Capdevila, 1996, Vila, 1999). However, Capdevila (1996) mentions that from a child's second year of age, the noun phrase starts evolving following the rule of presence/absence of the subject of the children's mother tongue. Contrastingly, other research based upon the use of pronouns has shown that children improve the frequency and accuracy of their use of pronouns as well as their classification as subject, object and possessive pronouns. As it is well known, all the pronouns have a deictic function; this means that a word is used to indicate a place, time or position and, in the case of the pronouns, a person. Furthermore, pronouns perform an anaphoric function, as they refer to elements that have been previously stated. Such elements can be variable and will depend upon the speaker and the recipient (Muñoz, 1986). The variability that this anaphoric function of the pronouns presents to speakers is proven to be a difficulty for most children and, for that reason, it is one of the last acquired elements of speech, yet essential in the construction of complex discourse as pointed out by García Soto (1996).

Verb phrases transmit most of the information in phrase: number (singular or plural), person (first, second or third), aspect (perfect or imperfect), mood (indicative or subjunctive) and tense (present, past or future). Furthermore, there are compound verbs, which include auxiliary and modal verbs, all of which involve specific sentence organization and structures (transitive, intransitive, active, passive and impersonal, for example). Owen (2003) mentions that human beings start to incorporate into their speech more complex tenses and moods such as the subjunctive, imperfect, impersonal and conditional during their time at school. Research in Spanish has shown that the present tense and the imperative mood are both present before school age; however, from the moment children start school, the present tense remains invariable whilst the imperative tends to be used less frequently. Compound sentences also appear during a child's education; the present perfect is more frequent in the third form of the singular, future tenses are very frequent in all the singular forms and the first person of the plural and the use of verbal periphrasis is common with *ir a* + infinitive (Fernández, 1994; Serrat, 1997 as cited in Owen 2003). It has also been pointed out that the development of the verb phrase is progressive and goes from simple tenses (present, and past as well as imperative and infinitive moods) to more complex tenses (present perfect and future tenses) including all the temporal connotations embedded in these types of sentence. Owen (2003) affirms that cognition development has a primary role in the evolution and maturity of the noun and verbal phrases.

Throughout school, children develop the ability to understand different types of sentences. Owen (2003) mentions that by the third year of primary school, children understand all types of comparative sentences, as they have already acquired the linguistic mechanisms that allow their comprehension; however, more difficult sentences such as the passive are not

yet understood at school age as their linguistic mechanisms are not fully developed. The author also points out that the comprehension of different sentences (simple and compound) does not depend completely upon the syntactic and morphologic development but also upon the role of the effects of prosody in childhood and adulthood. Zuckerman (2009) defines prosody as the rhythm, intonation and stress of the speech which could be affected by various factors, such as the emotional state of the speaker, the form of the utterance (whether it is a question, an exclamation or a command), and, of course, the message the tone of the statement conveys (irony, sarcasm, contrast, emphasis, etc.). These are a selection of the characteristics that prosody includes but, it also includes some elements of language that cannot be encoded by grammar or a specific choice of vocabulary. According to Gerken (1996), prosody appears "to help expert listeners and children that are acquiring language to fragment speech into prosodic units to make utterances understandable". It is also possible that "the rhythm of the sentence creates a basic schema in the short-term auditory memory that classify the elements in a sentence in order to understand them even if these elements are not in the appropriate order" (Nagel et al., 1996).

Craig et al. (1998) determined, through various studies, that sentence production increases during school age and adulthood through the addition of new vocabulary and subordinated sentences and clauses. Furthermore, other studies have proved that there is a close relationship between syntactic development and school grades (Gutiérrez-Clellen, 1998).

Another important aspect faced before human beings learn to write is the acquisition of complex sentences: coordinate and subordinate. As children grow and advance in their studies, the sentence repertoire increases. In Spanish, Owen (2003) mentions that coordinate sentences

with conjunction "*y*" are very common during the first years of school. Scott's research 1987 (cited in Owen 2003) has shown that between 50% and 80% of the sentences produced by children in the first year of school begin with "*y*". These percentages drop considerably as children mature. Scott also found that, by the age of 11 and 14, only 15% or 20% of the sentences begin with "*y*", and by the age of 12, children began to use conjunctions such as "*porque*", "*cuando*" and "*y para*". Even though some of the conjunctions may also function as coordinating conjunctions, they slowly evolve and adopt their subordinate function as children begin to understand the sentence's real meaning.

Scott (1987) found that the number of subordinate sentences increases to between 20% and 30% during school years and the use of relative pronouns becomes considerably more frequent. However, the most important finding is the increment in the use of multiple subordination which marks the difference between early and late speech. Owen (2003) mentions that semantics has one of the leading roles in the use and the interpretation of subordinate sentences. The author mentions that subordinate clauses that include inanimate objects are less likely to be misunderstood; however, if the independent and subordinated clauses include animate objects, there might be a degree of misunderstanding. When children are not able to fully understand the doer of the action, they reconstruct the sentence to the canonic form *subject-verb-object*. Owen (2003) also states that the understanding of a compound clause might depend upon the position of the subordinated clause (at the beginning, in the middle or in the end of the sentence) and whether some of the elements are shared between the independent and subordinate clause or not with the same syntactic function. Abrahamsen and Rigrodsky (1984) give some examples of simple- to complex-to-understand complex sentences:

a. The kid *who lives next door* gave me a present. This sentence presents a subordinate clause in the middle and the main subject is shared in both clauses; therefore, this is classified as a simple-to-understand utterance.

b. He gave me a present *that I didn't like*. In this example, the subordinate clause is located in the end of the sentence and the object (present) is shared as the object of both sentences. This type of sentence is considered slightly more difficult to understand than the previous one as the transformation is more complex.

c. He gave me the present *that is on the table*. The analysis of this sentence shows a final subordinate clause in which the object of the independent clause results to be the subject in the subordinate clause. This change expresses not only a transformation in the structure of the sentence itself but also at a syntactic level which makes this sentence more complex to understand.

d. The dog *that was chased after by the kid* is angry. This last example is considered the most complex-to-understand type of sentence for children at a school age. This complexity does not derive from the fact to understand the syntactic transformation that the subject of the independent clause has to become the object of the subordinate clause but from the position of the subordination in the middle of the independent clause. This insertion splits the independent clause in two so children have to understand the subordinate clause before completing the idea that the independent clause holds.

When children are able to understand a subordinate clause, they start to appear in their writing. As children start writing, according to Owen (2003), their oral and written speech are very similar. However, Gillam and Johnson (1992) have found that by the age of 12 and 13 the

oral and written speech separate and the syntax that children use to write is more complex than the one they use to speak. This process is gradual and more and more sophisticated structures are incorporated over time. However, Yamada (1992) has found evidence suggesting that between the ages of 9 and 10, most written speech is independent from oral speech, and that during adolescence the main aim of writing is to enable the writer to communicate effectively with his audience.

According to Kroll (1981), the writing process is divided into four phases: preparation, consolidation, differentiation and integration. The preparation phase is related to the acquisition of the physical aspect of writing: acquisition of the alphabet, combination and identification of letters and the development of writing through dictation and copy. The second phase, the consolidation, consists of the first appearance of independent writing, but remains linked to the oral production; in other words, the same structures and phrases that are used in the oral speech are rewritten in children's writing.

The phase of differentiation begins by the age of 10. In this phase the oral and written production separate and writing begin to acquire its final form and particular grammar. This phase tends to be long and can last up to the age of 18. From this age onwards, some writers begin the phase of integration. This phase is not applicable to all, only to the more experienced writers; it shows a very developed and integrated writing style that is now able to cope with different writing styles and that hides and presents appropriately the author's point of view and feelings. The integration phase does not take place as a progressive development, but instead as a fragmented development that requires certain qualifications and considerable consolidation periods before moving on.

