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Learning Styles in CEI English Students. A Quantitative Approach

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MAESTRA EN EDUCACIÓN CON MENCIÓN EN DIDÁCTICA DEL INGLÉS

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María Domínguez Guzmán

Director de Tesis

Dr. Alfredo Marín Marín

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COMITÉ DE TESIS

Director: _____

Dr. Alfredo Marín Marín

Asesora: _____

M.C. María Isabel Hernández Romero

Asesora: _____

M.C. Magnolia Negrete Cetina

ABSTRACT

One of the most significant challenges that higher education instructors and trainers face is to be tolerant and perceptive enough to recognize learning differences among their students. In recent years several language studies have focused on the different learning styles that students bring to the classroom and their possible influence on the process of learning a second language. However, there is a lack of studies concerning learning styles in the local and national area. This research was conducted to determine the learning styles of basic and intermediate level students at the CEI, the relationship between learning styles in terms of gender, age, level of English and major.

This study used the 12 items Kolb's Learning Styles Inventory Version 3.1 to compare and correlate the variables of the study. Besides the Learning Styles Inventory, students was asked to answer some demographic questions in order to provide gender, level of English and highest educational attainment, major, and institution. The questionnaire was administered 65 subjects from English basic level and 68 subjects of English intermediate level. Data were fed into SPSS (Stadistical Package for the Social Sciences). The variables of the study were carefully arranged in SPSS terms. For the sake of the results Independent Sample t-test, Pearson r correlation, ANOVA, and post hoc tests were applied. Results reveal that there are no significant differences between learning styles in terms of gender, age and level of English. However, it was found that there are negative significant differences within the learning styles modes. Students who prefer the concrete experience mode tend to have a lesser preference for the reflective observation mode. Another significant difference was found between the GGP and SC majors.

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CHAPTER I INTRUDUCTION

1.1 Background

We all know that education in its different facets has been a quite important issue in the history of human beings. Human beings have to acquire knowledge and different skills to be part of the culture and also be able to transmit this knowledge to the other generations in order to teach children about the passage of life to adulthood. Our education is a great journey. It is an opportunity to learn from infancy to death. However, education is not only about getting knowledge, it also has to convey what people need to learn to fulfill themselves as full human beings.

One of these aspects that people have to accomplish is communication. This has been a priority for humankind; to understand people and to understand each other to carry out many daily activities. As human beings live in different parts of the world, there is a variety of languages spoken. According to Rosenberg (2010), English is the third language that is spoken all over the world and which the majority of people learn in the schools.

However, the process of learning the English language is a quite difficult and time consuming task. There is a wide range of activities that a student has to do in order to reach the goal of learning a foreign language. There are learning styles and strategies or special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information, (O'Malley & Chamot, 1995).

The field of learning styles has existed for many years. Keefe (1987) stated that learning styles appeared in studies that were carried out in 1892. One of the first studies to examine the learning style preferences of ESL students was developed by Reid (1987). In recent years, several language studies have focused on the

different learning styles and strategies that students bring to the classroom (Brown, 1994; Erhman & Oxford, 1989; Oxford & Anderson, 1995).

Wenden (1987) stated that since the early seventies research concerns in the field of second language learning and teaching have shifted from the methods of teaching, to learner characteristics and their possible influence on the process of learning a second language. For instance, Gardner and Lambert (1972) in their research on attitude and motivation, pointed out the importance of affective factors. It is not only by going to school that you learn a language. Students have other reasons that motivate them to learn English and they learn also the language in different ways. According to Felder and Brent (2005) two students are not alike. They have different backgrounds, strengths and weaknesses, interests, ambitions, senses of responsibility, levels of motivation, and approaches to studying.

Other researchers, such as Schmeck, (1988), stated that students are characterized by different learning styles, preferentially focusing on different types of information and they tend to operate on perceived information in different ways. Lightbown & Spada (2006) agree that people learn languages more quickly than others and that it has been observed countless times that, in the same foreign language class, some students progress rapidly while others struggle along making very slow progress. However, Brown (1994) stated that while the significance of learning styles appears to be obvious, because of the students' involvement in the learning process, language teachers have often been more concerned with the method of teaching than the way students receive and understand the language.

As a foreign language teacher, I consider it to be very important to know what the students' learning styles are in order to make them aware of ways they can acquire information faster or the ways they can change their study habits, improve their learning, and improve their examination results as well. Several researchers (Brown, 1994; Rubin 1979) have considered the importance of students' learning styles, the need to make language teachers aware of varied teaching methods, and also the way students receive and understand the language. It would therefore

be very interesting to carry out this study at the CEI (Centro de Enseñanza de Idiomas) in order to research the different students' learning styles.

Another reason that inspired me to start this project was that from primary school to university my classmates and I were taught in the same way as a whole group. The strategies were almost always the same and we were not aware about the existence of learning styles. Now, that I am studying the Master's Degree in Education I would like to give some contribution and help in some way in other students' education.

If we know what students' learning styles are, we can adapt activities based on their interests, the gender factor and the level of English they have. We can help them to be more successful and therefore, to remain in a program.

1.2 Statement of the Problem

Students at UQROO originate from many places; many students who have rural origins and from other countries come from the city, to enter every year the Uqroo to take English courses. All of them have different levels of English, different backgrounds, and different emotional feelings impacting their lives. Students are all different and for this reason it is very important to know the different ways students learn. Sims & Sims (1995) stated that although individuals learn continually, they do have preferences about how they learn. Thus everyone has a learning style and for that it is very important to identify students' learning styles because then the teacher could provide more appropriate teaching in response to the different learning styles.

The focus of this study is to determine the learning styles of basic and intermediate level students at the CEI, the relation between learning styles, gender, age, and major, and the differences between their learning styles and their level of English.

1.3 Significance of the Study

This study is highly relevant in the teaching area for different reasons. According to Yin (2008) we all as educators seem to be aware of the fact that some learners enjoy learning while others describe it as unpleasant or overly difficult. Therefore, it is important for teachers to determine their students' learning styles when learning English and also to determine if there are differences in students' learning styles according to the level they have. Knowing how students learn would be useful for teachers to improve students' ways of learning. This is one of the most important reasons to carry out this study. Thus, the teacher can get a better understanding of the reasons why students sometimes do not fulfill the different levels of English courses or why their progress is slow. According to Canfield (1988) learning styles are the effective component of educational experience, which motivates students to choose, attend to, and perform well in a course.

One of the most significant challenges that higher education instructors and trainers face is to be tolerant and perceptive enough to recognize learning differences among their students. There are many higher education instructors that still do not realize that students vary in the way that they process and understand information, (Sims & Sims, 1995). This information can contribute to help teachers be aware and know better their students' learning styles so that they can offer better strategies in the courses that match with their students dominant learning styles. Teachers will be able to help their students who have a low attainment if they know the way they learn.