According to Owen (2003), the last literary style to be developed is the expositive, as essays are to be developed using a highly organized logical structured as well as complex sentences. Perera (1986, cited in Owen 2003) has found evidence that between the age of 8 and 13 the number of complex sentences increases, especially sentences using the passive voice. Other studies performed by the same author, have found that the length of the clauses written varies according to age. The following table shows the variances:

Age	Length of the clause
8 years old	6.5 words
13 years old	7.7 words
17 years old	8.6 words
Adulthood	11.5 words

Table 6: Relation age-length of the clause

Owen (2003) also mentions that there is an increment in the number of subordinate sentences and a reduction in the production of coordinate sentences. Relative clauses double between the age of 7 and 17 and they continue increasing during adulthood. The author also states that there is an increment in the production of adverbial subordinated sentences especially with a temporal connotation. At a phrasal level, the subject can be modified by even four elements (more specifically with adjectives and adverbs) during adolescence. This includes continuous phrasal modification by the mood, aspect and tense.

In addition to information presented previously, it is important to highlight the importance of narrative texts in language acquisition research. Different research has been done regarding the relationship between language and narrative texts (Shokouhi et al. 2009, Miyahara 2010, Berman, R., Slobin, D. 1994, among others). Some of this research has focused on how narrative and expository texts influence the acquisition and increment of vocabulary in L1 and in the acquisition of any other foreign language (Shokouhi et al. 2009). The authors' analysis of narrative texts points out that this type of text includes agents, actions and event sequences occurring in sequence and linked together by causes, reasons, motives, goals and plans.

Narrative texts aim to build bridges between inference and text comprehension in order to process the information.

Miyahara (2010) affirms that narrative texts are an effective way to learn not only language but also social behavior whilst Berman and Slobin's book (1994) discusses how some linguistic forms, such as simultaneity, retrospection, perspective-taking in events and textual connectivity are used in narrative functions. In regards to linguistics, language analysis includes tense-aspect marking, passive and middle voice, locative and directional predications, connectivity markers, null subjects, and relative clause constructions in extended discourse.

Two elements were considered in the development of this thesis. First, the subordinate sentences each subject produced that are, at the same time, related to the degree of syntactic complexity mentioned in the previous sections. Secondly, the analysis of the relation age-length of the clause is crucial as a reference of how standard syntactic complexity is presented in individual that have a regular writing production.

The writing process itself includes a high degree of syntactic complexity in the sentence production of every subject. The writing production organizes the writer's thoughts into sentences that express the complexity of their ideas in a coherent and fluent manner.

CHAPTER THREE

METHOD

This is a descriptive study and its design is quasi-experimental on a quantitative approach since the attempt is to find differences and similarities between the groups used in the development of this research in order to infer causality. Statistically there is very little control in order to analyze causal relations. Selinger, and Shohamy (1989) point out that descriptive language case studies can provide effective insight into the phenomenon as they analyze linguistically the changes of a certain language aspect and a quantitative analysis in the form of frequency and occurrence of the same linguistic phenomenon. On the other hand, a quasi-experimental design is mostly used when it is not possible to use random assignments to obtain data (Gribbons and Herman 1997) to use in research based on the quantitative approach. Hernández et al. (2006) mention that the quantitative approach is used to collect numeric data and then analyzed statistically to establish patterns and to prove hypotheses. In the following sections the variables, subjects, materials, procedures, and procedures are discussed in detail.

3.1 Subjects

The subjects that formed part of the quasi experimental group for this study were students of the eighth, ninth, and tenth semesters of the English Language Major at Universidad de Quintana Roo. In the development of this thesis, the total number of subjects was 135 divided into experimental and reference groups.

With regards of the experimental group in English, the total number of participants was 75; they were chosen because at this level (comparable to a post-intermediate or advanced level) they are supposed to have the linguistic knowledge required to complete the assigned task. It

was also necessary to have two reference groups; one of native English speakers and another of native Spanish speakers which helped establish the relation between L1 and L2 and vice versa.

The Spanish reference group was formed by subjects from different majors at the Universidad de Quintana Roo enrolled in an Introductory Italian class and that had a minimal knowledge of English; this is because it was important that the data collected from Spanish was as unaltered as possible by any other language influence. The English speaking reference group was formed by English speaking professionals working at Universidad de Quinta Roo and other jobs where a professional degree was needed in order to obtain data similar to the degree the students in the experimental group. Similarly, as the Spanish speaking reference group, it was necessary that the English speaking subjects that formed part of this reference groups were not influenced by Spanish or any other language in order to get unaltered data. The Spanish reference group was made up of 50 individuals whilst the English reference group was made up of 10.

Once the error free T units were extracted from the samples, the 2365 remaining sentences made up the corpus of the study.

3.2 Materials and Instruments

The materials required for data collection in this study are adapted from the method proposed by Charaudeau (1992). Taking the previous studies into consideration, the participants were asked to develop a narrative task using the directed elicitation of data through a mute video, using this method, a video clip showing a story was necessary. *Lambert the Sheepish*

Lion by Walt Disney was chosen because it was almost 9-minutes long and clearly presented a complete story (exposition, development, crisis and resolution). Furthermore, by using a cartoon the possibility of lip-reading was avoided. As the original audio was in English, it was indispensable to mute it in order to avoid complex sentences, vocabulary and phrases from the original appear in the final task for the experimental group and the English speaking reference group. The task consisted of developing a narrative piece of writing in which the subjects of the experimental and reference groups wrote what they saw in the video.

3.3 Procedures

There were two different procedures for the data collection; one was for the experimental group and the other for both reference groups. The experimental group had to write two narrative pieces, one in Spanish and one in English; the reference groups, on the other hand, had to write a single narrative piece in their L1.

In all the sessions and for all the experimental and reference groups, students were not allowed to take notes nor leave the classroom. They all saw the video once and had 45 minutes to narrate in no less than 1 000 words what they saw in the video clip. In the case of the experimental group, a first projection was required, in which the subjects had to write their narrations in English. After a period of two months, a second projection was shown to these same students for them to write in Spanish. Since the writing process requires concentration, additional materials such as dictionaries were not allowed in order to control information sources which might affect data. In the case of a subject requiring help, the researcher was the source of vocabulary questions only.

The instrument was administered in the classroom to obtain the data of the experimental groups and the Spanish reference group. It was necessary to ask for the permission of each professor every time the collection of data took place (for the reference groups only). Each professor introduced the researcher to the class and then explained the task carefully. If there were any questions about the task, they were answered right after the presentation. For the second projection time, the reference group already knew the procedure so they proceeded to complete the task. It was only necessary to point out that the writing would be in Spanish. The use of a projector and a laptop was necessary. In order to obtain data from the English reference group formed by professionals from the university and other companies, it was necessary to contact them by mail or via their assistants in order to arrange an appointment. The task was then explained to them and the video played on their computers.

3.4 Data Analysis

The collected data passed through three different phases. In the first phase, the narrative pieces of writing were processed in order to determine their syntactic complexity; this is to say that each text was sectioned into coordinate sentences and sentences containing compound clauses. Once this classification was done, the subordinated sentences were classified according to the previous criteria implemented in other syntactic complexity studies (Muñoz & Véliz 1983; Véliz, Muñoz & Echeverría 1985; Véliz 1988) which was basically the classification of the subordinate sentences into the different syntactic categories (nominal, adjectival and adverbial). In the cases where the sentences presented ellipses or substitutions, the function of each of the sentences was determined and classified into the three syntactic categories used in the research: nominal, adjectival or adverbial. Once the sentences were classified into the

correct category, it was necessary to determine the level of complexity of each sentence. In other words, if the subordinate clause included a second or third level of subordination.

The second phase of the analysis of the data consisted in classifying the sentences that presented subordinations. The sentences were classified by the type of subordination (nominal, adjectival or adverbial) and the degree of the subordination (first, second or third degrees). After having completed the sets, two codifiers verified the classification, highlighted any possible misplacement and finally validated the classification. They then proceeded to determine the numeric values of the sentences that were already sorted using the classification that was proposed by Checa (2006), which are:

- Unit terminal or T-unit (UT).
- Clause (CL).
- Length of the unit terminal (LUT).
- Subordinate index (SI).
- Length of the clause (LCT).

The third phase of the analysis consisted of organizing the groups and values to obtain statistical data and run the most suitable statistical analysis. In the first phase, it was necessary to determine whether or not there was a significant variance and means among the reference and experimental groups in English and Spanish. Thus, both the reference and experimental groups were assembled with their respective values under each of the elements of Checa's classification. As part of the second range, a second statistical analysis was performed in order

to define the mean and variance the experimental group had in their sentence production in both languages, using the analysis proposed by Checa as a base.

The fourth step in the analysis process was to make a two-sample t test analysis of each of the groups (reference-experimental and experimental-experimental). This type of test is used to test the difference between two samples or population means in order to determine whether the means and variances differ or not. Thus the rates of the Unit terminal (UT), Length of the unit terminal (LUT) and the Length of the clause (LCT) were tested as they contained valid data to perform the test. The Clause (CL) and Subordinate Index (SI) resulted to be equal to 1, for that reason, they were not considered to be part of the test.

Finally, the last part of the analysis consisted of the identification and classification of the transfer processes present in the writing tasks of the reference groups. In order to make an appropriate analysis, two codifiers worked simultaneously but independently on the organization of the transfer sentences based on Lott's classification of transfer processes:

- Transfer of complete structures.
- Analogical length.
- Substitution.
- Interlanguage transfer.

Once the codifiers ended their tasks, they sent the result to the researcher who compared, studied and re-classified the elements in the three tables to produce a final version of the table. This table shows the type and range of influence of the transfer process found in the texts.

CHAPTER FOUR

FINDINGS

In this section, an analysis of the results obtained is presented. The findings are organized considering the hypotheses initially stated.

4.1 Syntactic Complexity

The analysis of the syntactic complexity of the sentences in English and Spanish was based on the works developed by Checa (2006) in which the main variables to analyze were: the T-unit, the length of the T-unit, the subordinate index and the length of the clause. All these variables were statistically tested with the experimental and reference groups in the writing production of both English and Spanish. Another important objective of this thesis was to determine whether there was any trace of transfer in the syntactic complexity process from the source to the target language. In order to do so, it was necessary to analyze the results of the experimental group in Spanish and English and compare them. To begin with, sentences were classified into error-free sentences, sentences that were grammatically correct and had defined clauses and connectors; sentences with grammar errors (concordance, tense or spelling) that had defined clauses and connectors, and sentences with grammar errors that did not present defined clauses or connectors. Checa (2006) points out that error-free sentences and sentences that held some type of grammar mistake should be considered part of the 'any type of statistical/linguistic analysis' as the subordinate clauses are clearly defined. Thus, the sentences that presented spelling, vocabulary or concordance mistakes were included as part of the statistical analysis of this thesis. Sentences that included serious syntactic, semantic problems or whose connectors were not clearly defined were discarded form the analysis.

The subordinate level refers, in this specific case, to the number of embedded relative clauses within a subordinate clause. The larger the number of relative clauses, the more complex the sentence becomes. Next, a more detailed analysis of each group is presented. The results are presented in a words-per-clause base and all the results refer to this measurement.

Table 7 demonstrates the descriptive statistics of the English Experimental group:

Group	Variable	Minimum	Maximum	Mean	Std. Deviation
English Reference Group	UT	2	15	2.30	.038
	CL: Main	2	24	5.72	.078
	CL: Sub1	2	21	6.29	.408
	CL: Sub2	0	13	1.14	.578
	CL: Sub3	0	8	.17	.079
	LUT	2.0	17.0	6.084	.0589
	LCT	2.0	16.5	6.057	.9652
	NOMINAL	0	3	.33	.529
	ADJECTIVE	0	1	.20	.398
	ADVERBIAL	0	1	1	.54
N= 128					

Table 7 : Results of the English Experimental Group

As shown, 75 students produced a total of 128 complex sentences. The mean of UT is low, only 2.30, with a range from two to five units per UT, which means that subordinated sentences are short and the number of transformations within the UT is limited. Main Clauses ranged almost 6 words per clause which limits the possible number of transformation that the

sentence might have. However, the subordinate clauses of first level are longer than the main clauses (6.29 words per clause) but they do not often contain any embedded subordination (degrees 2 and 3). Compared with the data in the review of the literature, the results of this experiment show that, in general, the writing complexity of the whole sample is that of a primary school child, considering that 8-year-olds can produce 6.5 words per clause, according to Owen (2003).

It should be taken into consideration that there is a considerable range in the number of subordinate clauses each subject produced. Some participants produced up to 21 words per subordinate clause whilst others were only able to produce. Regarding the subordination of the second degree, the production ranged from 0 to 13 words per clause. There are subjects that present a higher level of language transformations but there are others who are still in a basic level of written language transformations. The third degree of subordination ranges from 0 to 8 words per clause, suggesting that the sophistication in the use of language is still low. Another important result is the type of sentence each subject produced. From the variety of subordinate sentences (nominal, adjectival and adverbial), the adverbial subordination had the most incidences in the written production showing that the syntactic level in the experimental group is basic, as adverbial subordination is the most common type of subordination presented in the first stages of syntactic maturity.

In order to analyze the similarities and differences with regards to syntactic complexity in the experimental group, it was necessary to compare their English and Spanish writing production. The same 75 students that were part of the experimental group in English produced a text in Spanish whose results are presented in the table below.

Group	Variable	Minimum	Maximum	Mean	Std. Deviation
Spanish Experimental Group	UT	2	4	2.39	.623
	CL: Main	1	23	5.67	.005
	CL: Sub1	1	20	5.52	.127
	CL: Sub2	0	13	1.86	.063
	CL: Sub3	0	16	.43	.735
	LUT	2.0	18.5	5.674	.0088
	LCT	2.0	18.5	5.674	.0088
	NOMINAL	0	2	.35	.520
	ADJECTIVE	0	2	.36	.523
	ADVERBIAL	0	3	.63	.513
N= 284					

Table 8 Results of the Spanish Experimental Group

The results are similar to the previous group in the nominal and adverbial subordination as they both had the same range; however, the adverbial production was slightly more consistent in English than in Spanish. Even though adverbial subordination is more consistent than adjectival and nominal subordination, each class of subordination remains basic and similar to the results obtained in the analysis of the English experimental group. The ranges, however, are broader with this group as the clauses of second degree in Spanish almost doubled those in English. These results show that Spanish continues to be the language that students feel more comfortable writing and attempting complex constructions in. Yet, the number of transformations is not enough to conclude that the students have a higher degree of syntactic complexity in Spanish. The T-unit, the main clause, the subordination of second and third

degree variables are very similar in the English and Spanish results. The results also show that the subordination of third degree was almost absent in the writing production in both English and Spanish, which confirms the fact that students write with the syntactic complexity of a primary school pupil.

In order to compare and contrast the results of the experimental group in English and Spanish, a T-test was conducted. The results show that the most significant variables present in the English productions between the groups were the main clause (0.5), the subordination of first degree (CL: Sub 1) (0.77), the length of T-unit (LUT) (0.41) and the length of clause (LCT) (0.38). These results show that students have a better performance in L2 in the written language; this is to say, that the subjects of the Experimental group produce, in general, longer sentences in English than in Spanish. However, the most important result in this comparison is the fact that subordination of first degree is more prominent in English than in Spanish. This means that students tend to produce more transformations in L2 than in L1. On the other hand, the variables that are more significant in the production of Spanish are the T-unit (UT) (0.9) and the subordination of second degree (CL: Sub 2) (0.72). These results mean that even though there is a more formal education of writing in L2, as shown for the major number of variables in the production of English, the subjects incorporate more elements into their native language to make longer T-units. This might be because vocabulary is more consolidated in L1 rather than in L2 so its extension and variety is more evident in L1. Furthermore, there is a tendency to incorporate a higher number of language transformations, which result in a higher number of subordinations in the second degree. Albeit the number of elements that form the second subordination are considerably higher in L1 than in L2, and might be the result of a higher level of confidence in the students to make transformations in L1; the findings also show that the

Length of the Unit Terminal (LUT) and the Length of the Clause (LCT) are more developed in L2. This comparison has proved that the subjects develop a more defined syntactic writing structure in L2 by organizing the written speech into more defined main and subordinate clauses. On the other hand, it has been found that the subjects take more risks when writing in L1 as they produced more second degree subordinations in Spanish and produced slightly longer unit terminals in L1 than in L2.