Another purpose of this study is to investigate the relationship between learning styles and gender. Swindell (2009) stated that not enough research has been done in order to relate learning styles with gender. There is not enough research to explain how the learning styles of boys and girls affect the classroom dynamic. Finding the relationship with the learning styles and students gender can help us to

understand, why sometimes in the classroom when the teachers use some strategies to carry out some specific tasks, they are hardly carried out. It could happen because there is little or no reason to take risks using the language or there is little intention to learn it, or because the students have others ways to solve the tasks. If students are given the opportunity to display their unique abilities and their efforts are encouraged in school, the chances of their developing and applying those abilities later in life will be substantially increased, (Felder & Silverman, 2002).

This study could benefit both teachers and students who are in a society that is changing day by day. Determining and finding the differences between students' learning styles could help in some way to better prepare students in the CEI.

Finally, as a student of the master's degree in education it is important to accomplish this study because there are not many studies about learning styles in my learning institution. It can, therefore, be beneficial in the research area of my university.

1.4 Objectives

The purpose of this study is to determine the learning styles of CEI English students who are at the basic and intermediate level, and the relationship between their learning styles and gender, age, and major respectively, and the differences between their learning styles and their level of English.

Specific Objectives:

To identify the students' learning styles reported with more frequency at the basic level at the CEI.

To identify the students' learning styles reported with more frequency at the intermediate level at the CEI.

To determine the possible relationship between gender and the learning styles of English students at the basic level and intermediate level at the CEI.

To determine the possible relationship between age and the learning styles of English students at basic and intermediate level at the CEI.

To determine the possible differences between the learning styles of basic level students and the learning styles of intermediate level students of English at the CEI.

To determine the possible differences in learning styles across students' majors.

1.5 HYPOTHESES

Each and every student is an active participant in the learning process and he or she acts according to the situations they are exposed to. For that reason it is predicted that learning styles preferences vary between groups of students. This study hypothesizes students' learning styles preferences according to gender, age, level of English, and major. The hypotheses are:

RH1: There is a significant difference between females and males EFL learners in terms of learning styles preferences.

RH2: There is a significant difference between EFL learners' age and their learning styles preferences.

RH3: There is a significant difference between EFL learners' level of English and their learning styles preferences.

RH4: There is a significant difference in learning styles preferences across the university majors.

1.6 Delimitations of the Study

There are some delimitations in this study. One delimitation is that this study focuses on a particular population of the University of Quintana Roo. This population just includes the CEI (Centro de Enseñanza de Idiomas) English students. Another delimitation is that the students participating in this study are limited to students whose English is at the introductory and intermediate level. This project will only determine the relationship between students' learning styles and the students' gender and level of English. This study will not address the relationship between students' learning styles with other social factors such as socioeconomic background, age or marital status.

In the following section, review of the literature, different academic articles will be examined that support this study.

CHAPTER II: THEORETICAL FRAMEWORK

2.1 Literature Review

This section presents the review of the literature and shows how previous research provides a solid basis for this study. Gender and level of English differences in relationship with learning styles are reviewed extensively in order to support this study and highlight the research already conducted in these areas. Also other studies that include learning styles with other variables will be examined.

2.1.1 Research concerning Gender and Learning Styles

Several researchers have determined that learning styles differ between gender and some others have determined that there is no relationship between these two variables. Hence, conflicting results have emerged in this realm.

Matthews and Hamby, (1995), carried out a study to determine if there are learning style preferences between high school and college students, and between high school and college students by gender and race. Using the four-way Kolb's (1984) Learning Styles Inventory (Diverger, Converger, Assimilator, and Acommodator) the results indicated that there are differences between high school and college/university students based on the gender variable. Female students differed significantly from the Diverger, Converger, and Assimilator styles.

Hernández (2003) carried out a comparative study based on exploratory-descriptive research about cognitive and sensorial learning styles in a representative sample of English students of the Centro de Enseñanza de Lenguas Extranjeras (CELE), of the Universidad Autónoma de Mexico (UNAM); and English

teachers who also teach Mayan and Spanish as a second language in a program called "Educación para el Medio Indígena" (EMI) in Yucatan. Its main purposes were to find out the predominant learning styles and the relationship with gender and age. The findings revealed that in both CELE and EMI there were a higher predominance of the kinesthetic in both male and female subjects and that individual learning styles is the one with lower predominance in males and females.

Honigsfield and Dunn, (2003), achieved similar results in a study by exploring significant interactions between learning styles, gender and nationality. Boys and girls from the 7th grade through the 13th grade, in Bermuda, Hungary, New Zealand and Sweden participated. The overall sample of participants was 1749. The instrument used was the Learning Style Inventory which helped determine the main effects of gender differences in each country. Honigsfeld and Dunn concluded that male students tended to prefer more peer interaction rather than learning alone and more kinesthetic activities. Female students needed a more social variety of learning and they were more responsible in order to get high grades.

Ahad (2006) conducted a study which was designed to identify the learning styles of freshman at a Bermuda community college by achievement, age, gender, and major discipline. The Building Excellence (Dunn & Rundle, 2000) learning styles survey was administered online to 190 freshmen with no prior experience in higher education who attended the community college in 2004. The sample consisted of 68 males and 122 females of various ethnic and socioeconomic backgrounds. Ahad found significant differences among the learning styles of these students for all four variables. Females demonstrated a significantly greater tendency to be internally kinesthetic, more reflective, and required less mobility, whereas males required more snacks and were more non-conforming.

Another similar study was carried out by Mulalic, Mohd Shah, and Ahmad in 2006. The aim of their study was to determine the Perceptual Learning Style (PLS) of ESL students and to analyze differences in learning styles regarding student's

demographic factors such as gender and race. Using The Perceptual Learning Style Preference Questionnaire (PLSPQ) by Joy Reid (1987) they analyzed 160 university students from the Department of Language and Communication and found that female students revealed learning style preferences that have association with feelings, and they are more reflective, field-sensitive, and subjective than males. Male students exposed learning style preferences towards field-independency, and they were objective and analytically minded in processing the language.

Pallapu, (2008), examined the relationship among undergraduate students' learning styles from the Colleges of Business, Education and Liberal Arts in relation with gender, ethnicity, age, grade point average (GPA) and grade level. Felder and Salomon's Index of Learning Styles were administered to 346 undergraduate students from three different colleges at a large four-year public southeastern university over a period of one semester The data revealed that there were more active, sensing, visual and sequential learners in both males and females and that the female learners scored higher than the male learners in the active, sensing, visual and sequential learning styles.

Moreover, Ramayah, Sivanandan, Hilmy, Letchumanan, and Leong, (2009), found similar results. The purpose of their study was to determine the influence of gender on the learning style preferences of business college students based on the VARK (Fleming, 2002b), learning style survey, consisting of the V(isual), A(ural), R(ead-Write) and K(inesthetic) learning styles. The study found that gender only influences the V(isual) and A(ural) learning styles of the students. Female students were found to demonstrate slightly higher preference for the V(isual) and A(ural) learning styles as compared to the male students.