The second part of the analysis of the syntactic complexity performance consisted of a comparison of the main and secondary variables from the experimental group's results with those of the corresponding reference groups in English and Spanish, in order to determine the similarities and differences between them. The following table presents the descriptive statistics for the Spanish reference group formed by 50 freshmen from different majors that have little input in English.

Group	Variable	Minimum	Maximum	Mean	Std. Deviation
Spanish Reference Group	UT	2	5	2.18	.442
	CL: Main	1	17	5.88	.011
	CL: Sub1	1	16	6.75	.125
	CL: Sub2	0	11	1.05	.645
	CL: Sub3	0	0	.00	.000
	LUT	2.5	13.0	6.373	.1004
	LCT	2.5	13.0	6.373	.1004
	NOMINAL	0	1	.30	.462
	ADJECTIVE	0	1	.30	.462
	ADVERBIAL	1	0	1	.54
N= 128					

Table 9: Results of the Spanish Reference Group

The writing performance of the reference group in Spanish demonstrates how writing is structured when students start their tertiary education. The overview of the reference group tells us that subjects present long main clauses and long subordination clauses. Additionally, subordination of first degree (CL Sub 1) is very predominant in the writing production of the reference group; however, the degree of the syntactic complexity does not overcome the children's level (6.5 words per T-Unit) described by Owen (2003). One of the aims of this thesis was to determine not only the degree of syntactic complexity in L2. It also aimed to investigate whether the L2 formation has affected the writing process in L1 or not. For that reason, the results of both groups, the experimental and reference groups, were compared in order to attain the differences and similarities of the analysis of the performance in Spanish.

The analysis of the data shows that there are some differences worthy of analysis. The T-unit resulted almost invariable from the experimental (2.3) to the reference group (2.1); thus, the subjects produced nearly the same number of words per T-unit in both groups, although the reference group was formed by individuals recently graduated from high school and the experimental group was formed by individuals graduating from tertiary education. Interestingly, the length of the T-unit (LUT) and the length of the clause (LCT) highlighted a variation between the experimental and reference group in Spanish. Subjects from the reference group produced more words per T-unit and clause (6.3 words in each case) than the individuals in the experimental group (5.6 words per clause in both variables). The difference is little (0.6) and this may be because the experimental group has more training in expressing synthetized ideas after having completed their college formation. Another reason might be the fact that the reference group uses more language variation such as adjectives, adverbs and other linguistic forms to enrich their writing compositions; in either case, the difference does not directly affect the degree of syntactic complexity, which remains almost invariable.

There was also a notable difference in secondary variables from group to group. The main clause (CL Main) remained in the same range (5.6 words per clause in the experimental group and 5.8 in the reference). The difference (0.2) shows that both groups produce the same type and number of elements per clause with almost the same number of words and; consequently, nearly the same degree of syntactic complexity. However, the subordination of first degree (CL Sub 1) was slightly higher in the reference group (6.7) than in the experimental group (5.6). This difference is the most significant of all the sentences that have been compared in English and Spanish. The difference (1.08) reflects the tendency of the individuals in the reference group to express their ideas in only one dependent clause enriching it with a larger

number of words. On the other hand, the experimental group tended to produce longer subordination of second degree (CL Sub 2) ranging in 1.86 words per clause compared with the 1.05 words per second-degree subordination of the reference group. This finding probably reflects the training that the subjects from the experimental group have been exposed to in organizing writing compositions more consciously; this finding demonstrates that subjects from the experimental group master this ability that helps them express themselves in a more complex manner. Finally, the subordination of third degree (CL Sub 3) is completely absent in both the experimental and reference group in Spanish. This suggests that their language ability has not yet reached the level of sophistication required in order to incorporate this type of subordination in written speech.

After having compared the results of the reference and experimental group in Spanish, it was possible to continue with the comparison of the results obtained from the same experimental group in English with those of the reference group in English. The table below presents the data that the English reference group generated:

Group	Variable	Minimum	Maximum	Mean	Std. Deviation
English Reference Group	UT	2	4	2.30	.513
	CL: Main	1	10	3.86	.840
	CL: Sub1	1	12	4.97	.238
	CL: Sub2	0	11	1.52	.710
	CL: Sub3	0	7	.13	.811
	LUT	1.5	8.0	4.581	.3575
	LCT	.0	8.0	4.580	.3726
	NOMINAL	0	2	.38	.508
	ADJECTIVE	0	1	.30	.459
	ADVERBIAL	1	0	1	.49
N= 376					

Table 10: Results of the English Reference Group

A first glance at the results of the reference group shows an abundance of short statements as proved by the limited number of words per UT (2.30); hence, the length of both the Unit terminal (LUT) and (LCT) is quite limited 4.5 in each case. Interestingly, the reference group included a very limited number of words per main clause (CL Main) only 3.86. On the contrary, the first degree of subordination (CL Sub1) registered 4.97 words per clause making this variable the most predominant in the writing production of the English reference group

compared with the subordination of second degree (CL Sub 2) and third degree (CL Sub 3) that registered 1.52 and 0.13 words per clause respectively. The results show that nominal sentences were more frequently used than adjectival and adverbial sentences. This finding is particularly important as it demonstrates the tendency of subordination that it is more likely to appear in narrative-descriptive texts.

By comparing the results of both the experimental and reference group in English, it is deducible that the range of the Unit terminal (UT) in both groups was the same (2.3). This finding demonstrates that both groups behave the same way in English regarding the structuration of Unit terminals, in terms of the mental process used for selecting the structures to be used in the formation of subordination. Even though there is a similarity in the cognitive process of production of unit terminals, the number of words that form each of the variables was considerably higher in the experimental group than in the reference group.

There was an abundance of the main clause (CL Main) in the experimental group, 5.7 words per sentence, compared with the results of the reference group: 3.8 words per sentence. In regards to the subordination of first degree (CL Sub 1), the English experimental group produced 6.2 words per subordination, on average, which contrasts the 4.97 words per clause of the reference group. Similar results were obtained in the length of the Unit terminal (LUT) and the length of the clause (LCL). The LUT in the experimental group's production equaled 6.0 words per UT while the LUT of the reference group was of 4.5 words per UT. The LCT in the experimental group equaled 6.0 words per clause, whilst the LCT of the reference group was only 4.5 words per clause.

Subordination of second degree (CL Sub 2) was slightly higher in production in the reference group, 1.5 words per subordination, compared with the 1.1 words per sentence that the experimental group presented. Subordination of third degree (CL Sub 3) was completely absent in the writing production of the experimental group whereas there was some evidence in the reference group (0.13). In reference to the type of subordination, both the experimental and the reference group had almost the same range of nominal and adverbial sentences. However, the reference group produced little more adjectival sentences than the experimental. The results of the comparison between the experimental and reference group in English demonstrated that there are fewer differences between them than those between the experimental and reference group in Spanish. This fact suggests that the writing production in English is more consistent in form in written speech. The differences that exist between the experimental and the reference group in Spanish suggest that the experimental group presents a more limited number of transformations in the written form and it differs from the reference group in various variables (LUT, LCT, CL Main, CL Sub1), which suggests that both groups behave differently.

A general overview of the comparisons among the experimental and reference groups suggest that the similarities that exist between the groups in English proves the preponderance in the use of L2 writing models even in the written production in Spanish. Presumably, the result reflected the fact that students manifest a strong influence of L2 structures in L1 writing. This is to say that the structure of the sentences followed a pattern strongly reflected in their writing production. The use of short sentences in the form of SVO was highly visible throughout the writing production. Furthermore, the presence of subjects in most of the sentences in the writing production indicate a strong influence of English. The writing of the Spanish reference group; on the other hand, presents high elision of the subject and long sentences joint by

copulative conjunctions. Tables 7 and 8 show a small range of difference between the writing production in English and Spanish. Yet, the sentence production in English of the experimental group tends to produce more words per subordination in most of the variables except for the subordination of second degree (CL Sub2), which is more preponderant in Spanish. Therefore, these findings suggest that the experimental group is influenced by English, which is transferred into the L1 writing process perhaps for a more formal and continuous language formation in the English Language Major. Furthermore, the pattern of transfer of structures suggests a lesser use of complex sentences in L1; in consequence, the L2 sentence production developed in EFL fulfills the gaps maintaining the original structure in L2 with words from the source language. It is likely that the lack of writing practice in L1 and the organization of complex ideas in L2 have marked the written discourse of the experimental group in Spanish. Nonetheless, the overall degree of syntactic complexity does not exceed, in any of the groups, the syntactic maturity level of an 8-year-old infant according to what Owen (2003) proposes, as none of the groups produced more than 6.5 words per clause. The author established that a proficient adult produces approximately 11.5 words per clause.

The findings of this thesis have demonstrated that there is an influence of L2 over the writing process in L1; therefore, the transfer process occupies a significant role in the development of syntactic complexity in second language learning. In the following section the results of the analysis of the transfer process is presented.

4.1.2 Transfer Processes

The analysis of the transfer processes was based on Lott's works (1983). The author determines four different groups in which transfer can be classified. As this process only regards subjects using two languages, the only sentences that were classified in this category were the ones produced by the experimental group in both English and Spanish. Additionally, it was necessary to analyze whether positive or negative transfer was present in the sentences or not, and to determine which sentences did not present traces of transfer processes in their structure. As stated previously, two codifiers collaborated with the classification of the sentences into the different types of transfer and in the transfer cases independently. The criteria used in order to classify the sentences was that of Lott (1983), used in his analysis of sentences. In his classification, the author divides the transfer into four categories:

a) Transfer of complete structures
b) Analogical length
c) Substitution transfer
d) Interlanguage

As mentioned previously, this study was not based upon the study of transfer itself but the possible effect that it might have over syntactic complexity. For this purpose, it was necessary to focus on a classification that included the essential categories of transfer. Additionally, it was necessary to provide a classification that allowed the identification of positive or negative transfer.

After having completed the classification of the 2365 sentences that presented a clear subordination processes, the researcher classified 420 sentences from the experimental group in English and Spanish that presented clear traces of transfer processes. From the total, 305

sentences formed part of the English data; in which there were some traces from Spanish into English whilst the other 115 sentences presented traces of English in the Spanish production, English into Spanish. After completing the categorization, the whole set of sentences was sent to the two independent codifiers who analyzed and approved the final categorization that served in the final analysis of the transfer process.

Data from the English reference group show that 108 sentences out of 305 presented transfer of complete sentences (group 1).

E.g. *Vivian en el campo* *lived in the camp*.

In this example, the subject transferred a complete Spanish sentence into English. Even though it is a remarkably basic structure, the sentence presents characteristics that classify it as part of the group of transfer of complete structures. First, the sentence presents omission of subject, a characteristic of Spanish, a pro-drop language. Second, the word *camp* is the word that came into the writer's head first, instead of the more appropriate terms *field* or *countryside*. There are significant differences between the expression "*lived in the camp"* and the appropriate English form *they lived in the countryside*. Nearly 35% of the subjects presented this transfer type.

Substitution transfer (group 3) was the second most common transference. Almost 25% of the total of subjects presented 77 sentences in which they did not know the correct equivalent form of words and phrases in L2. An example of this type of transfer is evident in the sentence:

Actually, they [the sheep] weren't playing with *him*.

In this example, the subject assumes that the word *actualmente* in Spanish is a cognate of the English word *actually* when it is not. The subject's mental process provides a complete new meaning to a word that in English does not mean *current* or *at the moment*. The substitution of terms demonstrates that L2 subjects are not completely proficient.

Analogical transfer was the third most common type of transfer that appeared in the analysis of the experimental group; 20% of the population produces this type of transfer, with 61 sentences out of 305. Among the more recurrent examples in the English production, I uncovered the following:

So [the stork] tried to carry *the baby lion* [cub] from *his* mother.

In this example, analogical transfer (group 2) is shown when he calls the cub *baby lion*. The subject's knowledge of the second language does not include the term cub in the vocabulary background, so he replaces such term with the locution *baby lion* which is closest in meaning in L1. Furthermore, the subject provides, in this specific sentence, the cub with a masculine gender that the subject then agrees using *his*. This example demonstrates that in some subjects the process of separating L1 and L2 is not fully achieved and that transfer processes are present even in basic structures, when the subjects have almost finished their L2 courses.

Finally, the interlanguage transfer (fourth group) included 59 utterances that corresponded to 19% of the subjects. Among the examples that appeared in this type of transfer we find the following example:

The stork put the baby lion *in* the grass next to *his* mother.

The interlanguage transfer present in the subject's utterances takes the meaning of the preposition *en* in Spanish and transfers it into Spanish without taking into consideration the different use of the same preposition in English. Furthermore, and as mentioned before, the idea of gender in animals and objects, a characteristic of Spanish, is transferred as well from L1 to L2. The absence of gender in animals and objects, a characteristic of English and other languages, is not then fully achieved in L2; therefore, the subject elaborates the sentence using English words with Spanish structure and grammar rules. The fact that interlanguage refers specifically to the attempts non-native speakers (in the case of this thesis, the experimental group) for producing native-like utterances that differ significantly from the ones a native speaker would produce mark the most important distinction between the interlanguage transfer and other types of transfer.

The analysis of Spanish influence in English writing shows that some subjects have not become fully proficient in the source language; this fact leads us to the conclusion that the English production was influenced by Spanish rules such as the gender agreement in animals and the addition of the plural *–s* in irregular plurals in English (*sheeps* instead of *sheep*).

With regard to the data from the Spanish reference group, it was found that the writing production of almost 30% of the subjects (115 sentences out of 420 sentences) presented some evidence of transfer process from English into Spanish. Interestingly, all the sentences presented traces of transfer of complete structures (group 1) according to Lott's classification (1983).

Some examples of this relationship are the over use of event sequence words that some subjects used in the development of events in the Spanish composition such as the use of

primero and *después* to link events as in English (*first, then*). The analysis showed that the Spanish experimental group uses other expressions to sequence events such as *entonces, luego, de pronto* all of which are absent in the Spanish productions of the reference group. With this finding, it was possible to determine that the transfer of complete structures has special significance in the subjects' writing production; what it is more, it is not limited to the transfer of simple words but also to the organization of the whole text. This unexpected finding relates to Graff's results (2010) that suggest that students apply rhetorical analysis previously acquired independently. Apparently, English is the language from which subjects receive more input and assessment. Therefore, it might be possible to argue that the subjects from the experimental group of this thesis have acquired rhetorical analysis of the text in L2 that have then applied in the production of texts in L1. Consequently, L1 writing is weak and is substituted by L2 structures which subjects from the experimental group feel more comfortable using.

After a statistical analysis of the frequency of the transfer in the groups, it was found that the most recurrent type of transfer was group 1 (mean = 75) followed by group 3 (mean = 65) and group 2 (mean =46) and finally group 4 (mean =39) with a total of 420 sentences. The findings show that more than 25% of the subjects presented traces of transfer process in their writing production. Additionally, these results suggest that an important transfer process occurs from Spanish to English, but not from English to Spanish. Negative transfer is more common from Spanish to English whilst positive transfer is more common from English to Spanish.