Swindell (2009) studied the relationship between gender, socioeconomic backgrounds, perceived learning environments, and preferred learning styles. 119 college students in science classes were administered the Learning Style Inventory. Based on the results, she stated that boys and girls do have different

learning styles, as do students from regular and low socioeconomic backgrounds. How these student groups perceive their learning environment is different as well and shows a relationship with their preferred learning style. Tawei and Shen (2009) also developed a study with 2748 students at a large private university. The main purpose of the study was to investigate the reliability and validity of the Chinese version of the Felder and Solomon Index of learning styles. However, in the results they pointed out that active/reflective and sensing/intuitive scales indicated that the effect of college students' differences depends on gender. They found, in general, that female students are significantly more intuitive and global and less visual than male students.

On the other hand, in the following studies the relation between learning styles and gender was not apparent. In 2007, Demirbas and Demirkan carried out and important study. The study focused on design education using Experiential Learning Theory (ELT) and explored the effects of learning styles and gender on the performance scores of freshman design students in three successive academic years. Findings indicated that learning style preferences did not significantly differ by gender in all three groups. The only difference found was that results indicated that the performance scores of males were higher in technology-based courses, whereas scores of females were higher in artistic and fundamental courses.

In the same year, Thomas (2007) examined the relationship between knowledge of style, gender conditioning, and personality type preferences of AFRICAN American college students ages 18 to 25. Students completed the Myers Type Indicator (MBTI) instrument. Findings reported that personality type for African American college students was more associated with a knowledge of style than gender conditioning. The factors of culture and gender conditioning do not show significance in this study.

Smith (2008) in his quantitative and qualitative study sought to identify any differences that existed in learning style preference with respect to gender, age, and previous successful CMI (Computer Mediate Instruction) experience. The

Learning Preference Survey for Students (LPSS) was applied to measure learning style preferences of 616 students enrolled in 49 CMI courses offered by a rural community college in the southeastern United States. However, no significant relationship between gender and initial learning style preference, as measured by the LPSS, was apparent.

Peter (2008) also had as a main purpose to investigate the relationships between CAPSOL's nine learning style scale scores (a two page carbon assessment form consisting of 45 questions), GPA, boys and girls, and socioeconomic factors. The sample included 307 students with 140 white males and 138 white females. The results provided a normal bell-curve distribution of the nine learning style scale scores. There were no significant differences found in learning styles preferences with regard to gender: visual, auditory, kinesthetic, individual, or group learning styles. Boys scored higher than girls on oral learning styles, while girls scored higher than boys on written, sequential, and global learning styles.

In this first section of the literature review, 69% of the studies agree that there are differences between students' learning styles and gender. Boys and girls tend to learn differently and develop different learning styles. The main differences found were that females' learning styles preferences are more associated with feelings, and they are more reflective, sensitive, and subjective. Males tend to be more objective and analytically minded in processing the language. Another difference was that female students are internally kinesthetic with less mobility, whereas males prefer kinesthetic activities and are more independent. Females are less visual and more sequential and they do better in writing when learning; males are more visual and do better in oral learning. On the other hand 31% of the studies did not show any significant difference between females and males learning styles. These studies have in common not only gender and learning styles as variables, but also they include other variables such as socioeconomic factors, age, personality, and culture.

As most of these studies show that there are differences between students' gender and learning styles, it will be important to gain additional information through this study in order to see if there is an important correlation between gender and learning styles. Besides that, there are a variety of differences in the studies that would be interesting to research and find out if females and male English students at CEI are different or not in terms of learning styles.

2.1.2 Research concerning Age and Learning Styles

Studies indicated that age has an influence on learning styles. Some authors argue that children exhibit a preference for kinesthetic learning, which changes into auditory or visual preference as they grow older. Other researchers showed that as people get older, they are more able to organize and integrate information.

For the sake of argument Knowles (1980) stated that older students who can draw from their life experience are more likely to be independent, self director rather than younger learners. These results are supported by other research carried out by Turton (2001) who found a negative correlation between age and group learning suggesting that younger students had a significance greater preference for group learning rather than older learners.

Another study was conducted by Ahad (2006) who found differences between two groups of participants: students of traditional college age (25 years old and under) and students of nontraditional college age (25 years old and over). Non-traditional students were more auditory, internal kinesthetic and tactual kinesthetic while traditional students preferred informal seating and snacking while studying, and were less conforming.

2.1.3 Research concerning Level of English and Learning styles

Some of the following studies have a direct relationship between learning styles and level of English but some others do not show a direct relationship between these two variables. However, there does exist a relationship between learning styles and academic areas.

A longitudinal study into the learning style preferences of university ESL students was carried out by Turton (2001). The purpose of this study was to provide information about the changes in the learning style preferences of non-native speakers of English (NNSs) over a period of six months and if the changes were influenced by variables such as nationality, gender, age, and major. The results indicated that students' learning styles preferences changed over the eighteen-month period and that these changes were influenced only by the factor of English proficiency.

In addition, Jones (2003) carried out a quantitative study in the area of learning styles. The focus of this quantitative study was to examine the extent to which community college students' learning style preferences vary as a function of discipline. It is interesting to know whether gender and academic performance play a role in student learning style preferences. The results revealed significant differences in students' learning styles preferences across disciplines, but not for gender. In addition, student learning style preferences varied by academic performance as measured by GPA. These findings have important implications for community college teaching and research.

Furthermore, another interesting research was carried out by Yamauchi (2008). This research was conducted to investigate how adult ESL (English Second Language) students learn effectively according to their learning preferences and their cultural and educational backgrounds. The findings suggested that the students' educational status seemed to affect their internal needs (motivation in

learning). The more ESL students learn in a professional field, the more they are likely to be motivated as they develop various types of learning styles.

In addition, Williams (2010) carried out a specific quantitative research where she examined sensory learning styles as one possible factor affecting seventh grade students' reading comprehension level. The purpose of the study was to see if a relationship exists between any sensory learning style and reading comprehension levels. The results indicated that there was a relationship between kinesthetic, auditory, and visual learning styles and reading comprehension levels.

These studies show that learning styles can vary according to the level of academic status. It can be in a complex area, for instance English proficiency, or more specific such as the level of reading comprehension that students have. These studies support this research to correlate learning styles and students' level of English.

2.1.4 Research concerning the Major and Learning Styles

These studies suggest learning style preferences of the students were likely to differ in each of the chosen majors. This tendency suggests similar learning styles were likely to be found among the participants who are in the same major.

Jones, Mokhtari, and Reichard (2003) examined the extent to which community college students' learning styles preferences vary as a function of discipline. The learning style preferences of 105 community college students were measured in four disciplines (English, mathematics, science, and social studies) using a modified version of the Kolb Learning Style Inventory IIa. The results revealed that most community college students' learning style preferences varied significantly across the four different disciplines. Eighty-three (81%) of the 103 participants switched learning style modes for two or more disciplines.

Besides the variable gender, Turton (2001) in his longitudinal study also determined which learning styles were significant between students in terms of major. An univariate ANOVA was performed on the data and it revealed that there was a significant difference between students in terms of kinesthetic learning. The results indicated that students who were science and engineering majors had a significantly greater preference for kinesthetic learning than students who were studying business and humanities.

Another important research was conducted by Reid (1987) where Engineering, Medicine, Business, Computer science, Hard sciences, and Humanities where analyzed in terms of learning styles preferences. In general, responses for all six major fields indicated that kinesthetic learning was a major learning style preference and that group learning was considered a negative learning style by students in all major fields except computer science. Visual learning was selected as a major learning style only by students in hard sciences; humanities were the least oriented toward visual learning. Students in four major fields preferred auditory learning as a major learning style: computer science, hard sciences, business, and medicine. Engineering and computer science majors were significantly more tactile than humanities majors (Scheffé test, p<.05) students in all fields except hard sciences indicated that individual learning was a minor learning style.

The study conducted by Ahad (2006) mentioned in 2.1.1 also was concerned with the variable major. The results indicated that only two learning styles were significantly related to major discipline –late afternoon energy and conformity. Students in the division of Applied Science and Technology were more likely to prefer studying in the afternoon and to be less conforming than students in the Liberal Arts Division.

These investigations support that there are significant differences between learning styles and the variable major revealing that students for specific disciplines posses or develop different learning styles and strategies.

2.1.5 Research concerning Learning styles and other variables

According to the exploration carried out in the area of learning styles it can be said that the research done has been abundant. Learning styles have been related to many different variables. In this section research examined does not have a direct relationship with the variables of this study. However, they were chosen because they were carried out in the English language context and at the university level.

In 2006 Ji and Xiaoqing focused their study on the relationship between learning styles and language learning strategies in the EFL context in China. The subjects consisted of 187 second year undergraduates who were provided two self reported inventories, the Chinese version of MBTI-G and a questionnaire on the use of learning strategies adapted from O'Malley and Chamot's classification system. The analyses showed that learning styles have a significant influence on learners' learning strategy choices and it is proposed that learning styles may influence learners' language learning outcomes through the relationship with learning strategies.

Hosseini and Akbari (2007) conducted a study to investigate the existence of any possible relationship between the use of language learning strategies and multiple intelligences' scores of 90 foreign language learners of English. The correlational analysis of the results indicated significant relations between the use of language learning strategies and IQ scores of the learners. Musical intelligence, however, did not correlate with any aspect of strategy use.

As well as the previous study, Al-Tamimi (2009) conducted a study to identity learning styles. He stated that studies on learning styles are important as they can give educators new directions for making changes in their classroom. His study aimed to identify learning styles of the *Universiti Sains Malaysia* (USM) English majors' students. The purpose was to identify the type of information these students preferentially perceive and through which sensory channel external

information is most effectively perceived. The Index of Learning Styles (ILS) questionnaire was adopted. The study findings indicated that USM English major students have certain learning styles that should be considered by USM staff members in preparing their materials, curriculum and teaching methods.

Learning styles have been the topic of many researchers. The majority of the studies included in this literature review have a quantitative approach. All of them were developed in higher level education (universities and colleges) and most of them were carried out in an English language context where students were taking English as the first, foreign, or second language. The instruments used with more frequency in these studies were the Kolb's Learning Style Inventory, the Joy Reid's Perceptual Learning Style Preference Questionnaire, and the Felder and Salomon's Index of Learning Styles. Most of the researches were carried out in the United States and some of them in Japan.

With regard to local and national studies there are few studies carried out in this area. Ramírez (2007) coordinated an investigation in which different studies from different states were analyzed. Reyes and Rodriguez (2007) carried out the national outlook and stated that of all the studies analyzed in the teaching and learning of a second language context in Mexico, 12% correspond to the category of learning strategies and styles. 97 percent of the studies of this category were specifically for learning strategies and only 3% were for learning styles. These learning styles studies were classified as part of the acquisition language theme. One study was carried out by Santiago (2001) at the Benemerita Universidad Autonoma de Puebla (BUAP) and the other study found was developed by Carranza (2005) whose purpose was to find out if there was a relationship between teachers' learning styles and the learning activities used in classes.

Following this research and in order to get a more complete outlook of the teaching and learning of a second language, there was a secondary investigation. In this second stage there were analyses carried out in other states in Mexico. One study related to learning styles in the state of Nuevo León was carried out by Bravo

(2001) who identified different ways of learning that students use. Another study related to learning styles was the one developed by Hernandez (2003) in the Zona Metropolitana who investigated the hypothesis that there are different learning styles that are most prominent in UNAM university students. Additionally, he found that there is a relationship between the prominent learning style and the age, gender, and level of education.

To sum up, it is very important to mention that 26 states of the 32 states that belong to Mexico were covered in both stages. Of all the studies investigated it can be concluded that there was not a significant number of studies related to learning styles. Thus, this study has increased importance.

After considerable research at the University of Quintana Roo library and its databases such as ProQuest, a leader in publishing information, EBSCO HOST, a multidisciplinary publication source, and the Gale Cengage Learning and knowing that few studies related to learning styles have been developed in the local and national areas, this correlational study would make a significant contribution to this research field. The findings could be useful for later research and could help to increase the number of studies that support learning styles studies in the local and national context. Furthermore, from analyzing the literature review, the need for this study and its findings will be useful to the CEI Centre. The correlational findings will help to apply better strategies for the English classes and thus help students in their English level.

2.2 The Theory behind Learning Styles

The theory behind a study is very important because it helps to understand and organize the data. Theories permit us to summarize amounts of information in a short list of propositions and enable us to use empirical data to draw conclusions that are not evident from the data taken in isolation (McLaughlin, 1987).

The theory behind learning styles research is that individuals learn differently, and that this difference is not a measure of ability or intelligence, but an indication of unique characteristics, Turton (2001). This section presents the conceptual framework of learning styles and the current theories and models of learning styles. Furthermore, the theory that will lead this study.

2.2.1 Leaning Styles Definitions

There are many learning styles' definitions and these will give this section a contextual framework. According to Norman (2008), "learning styles" has only gained popularity in educational circles during the past half-century. However, there is evidence that learning styles have been used since ancient times. During the history of learning styles research, a variety of definitions have been offered to explain learning styles and their components, Turton (2001).

Weinstein (2008), states that *learning styles* is a term that represents a generally accepted belief among the majority of educators surrounding the fact that students differ widely in their ways of learning, demonstrating preferences in the way they process classroom activities.

The term "learning style" has been used to describe an individual´s, natural, habitual, and preferred way of absorbing, processing, and retaining new information and skills, Reid (as cited in Lightbown & Spada, 2006, p. 59).

Learning styles might be thought of as "cognitive, effective, and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (Keefe, 1979, p. 4) (as cited in Brown, 2007). The different definitions share common ground in that learning styles are the different ways in which a student prefers to learn. According to Keefe and Jenkings (1997) (as cited in Turton, 2001), learning styles connect different areas of

learning, describing them as a construct that links perceptual response tendencies, cognitive control skills and study and instructional preferences.

2.3 Learning Styles Theories and Models

In this study, there will be a brief explanation of theories in order to have a good understanding of different points of view by various learning style theorists. According to Ebner (2009), all the learning style theorists believe learning style theory is a way to make learning different. Moreover, Mott (2005) stated that learning theories explain how a student gains new knowledge.