The negative transfer of a complete structure in the samples was fundamentally that of prepositional phrases and phrasal verbs, which are commonly mistaken by L2 learners as the equivalents of the terms in their mother tongue. In the case of the analogical length, sentences

did not present a special feature that distinguished them as the previous group; moreover, it might be possible to assume that this type of transfer depends completely upon the subject; this is that it is not possible to determine which words would be expected to form part of this group. Substitution transfer was the least common type of transfer amongst the subjects in the experimental group, there were just a few words that were transformed sharing the root of Spanish and the characteristics of the grammar categories of English. Interlanguage transfer or group 4 was the second less common transfer type in the samples taken, and it was limited, in the case of this thesis was limited to the use of prepositions and irregular plural nouns.

The most common negative transfer examples found in the writing task were:

1. Missing subjects: This phenomenon is typical in Romance languages, which are pro-drop languages. E.g. "*the litte lion didn't feel good because was different from the other little animals."*

2. Overgeneralization of plural formation rules: In Spanish the most common way to form plural nouns is by adding the suffix *–s* or *–es*. For that reason, when EFL were producing the writing task they did not pay attention and overgeneralized the rules for forming plurals. E.g. "*the sheeps were sleeping when the stork arrived."*

3. Adverb position: Syntactic structure in Spanish can be flexible regarding the position of some adverbs that can be placed at the beginning of a sentence of after some other adverbs or in the end of the sentence. In the production of some English sentences, subjects tended to follow this pattern. E.g. "*...the lion behaved enough cowardly."*

4. Anaphora: The use of pronouns to refer to different elements in previous sentences (anaphora) is a common process in both English and Spanish. However, it was found that subjects did not stated clearly the reference and the anaphora repeated constantly making the discourse difficult to understand. E.g. "*they just broke his heart by the way they acted."*

5. Spanish terms into English: One of the speech characteristics of Mexican Spanish from the Yucatan Peninsula is the tendency of naming all kind of little mammals "babies". This means that for example the term for "cub" in the Yucatan Peninsula would be "baby lion". Subjects missing the appropriate terms for "cub" and "lamb" tended to produce sentences including expressions like "baby lion" or "baby sheep". E. g. "*all the other sheep babies gang up on him"*.

6. Tense mix-up: Another characteristic of transfer from Spanish into English was the use of wrong past tenses to describe past events. Subject did not use compound tenses to describe past events. E.g. "*he could have made them suffer for what they did to him."*

7. False cognates: One of the common negative transfer examples found in the experimental writing task was the presence of false cognates that changed completely the sense of the sentences they were part of. E.g. "*he felt so uncomfortable because his family threat him so differently.*"

Utterances that presented traces of positive transfer were rare except for those that shared the SVO formation between Spanish and English as well as the use of the relative pronoun *that*; however, the use of the relative pronoun *that* was more common in use than the relative pronoun *who* and *which*, this is probably because the Spanish form (*que)* takes priority

over the other forms that exist in English. The positive transfer process in the sentences was determined by comparing the sentences that had the exact same word order and corresponded in both English and Spanish. The most common examples of positive transfer are the transfer of verbs and words from Latin origin some of the examples presented in the writing tasks were: *obvious, debilitated, abundant*, etc. Some other examples of words were *coyote* and *ranch*.

The results have proven that this type of transfer was not limited to words and phrases but also included complete structures. It was important to identify the sentences that presented positive transfer with care. With this in mind, the sentences that were included in the analysis as part of the positive transfer did not belong to commonly used structures. It was necessary to analyze the syntactic structure of the sentences of every subject in English in order to set the patterns they used and compare them with the pattern they had in Spanish and vice versa to better isolate the coincidences in words/structures. It was also useful to focus upon the structures that presented evidence of negative transfer in order to spot the sentences that presented positive writing.

CHAPTER FIVE

DISCUSSION

5.2 DISCUSSION

This section discusses the findings above presented in relation to the literature about syntactic complexity and transfer, as well as in relation to the hypotheses and objectives set for this thesis. First, the syntactic complexity is discussed. Then the transfer process is examined.

5.2.1 Syntactic Complexity

The objectives of this thesis directly related to syntactic complexity, to determine the syntactic complexity level of the subjects in L1 and L2. The results suggest that senior students in the English Language program at the Universidad de Quintana Roo have a similar level of syntactic complexity in L1 and L2. However, there is evidence that some syntactic and rhetorical features are transferred from L2 to L1 and vice versa.

Studies developed by O'Donnel, Griffin and Norris (1967), and Torres (1993) concluded that education exerts a strong influence on the way in which students develop the organization and complexity of syntactic structures; thus, the more a person studies, the better written and oral expression this person will have. These findings are similar with the ones obtained in this thesis, as freshmen's writing is less structured and organized than that of the senior students. Freshmen students do not have a clear knowledge of how paragraphs and texts are structured; hence, it was common to find considerably longer sentences and incorrect use of paragraphing, whilst the senior students presented a more structured text and paragraph organization that confirmed the impact that education has over their writing.

As the main purpose of this research was to determine the syntactic complexity level in written language, it was not possible to find differences or similarities in the studies that compared the length of syntactic complexity in oral and written. Due to the fact that most of the early research was carried out with the aim of finding the development of oral over written or vice versa through the first years or L1 or L2 acquisition (O'Donnel et all, 1967; Vaan, 1979; Kim 1996, 1998 & 2000), it was not possible to then establish the relationship between both skills, since it differed from the ultimate objective of this thesis. However, some of the results of the different studies are referenced as they are similar to those obtained in this thesis.

The results of this thesis show that the experimental group presents a clear sentence formation in English (L2), which is transferred to the L1 writing process due to a more continuous training. One of the possible reasons for this finding relies on the fact that Spanish L1 is set aside during the development of linguistic abilities. Thus, the development of linguistic knowledge and skills in English L2 will be limited to the degree of syntactic complexity each student has reached in their mother tongue. Students who have developed a certain level of syntactic complexity in their own language seem not to incorporate new language structures of L2 in their daily writing production. This implies that the degree of understanding-production of L2 is somehow limited to the syntactic complexity degree students possess in L1. There was not any proof that L2 outdid at any point the syntactic complexity of L1.

The results of this thesis are particularly important as it seems to be unique in its class. Of all the research and studies regarding syntactic complexity, none of them provided a similar objective or methodology. All the research conducted and revised has focused on the development of syntactic complexity. This research goes beyond that and analyses the

relationship that L1 and L2 have with regards to syntactic complexity. The results of the experimental group show that sentences in both English and Spanish are very short in length; thus, the number of transformations that could take place are limited. Additionally, the analysis proved that the subordination clauses included a limited number of elements that placed the sentences at an elemental level. For that reason, the final analysis and comparison with Owen's results (2003) reveals that the subjects from this thesis are far from what an average adult should produce syntactically. According to Owen (2003), on average, adults produce 11.5 words per clause whilst adolescents 8.6 and infants produce 7.7. The results of this thesis demonstrate that the subjects from the experimental group produce very simple language.

Interestingly, both experimental groups presented the same level of complexity, this finding may suggest that there is limited capability on behalf of the subjects to communicate their ideas in writing. It might be possible to argue that narrative writing does not allow students to express themselves in a complex manner as argumentative writing would; however, Véliz (1999) has found that argumentative texts include a larger number of adjectival and nominal subordination, descriptive texts include a large number of adverbial subordination whereas narrative texts include all types.

The results of the Spanish experimental group show that syntactic complexity in L2 influences the writing in L1 as L2 is used more often and it also includes terms that might be unknown or non-common amongst the subjects. This finding agrees with Kim's results (1996, 1998 & 2000 cited in Xinhua 2008) as to the fact that the length of the Unit terminal and clause are very similar in L1 and L2 in the experimental group's results. However, this study proved that many utterances transferred from L2 English to L1 Spanish. It is possible to assume that

there is a constant exchange of linguistic utterances between L2 and L1; in which, L2 provides the structures that the subject lacks in L1, when he is required to adapt his written language to fulfill the type of text and difficulty of the written task as Checa (2006) points out.