2.3.1 Gardner's (1986) Multiple Intelligences Theory

According to Weinstein (2008), the Theory of Multiple Intelligences that comes from Howard Gardner is perhaps the single greatest impact of any theory about learning styles in the 20th century.

This theory states that there are eight kinds of intelligences and individuals learn best using their strengths in one or more of them. Gardner (1999) stated that Multiple Intelligences promote the study and use of a variety of classroom practices by teachers to meet a rich variety of different learning styles. The eight kinds of intelligence are:

1. Linguistic
2. Logical-mathematical
3. Musical
4. Special
5. Bodily-Kinesthetic

6. Interpersonal

7. Intrapersonal and

8. Naturalistic-ecological

According to Weinstein (2008) Gardner theorized that learning can excel or need remediation in these eight categories of intelligence. This promotes the study and use of a variety of classroom practices and learning styles, by teachers bringing great benefits to the process of learning. However, Gardner's theory has shortcomings in actual daily classroom use due to the daunting challenge to teach a standardized curriculum where, in most cases, there are many students at the same time. Another challenge, according to Weinstein (2008), would be the assessment of student work according to the different types of intelligences.

2.3.2 The Dunn and Dunn's (1967) Learning-Style Model

This model was focused on identifying individuals' preferences for specific instructional environments, strategies and resources, and the extent to which each approach either fosters or inhibits academic achievement (Dunn, Denig, & Lovelace, 2001) (as cited in Peters, 2008). This model is based on the following principles:

1. Most individuals can learn.
2. Instructional environment, resources, and approaches respond to diversified learning style strengths.
3. Everyone has strengths, but different people have very different strengths.
4. Individual instructional preferences exist and can be measures reliably.
5. Given responsive environments, resources, and approaches, students attain statistically higher achievement and attitude-test scores in matched, rather than mismatched treatments.

6. Most teachers can learn to use learning styles as a cornerstone of their instruction.

7. Many students can learn to capitalize on their learning style strengths when concentrating on new or difficult academic material.

In this model there are 21 elements classified into five stimulus strands (environmental, emotional, sociological, physiological, and psychological) that describe how students learn most efficiently based on their personal strengths (Honigsfeld & Dunn, 2006).

2.3.3 The Felder- Silverman' (1988) Model

A learning style model classifies students according to where they fit on a number of scales pertaining to the ways they receive and process information, Felder & Silverman (1998). The Felder-Silverman learning style model defined four dimensions, each having two categories: perception (sensing/intuitive), input (visual/verbal), organization (inductive/deductive), processing (active/reflective), and understanding (sequential/global) Ku & Shen (2009).

A student's learning style may be defined in large part by the answers to five questions:

1. What type of information does the student preferentially perceive: sensory or intuitive?

2. Through which sensory channel is external information most effectively perceived: visual or auditory?

3. With which organization of information is the student most comfortable, inductive or deductive?

4. How does the student prefer to process information: actively or reflectively?

5. How does the student progress toward understanding: sequentially or globally?

Felder and Brent (2005) stated that these questions make students aware of differences in learning styles and how they may affect personal interactions, teamwork, interactions with professors, and learning difficulties and successes.

In summary, each of the theories explained approaches, that students have from different learning styles and that teachers need to address individual differences in learners. However, these theories have many variables that make it difficult to implement them in the classroom. Another weakness is that they do not contextualize the variables and do not say how to confront having many students who have different learning styles. Based on this, Kolb's learning experiential theory was chosen because it relates theory and practice. It conceives learning as social and interactive, where students need to be aware of their strengths and work on their weaknesses Grantham (2005). This theory also highlights the conditions under which a student learns well.

2.4 Theoretical Perspective: The Kolb's (1984) Experiential Learning Theory (ELT)

The theory that was used in this study is the Experiential Learning Theory developed by David Kolb in 1984.

It is based on experiential learning and emphasizes the central role that experience plays in learning. Kolb (1984) described his experiential learning theory as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience." (p. 41).

The ELT defines two forms of knowledge: Social knowledge that is based on abstract knowledge that is culturally codified in language, symbols and artifacts and an individual's personal knowledge, that is based on direct uncodified concrete experience plus the level of social knowledge that he or she has acquired, Kolb and Kolb (2005). In other words, Kolb and Kolb stated that the theory predicts that abstractness in learning style is related to an individual's level of participation in formal education. ELT defines learning as the creation of knowledge through the transformation of experience and that different learning styles are related to different forms of knowledge.

This theory is based on six propositions that are shared by scholars such as John Dewey, Kurt Lewin, Jean Piaget, William James, Karl Jung, Paulo Freire, Carl Rogers for example, who gave experience a central role in their human theories, (Kolb and Kolb, 2005). The propositions are:

1. Learning is best conceived as a process, not in terms of outcomes.
2. All learning is relearning.
3. Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.
4. Learning is a holistic process of adaptation to the world.
5. Learning results from synergetic transactions between the person and the environment.
6. Learning is the process of creating knowledge

According to the ELT model, two dialectically related modes of grasping experience are portrayed -Concrete Experience (CE) and Abstract Conceptualization (AC); and two dialectically related modes of transforming experience -Reflective Observation (RO) and Active-Experimentation (AE). ETL proposes a constructivist theory of learning that involves creative tension among the modes that is responsive to contextual demands. This process is portrayed as an idealized learning cycle or spiral where the learner "touches all the bases" (experiencing, reflecting, thinking, and acting). In other words, immediate or

concrete experiences are the bases for observations and reflections and when these reflections are assimilated, new abstract forms are drawn and as a consequence new implications which can serve as guides in creating new experiences.

It is also a constructivist theory because, as Weinstein (2008) stated, it aims to prepare students to create a world fundamentally different than the one they inherit from their parents. Then different styles would become a central concern to be developed using different programs.

The variables of this theory are:

Concrete Experience (CE): Promotes the act of learning through experience. Students, who prefer to learn through CE value relationships with other people, make decisions based on intuition, and tend to be more concerned with feelings as opposed to thinking.

Reflective Observation (RO): Promotes the act of learning through reflection. Students who prefer to learn through RO have the ability to consider and appreciate a variety of different viewpoints and perspectives and conduct thorough observations when making judgments.

Abstract Conceptualization (AC): Promotes the act of learning through careful thought. Students who prefer to learn through AC appreciate the use of logic and systematic planning when analyzing ideas and utilize a scientific approach when trying to solve a problem or make a decision.

Active Experimentation (AE): Promotes the act of learning by doing. Students who prefer AE are willing to take risks, strive to accomplish tasks, and desire to exert an influence on others through action. (Burris et al., 2008, p.45) (as cited in Peters, 2008).

ELT is a holistic, dynamic, and dialectic theory of learning. Because it is holistic, the four modes that make up the experiential learning cycle –RO, CE, AC, and AE-

are conceived as interdependent. Learning involves resolving the creative tension among these learning modes in response to the specific learning situations, Kolb and Kolb (2005).