A closer look at the results of the Spanish reference group leads me to think that even though the writing is more structured, probably due to years spent at university (coinciding with Torres, 1993; Jiménez, 2007), students presented a simplification in the use of complex sentences, an overuse of the relative pronoun *"que"* (that) and a very limited use of subordinate conjunctions, *"porque"* (because) being the most recurrent one. Subjects also presented more dispersion when expressing their ideas, referents and continuity in the text. The results might also lead us to think that during adolescence the syntactic complexity process is not fully completed, as argued by Jiménez (2007); thus, when freshmen start university, they start producing complex writing tasks with limited amount of syntactic complexity, which results in what is known as "poor writing". However, the Spanish reference group produced sentences and writing structures more closely related to Spanish standards: longer paragraphs and more words per clause (particularly with the main clauses and subordination of first degree), for example. On the contrary, the English reference group presented a more organized text and better use of anaphora as well as shorter paragraphs.

At this point, it might be possible to think that during secondary education the writing conditions are not optimal to develop syntactic complexity and, in consequence, longer and more complex sentences. Even though coordinated sentences were not taken into consideration as part of the analysis, more than the 70% of the written task was joint by coordination in both English and Spanish. This proves that the use of simple language and sentences is common

practice among the participants. The method used in the development in the thesis provided evidence of the degree of syntactic complexity used in descriptive texts; however, as Checa (2006) points out, the degree of syntactic complexity adapts according to the type of tasks students have to face. Hence the results of this thesis are not determinant or even replicable for other types of texts.

In the specific case of the English Language major, students' writing in English goes from simple to complex pieces of writing as their final assessment in English requires the understanding and production of complex language tasks. For that reason, the lessons that students take in English follow a rationale that goes from the simplest to the most complex use of language in all the communication skills. Specific teaching of L2 provides the students with a formal encounter with writing which enables them to "learn how to write" properly to English standards. There is not a proper and explicit encounter with writing in L1; ergo, most of the writing in L1 follows patterns and details that are exclusive to L2; this is to say that from simple sentence formation to paragraphs, the students should then move on to complete pieces of writing. It also takes students from writing descriptive and narrative texts to argumentative ones in which students are capable of expressing their points of view and supporting their reasons using complex language and structures.

By writing different types of texts, students are able to adequate their language and to train their abilities to better express themselves using different types of language transformations. The analysis of the pieces of writing has demonstrated students' consistent use of different types of adjectival subordination, that indicate the development of complex writing at a basic level; these results are similar to those found by Véliz (1999). Even though L2 is

taught formally, students are not likely to surpass the syntactic complexity level they have achieved in L1. Surprisingly and contrarily to the results presented by Bartolomé (2008), this particular research found that writing patterns of L2 learners at the Universidad de Quintana Roo are transferred from L2 to L1 and not from L1 to L2 in terms of structure of the text, paragraphing and, more importantly, in sentence structure.

This finding is particularly interesting as it demonstrates that even though syntactic complexity in L1 and L2 remains invariable, there is a transfer of language forms and structure that fulfill any gaps in the knowledge of L1 that subjects might present. Such findings show that syntactic complexity maintains equal growth and length for the subjects at Universidad de Quintana Roo in both L1 and L2. Nevertheless, the conclusion drawn from the freshmen's writing analysis leads us to infer that students that enroll in the English Language Major have not fully achieved mature writing in Spanish during adolescence and early adulthood. Whilst other students in different majors taught in Spanish might be developing complex writing in L1, students from the English Language Major present an exceptional phenomenon in which they start acquiring L2 and developing it to the degree of syntactic complexity. At the same time, the knowledge students possess of L1 is adapted to fit into the formal writing of the L2 structure the students have been exposed to. Throughout this research the first hypothesis has been verified : "The level of syntactic complexity in L2 maintains a close relationship with the syntactic complexity in L1, which means that the higher the complexity in L1 is, the higher the complexity in L2 will be; and the lower the syntactic complexity in L1 is, the lower it will be in L2."

The analysis of the syntactic complexity of the English reference group also shed some light on the process of syntactic complexity of the subjects. It was found that professionals teaching English as L2 tend to simplify their written language so it can be easier to understand. It might be questionable that most of the subjects in this group were former or actual English language teachers. During the analysis of the data, the subjects that had some relation with language education varied their language significantly; this is to say, the vocabulary and structures they used in writing were considerably simple. Terms such as *male sheep* instead of *ram* appeared repeatedly in most of the pieces of writing; such language is closely associated with the senior student's writing. Many terms were substituted by nominal forms for example *little lion* instead of *cub*, *ram* and *ewe* were terms that rarely appeared in the English reference group. Such phenomenon leads us to believe that even in L2 lessons, students appear not to be exposed to limited input from their teachers, limited to simple and low complex sentences and basic vocabulary. Furthermore, the L2 classroom provides us with little input outside the classroom, which minimizes the possibility of a more in depth exploration of language use in daily life; reading and writing skills are sometimes secondary in the development of a language course.

It is debatable that the instrument used was a children's cartoon to obtain data. It might have influenced the type of sentences and might have affected the number of words in each subordinate sentence by conditioning the use of less complex sentences to a younger audience. Yet, the degree of syntactic complexity does not follow a rational continuity as Checa (2006) points out what makes the syntactic complexity variable and adaptable to the type of texts, the audience and the time each student invest in producing it. However, the corpus of sentences was enough to carry out a deep analysis of the subordinate sentence in narrative writing.

Interestingly, the reference groups in English and Spanish also had a similar range in the degree of syntactic complexity as the subjects from Experimental groups from the major in English Language. Consequently, there is a strong possibility that freshmen enrolling in the English Language Major at the Universidad de Quintana Roo do not augment their level of syntactic complexity but instead they formalize it through language input in L2. The implications of these findings suggest that there is an enormous gap during childhood and adolescence that provides little input and reinforcement in the development of language skills and consequently these do not seem to be expressed in the written language. This lack of written language during secondary education might be due to the absence of any type of assessment that uses written language as the basis of its evaluation. Moreover, easy access to information on the Internet facilitates the elaboration of homework without actually looking at the content (copy-paste); in consequence, the process of writing is limited to a few tasks that do not encourage writing at school.

Writing in a second language relies upon two main factors, according to Eisterhold (cited by Kroll 1990). The first factor, that is essential, is a language system for decoding and encoding written language. The second factor is literacy, which is not essential; its absence leaves a gap that writing formation in L2 fills when required; however, if there is a literate subject that carries a linguistic formation in writing, then he brings with him support for the early writing stage in L2. On the other hand, writing acquisition in L2 is not about mapping language skills onto the developed second language, it also refers to the ability to transfer skills from one to the other in order to develop a sense of autonomous learning. It is possible to conclude that freshmen students at the English Language major at Universidad de Quintana Roo present a limited number of language transformations that limit the number and type of

syntactic complexity within the sentences. The results confirm the fact that students, in their senior year, present rather basic language skills, which is congruent to the statistical analysis that places syntactic complexity in adolescent writing (Owen 2003).

5.2 Transfer Processes

The objective related to the transfer process was to determine how positive and negative transfer affect the writing production of texts in L1 and L2 accordingly. The results show that there are both types of transfer in L2 learners; however, negative transfer is more common in English production than in Spanish and positive transfer is more common from English into Spanish.

Transfer amongst the subjects of the English Language major at the Universidad de Quintana Roo tends to be particularly interesting. At first glance, transfer seems to be limited to some specific aspects of grammar: prepositions or phrasal verbs; but it also influences writing at a more advanced level. It was possible to observe that complete text structures transferred from L2 to L1. Students' compositions in Spanish presented a writing style similar to that of English composition. In other words, the structure of the English narrative text taken into Spanish through the use of short sentences with a maximum of two subordinated sentences, a defined and concise introduction and a body no longer than two paragraphs along with a short conclusion. It was of particular interest to discover that the type of complex sentences remained the same in both English and Spanish. Therefore, it is not possible to state that syntactic complexity has predominance in one language or the other yet remains similar in both cases and in consequence, it was difficult to determine, in some cases, if the transfer was following a pattern from L1 to L2 or vice versa. However, it was possible to determine that L1 and L2 tend

to convey similar grammatical structures when positive transfer occurs; contrarily, when the grammatical structures differ, negative transfer appears.