It is very important to mention that this theory has an important link to neuroscience research that supports the learning cycle it mentions. According to Zull (2002), a biologist and founding director of a university, the process of experiential learning is related to the process of brain functioning as shown in one of his figures. He illustrates that concrete experiences come through the sensory cortex, reflective observation involves the integrative cortex at the back, creating new abstract concepts occurs in the frontal integrative cortex, and active testing involves the motor brain. In other words the learning cycle of ELT is very similar to the structure of the brain.

As applied to my study, this theory holds that people have different approaches to process information. According to Ahed (2006), and Honigsfield and Dunn (2003), who have used this theory in their researchers, males and females learn differently and consequently develop different learning styles. The four modes of this theory chosen will allow this study to find possible differences taking into account different aspects of the human being such as the gender variable. This theory was chosen because it adapts to this study in different ways. The variables are clearly explained and give a broad explanation of how students who have different learning styles learn better. Another reason is that it is based on experience and does not separate theory or practice.

According to Kolb and Kolb (2005), the ELT has been judged by the standards of construct validity and it has been widely accepted as a useful framework for learning-centered education innovation, including instructional design, curriculum development, and life-long learning. Moreover, this theory differs from theories like Garden's because it not only interpreted learning styles as a personality variable, but also ELT defines learning styles as a social psychological concept that is only partially determined by personality. In that way the variables of this theory will

guide this study and will give a complete understanding of the relationship of learning styles and gender.

CHAPTER III   METHOD

This chapter explores the following aspects: the research procedures; the type of investigation; the definition of the conceptual variables; the description of the construct of the instrument; the population; and how the data was processed.

3.1 Research Design: A quantitative approach

According to Hernandez, Fernandez, and Baptista (2006), quantitative research sets up a limited problem of study and the research questions deal with specific matters. This is the case of the research questions: What are the learning styles of English students at the basic and intermediate level at the CEI? What is the relationship between gender and the learning styles of English students at the basic and intermediate level at the CEI? What are the differences between the learning styles of basic level students and the learning styles of intermediate level students of English at the CEI? What is the relationship between learning styles and students' age? What is the relationship between learning styles and students major? These research questions have already defined the object of this study. This study was a correlational research because we associated the students learning styles with their gender, age, level of English and major. One advantage of the quantitative research is that can be used established instruments to collect information.

3.2 Operational definition of the variables

According to Hernandez *et al*, (2006) a variable is a property that can vary and which can be measured and be observable. As this study is mostly correlational the hypotheses presented are correlative and specify the relationship between the variables of this study. For that reason it is important to give the operational definition of them. The next chart presents both the variables and the conceptual definition.

Variable	Operational definition
Learning styles	Individual's, natural, habitual, and preferred way of absorbing, processing, and retaining new information and skills.
Gender	Specific characteristics that distinguish women from men
Age	Age refers to the age of a person (or subject) of interest at last birthday (or relative to a specified, well-defined reference date).
Level of English	The proficiency a student has in the English language (basic or intermediate level)
Major	Major refers to a field of study where a person develops a thorough and comprehensive understanding of the field.

Table 3.1 Operational definition of variables

The purpose of this study is to determine the learning styles of CEI English students who were at the basic and intermediate level (at the time of the

investigation), and the relationship between their learning styles and gender, level of English, age, and major respectively. Then, in order to accomplish this objective in this study Kolb's Learning Styles Inventory was used, (see Appendix 1). This model proposes four scales to measure the learning styles variables: Concrete Experience (CE)=Experiencing, Reflective Observation (RO)=reflecting, Abstract Conceptualization (AC)=thinking, and Active Experimentation (AE)=doing. Figure 3.1 presents the model of variables.
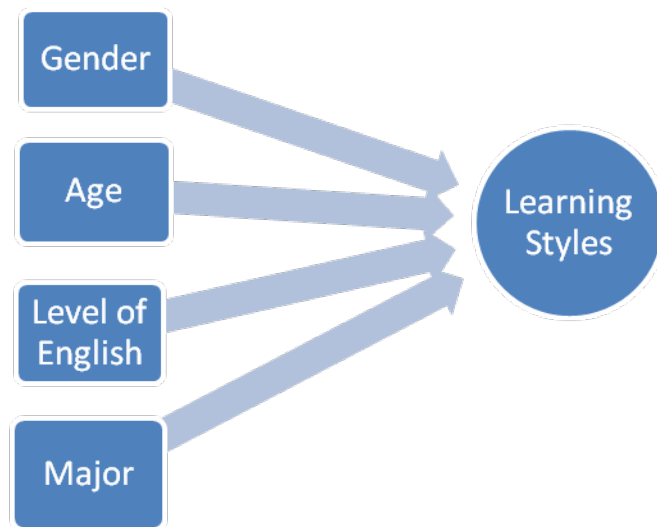

Figure 3.1 Model of variables

Given these points, the following sections of this study will be understood with ease due to the importance the variables play in the development of this research.

3.3 Research Procedure

In order to conduct this study it was necessary to answer the research questions formulated in advanced. For that reason, Kolb's Learning Inventory Version 3.1

was chosen to measure and correlate the variables of this study: learning styles, gender, age, level of English, and major.

The data collection was collected through the 12 items Kolb's Learning Styles Inventory Version 3.1 at the beginning of their classes. It was the first activity of the class. Students were told the purpose of the study and why they were chosen. Then they received the instructions and the time they spent answering the survey was approximately 35 minutes. Besides the Learning Styles Inventory, students were asked to answer some demographic questions in order to provide gender, level of English and highest educational attainment, major, and institution.

3.4 Sample and Population

This study was set up at the CEI (Centro de Enseñanza de Idiomas) at University of Quintana Roo, Chetumal campus. A sample of the students at the basic and intermediate level of English at the CEI was taken. The sample consisted of 92 subjects from English basic level and 93 subjects of English intermediate level. The number of groups of each level was chosen according to the number of students in each group.

3.5 The instrumentation

Kolb's (2005) Learning Style Inventory-Version 3.1 was chosen to correlate learning styles and students' gender and level of English. According to Kolb and Kolb (2005), this instrument was created to fulfill two purposes: to serve as an educational tool to increase individuals' understanding of the process of learning from experience and their unique individual approach of learning, and to provide a

research tool for investigating experiential learning theory (ELT) and the characteristics of individual learning styles. It measures the degree to which individuals display the different learning styles derived from Experiential Learning Theory (ELT).

3.5.1 The instrument Design

This inventory is composed of a short questionnaire of 12 items that respondents have to answer in order to rank four sentence endings that correspond to the four learning modes – Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation.

The survey started with the 12 questions of the Kolb's Learning Style Inventory. In this part of the survey respondents will be asked to rank each of the 4 statement endings using the number 4= most like you   3= second most like you   2= third most like you 1= least like you. E.g. When I learn: 2 I am happy. 1 I am fast. 3 I am logical. 4   I am careful. After that students were asked to provide demographic information: gender, age, level of English they consider they have, major, and institution.

This instrument has already been used and has shown reliable results. Since ELT is highly interdisciplinary, there have been many studies on ELT using the Learning Style Inventory.