One important contribution of this thesis is the fact that transfer is associated to syntactic complexity. The importance of setting a relationship between mind processes such as syntactic complexity and transfer relies on the fact that it is possible to determine what cognitive processes are involved in the acquisition of a second language and how the mind uses both language systems to perform tasks effectively. Transfer is a process that it is inherent to bilingual people and second language learners. Theories state that the primary linguistic systems are the ones that influence performance in the second language as the skills and the mother language are mature enough to integrate a new linguistic system and apply to it the language knowledge that is already set. The fact that there existed a gap in the development of structural written language in L1 gave the opportunity to an incoming language system to integrate its own structure at the same level of L1. It was found that the subjects from the experimental group at Universidad de Quintana Roo combined elements from writing organization that belong to both L1 and L2.

The second hypothesis of this thesis was "the syntactic complexity in the target language can be affected positively or negatively by the linguistic transfer process which means that the higher the negative transfer is, the lower the syntactic complexity in L2 will be, and that the lower the negative transfer is the higher the syntactic complexity will be." The results of the analysis of the relationship between syntactic complexity and transfer has shown that transfer does not affect significantly syntactic complexity and it was evidenced by the fact that none of the sentences that presented traces of transfer processes in it outdid the syntactic complexity of

the source or target language. With regards of the positive transfer process, the sentences were very alike, the syntactic progression and elements that formed part of each utterance were almost the same in both language; on the other hand, negative transfer presented more differences than similarities; the differences never outdid the syntactic complexity level in any of the languages it was compared to. Thus, these findings have proved the second hypothesis to be invalid.

The implications of these findings are important in order to establish that transfer does not influence the syntactic complexity degree of sentences. It is more likely to limit to words and expressions that have not been completely mastered in the target language. However, it was also shown that, in this particular case, transfer influences the organization of the writing when this organization in L1 is weak. Along with the findings related to syntactic complexity, it is possible to confirm again that the adaptation of subjects' language combines two linguistic systems to fulfill the requirements students have to face. However, syntactic complexity remains unaffected. This suggests that syntactic complexity can be augmented and it would be reflected in both L2 and L1 regardless the language it was integrated from. Kim's research (1996, 1998 & 2000) has proved that L1 and L2 are acquired in the same patterns; ergo, if input in L1 is stronger, then it would be reflected in writing in both languages; on the other hand, if the input in L2 were reinforced, it would be reflected in L1 writing. This phenomenon occurs among the students at Universidad de Quintana Roo, when they produced texts with an English-narrative text structure.

Throughout the course of this research it was not possible to determine which language incorporates more complex sentences. It was only possible to picture the similarities and

differences that lay between L1 and L2. What it is possible to assume is the fact that language can adapt to a certain type of task (to write a very complex text for an international examination for example) in order to achieve the primary goal. Nevertheless, it does not mean that language has become syntactically complex enough to continue presenting on demand the structures it produced once. Limitations in the language complexity level provoke a limited degree of abstracted thoughts related to comprehension and expression which are essential at a university level. The results of this thesis demonstrate that the input in L2 that students receive is not enough to be able to produce complex writing for achieving a C1 level. The input that a student might be receiving from other language skills or subskills could be outdoing the level they possess regarding writing; however, it is important that subjects incorporate reading into their habits if they intend to use the language more effectively.

CONCLUSIONS

The aim of this thesis was to determine and to constrast the syntactic complexity of Spanish L1speakers and English L2 learners, and to determine the role of transfer in both directions (L1 to L2 and vice versa) in relation to the syntactic complexity level. The results showed that the level of syntactic complexity is similar in both L1 and L2. It was also possible to determine that in some aspects of language L1 is more predominant and influences L2, particularly in the similar number of elements in each clause; in other aspects, L2 is more predominant, especially in writing organization and structure. Surprisingly, the results of the analyses demonstrated that the subjects' syntactic complexity is considerable low, using only 6 or 7 words per clause, similar to 8 year-old children. Regarding the transfer process, the findings suggest that it does not have a main role in the level of syntactic complexity, but rather a primary role in the organization of the text as the input is primarily taught and assessed in English L2.

The results of this research validated the first hypothesis as the syntactic complexity in L1 and L2 are alike in degree; for that reason, when L1 augments so does L2 and vice versa. However, the second hypothesis was not confirmed; there was no evidence of affection in the degree of syntactic complexity by the transfer process; on the contrary, the transfer process was useful to demonstrate that subjects use utterances that are similar in L1 and L2.

It is possible to conclude that the importance of developing a congruent syntactic complexity relies on the use and knowledge that the subjects have of their own language, as it is the first language system to be acquired, and how they apply this knowledge in learning a second language. If students do not actually develop a degree of language sophistication that

allows the comprehension and production of syntactic complexity, it would be very difficult for them to achieve it in any other language they wish to learn or in any task related to the use of complex language.

Nevertheless, training in specific language areas could be enough to improve subjects' performance in language tasks, but if the students' language use has not reached a significant level of syntactic complexity, the tasks that will be performed later will not express the same degree of language complexity. To be successful in L2 learning, it is important that universities that offer degrees in EFL teaching develop strategies to determine the language level in L1 to have better results in their long-term language proficiency. It is possible to offer or restructure subject matters in which students reflex on the use, characteristics and variations of their mother tongue with regards to L2. Furthermore, it is also possible to offer writing workshops to develop and enhance this ability and pay more attention to its correct evolution through the first years of EFL learning.

This study has important implications in the field of linguistics as there is very little research regarding syntactic complexity. The previous literature looked at syntactic complexity from a L1 perspective during childhood and adulthood. Childhood studies were conducted in order to determine the similarities that existed between oral and written speech whereas in adulthood studies the aim was to determine the relationship between syntactic complexity and schooling and sociocultural backgrounds. This study has important implications in the field of linguistics and language teaching as there is very little research regarding syntactic complexity comparing L1 and L2. Considering these implications, innovation in the field of studies of syntactic complexity with a study that analyzes the relationship that exists between L1 and L2

should be highlighted. Furthermore, the importance of studying the role of transfer processes as a possible factor that influences the degree of syntactic complexity was a new concept. Apart from the linguistic implications, this thesis is the first of its kind in the region and gives a clearer idea of the elements that should be taken into consideration in order to form professionals with the necessary skills and language knowledge.

It would be interesting to conduct further research to determine the subjects' oral degree of syntactic complexity, or use a task based upon argumentative writing. A teacher conducting research could also include students under their own teaching to avoid making students work in extra tasks that are not related to their classes.

The actual phenomenon presented in this paper could inspire other researchers to do more studies of this type relating syntactic complexity to the other skills (speaking, reading or listening) in order to set the degree of comprehension and production. More importantly, it could be the basis for future strategies and educational proposals to correct the mistakes that have been done so far in the field of language education in primary and secondary education.

Some recommendations include more required training in both languages to achieve a higher level of syntactic complexity. Reading could be a suitable option for increasing the degree of syntactic complexity; by starting with simple and moving on to more complex texts, students would be able to incorporate new forms and transformation into their writing styles. However the lack of a considerable degree of syntactic complexity might also imply that there could be serious problems in reading comprehension skills as the students' cognitive level is not yet trained to decipher printed complex thoughts in the first encounter. It is necessary to develop strategies for students to cope with complex language and for them to incorporate it,

eventually, into their written productions. With the current results, it would be very difficult for students to be able to develop writing tasks of a C1 examination as their syntactic complexity in writing would not allow them to express themselves effectively and with a high degree of language sophistication.

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