3.5.2 Reliability and Validity

There are some reliability studies using the Cronbach's Alpha and the test-retest reliability that report a good reliability for the Learning Styles inventory. There are

many different studies with different populations that use the Cronbach's Alpha which showed a good reliability obtaining an average coefficient above .70. The validity of this instrument has been shown in many studies. The validity of the four scales of the instrument has been proven through factor analysis studies correlating learning styles with demographic relationships; gender, age, level of education, and major.

3.5.3 Pilot Study

First of all the instrument was translated into Spanish and it was validated by the supervisor and the researcher. After that it was administered to 15 participants at the basic level of English at the CEI. The observations we found were: Participants had questions about where to place the number. Also they did not know what to write if male/female or man/woman. Another question was whether to use a tick or a cross with the options and there were students who did not belong to the University of Quintana Roo.

3.5.4 Data Analysis

The participants consisted of 92 students enrolled in Basic English courses and 93 enrolled in Intermediate English courses. Participants were taking the courses at the CEI at the University of Quintana Roo. Data collection took place at the end of the semester –Spring 2011. Demographic information was collected in this study using a questionnaire designed by the researcher which consisted of five questions referring to gender, age, level of English they consider they have, major, and institution. The learning styles information was collected using the Kolb's Learning

Style Inventory composed of 12 items where students had to rank four sentence endings that correspond to the four learning modes.

To address the hypotheses (see 1.5) for this study, data were fed into SPSS (Statistical Package for the Social Sciences). The variables of the study were carefully arranged in SPSS terms. For the sake of the results descriptive and inferential methods were used including t-test, Pearson r correlation, and ANOVA (Analysis of Variance) along with Bonferroni Post Hoc Test.

Independent Sample t-test was used to compare two groups. As mentioned in Marín, (2005), Hatch and Lazaraton, (1991), pointed out that Pearson r correlation aims to establish the strength of the relationship among continues variables. In this study, the possible relationship between level of English and learning styles among CEI students was set out. ANOVA was used to measure the relationship among the different majors and the learning styles –Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation as measured by the Kolb's Learning Styles Inventory. Nicol and Pexman (1999) described that one way ANOVA is used when there is one independent variable and one dependent variable and is used to assess the differences between two or more groups' means.

CHAPTER IV RESULTS AND DISCUSSION

This chapter presents the results of the analyzed data. The chapter is organized into five main sections. Section one is generally concerned with the main results of the whole sample. Sections two, three, four, and five focus on the results and interpretation of the analyzed data associated with each of the research hypotheses and research questions.

4.1 General results of the whole sample

What follows are the demographic information of the whole sample and the distribution of the learning styles reported by CEI students.

4.1.1 Demographic information of the whole sample

The validated version of the inventory was administered to 185 participants. Participants are classified according to each one of the variables of the study.

Figure 4.1 illustrates the distribution of the respondents regarding their gender. The subjects were divided almost equally in terms of gender. 86 were females compared to 99 males. Even though, there is a similar number between males and females, groups were not chosen previously in order to have this similarity.
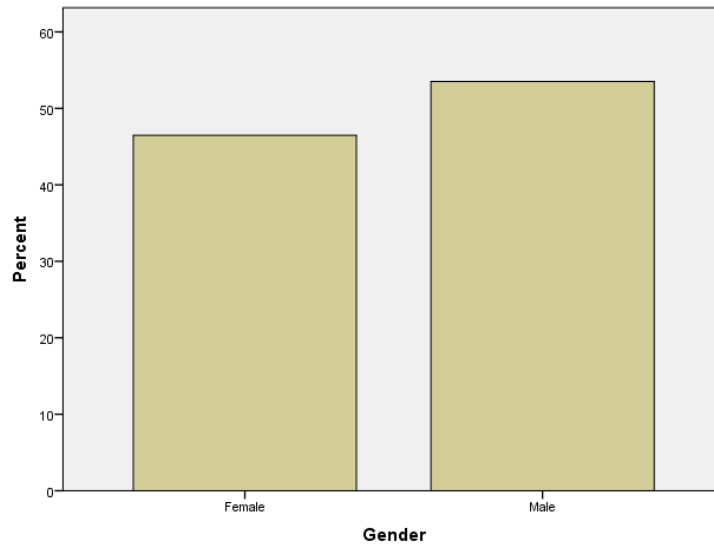
Figure 4.1 Participants classified by gender.

In the category of age, the respondents were divided in 19 groups as shown in figure 4.2. Students in the 19 age group made up 24.9 percent of the total. It is followed by the 20 and 18 age groups making up the 17.3 and 12.4 percent respectively. Students in the age range of 21 to 24 created the 28.6 percent and those in the age range of 25 to 46 created the 16.6 remaining percent.
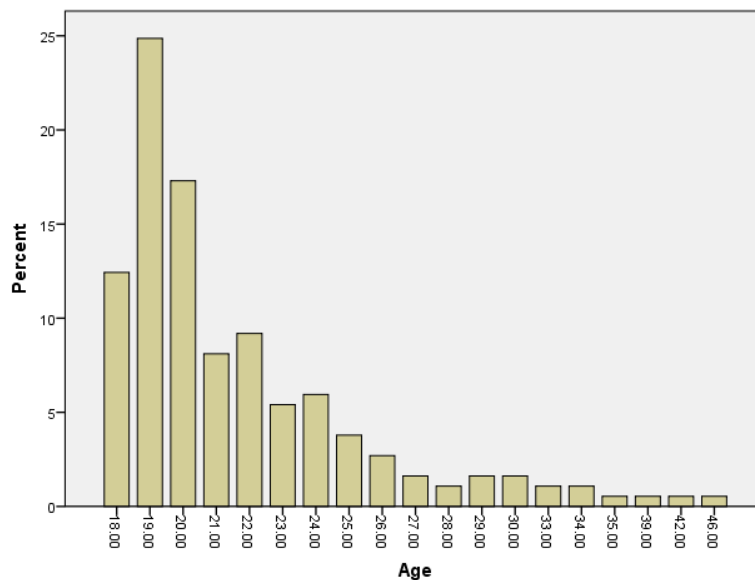
Figure   4.2 Participants classified by age

Figure 4.3 shows the distribution of respondents in terms of level of English. The subjects were divided almost equally in terms of level of English. There were 92 Basic English students and 93 Intermediate English students who made up the total of respondents. Both levels of English received six hours of instruction per week in a period of a semester.
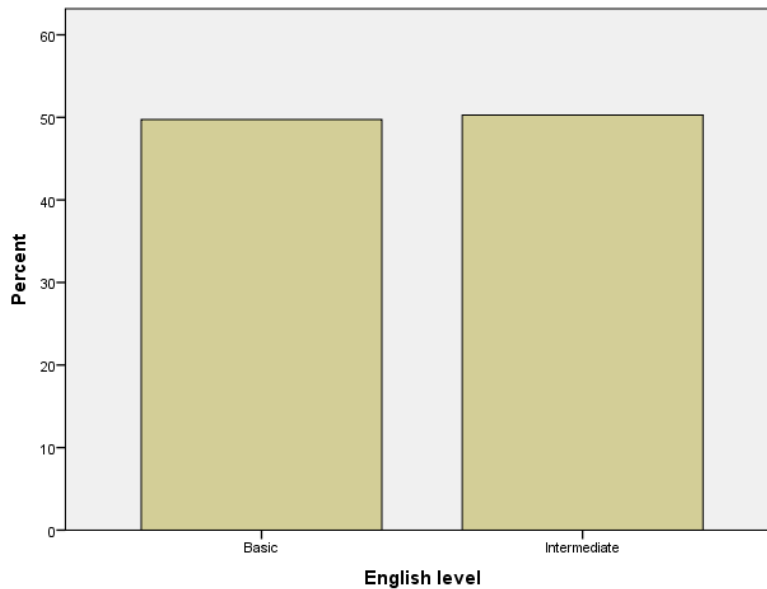
Figure 4.3 Participants classified by level of English.

In terms of major, the respondents were divided in 18 groups as shown in figure 4.4. Subjects from Law major, English language major, and Government and Public Management major were each above the 10 per cent of the total sample.
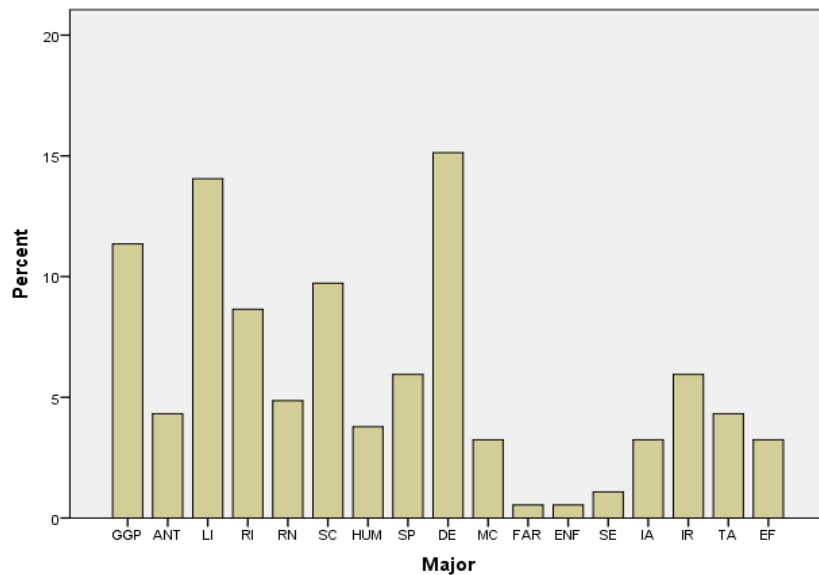
Figure 4.4 Participants classified by major.

4.1.2 Distribution of learning styles reported by CEI students

The 185 subjects in this study represented the four learning styles modes of the Experiential Learning Theory (see 2.4.1). Figure 4.5 illustrates the different levels of preference subjects reported.

It was found that 51.8 percent of the subjects were Concrete Experience oriented. It was followed by 20.1 percent of subjects that chose the Active Experimentation mode. Regarding the third learning style mode, 18.3 percent of the subjects reported themselves as Abstract Conceptualization oriented. The least preferred learning mode was the Reflective Observation with 9.8 percent.
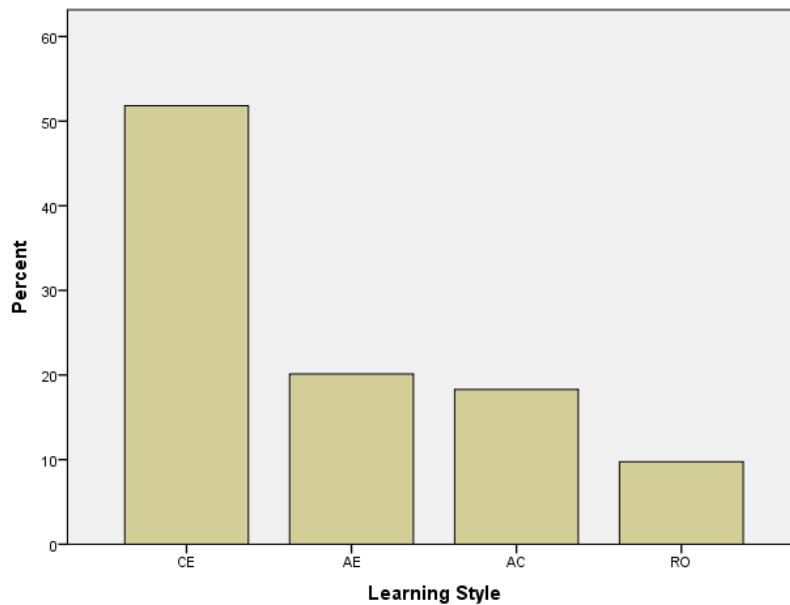
Figure 4.5 Participants classified by learning styles modes[1]

According to the information reported by all the subjects of the study, it is assumed that almost over half of the students (51.8%) are in the first stage of the David Kolb's Experiential Learning Theory which is directly addressed to grasp the knowledge and where this knowledge are concrete experiences that function as bases for developing observation and reflections and thus creating new knowledge.

Abstract Conceptualization mode is another stage of grasping knowledge with the distinction that at this stage people develop careful thought and analyze knowledge in order to solve problems or make decisions. There is 16.2 % of the sample who reported their preference towards this mode. The next two stages of this theory cycle are the Reflective Observation and the Active Experimentation which not only entail to grasp knowledge but also to transform this knowledge. The former promotes learning by reflecting for making judgments and was chosen for the 8.6%

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[1] CE = concrete experience; AE = active experimentation; AC =abstract conceptualization; RO = reflective observation.

of the total sample. The latter promotes learning by doing where people take risks to accomplish different tasks and was chosen by 17.8% of the whole sample.

Generally speaking, there are small percentages of students who are at the stages of transforming knowledge in comparison to the stages of grasping knowledge which leaves room to teachers and students to promote the activation and adoption of other learning styles and strategies in order to conduct learning through action. The knowledge of students most and least preferred learning styles is a paramount aim if teachers are there to provide useful strategies taking into account individual preferences and needs.

Concrete experience could be the most preferred mode because many teachers treat students in a similar way. As teachers have to follow the course content and asses students at the end of each course, it is clear then that there is a trend to instruct students in the same way. The ideal results after using Kolb's Learning Styles Inventory is that there would be a balance among the four learning styles modes or that there would be more students into the reflective observation and active experimentation mode.

However, the results are helpful to convince both teachers and students to use different learning strategies to activate or develop different learning styles. In a concerted effort, teachers have to stray away from their own learning styles and learn to use a variety styles that tailor students needs and thus get a positive effect in teaching and learning process.

It is necessary for students to experience different learning styles. It may be difficult to cover all students' needs; however, they will be aware of different way of learning and they can contribute to their academic success by being more autonomous.

4.2 Learning Styles and Gender

In order to explore these two variables the following research hypothesis was formulated to know whether there are differences between male and female students regarding their learning styles.

RH1: There is a significant difference between females and males EFL learners in terms of learning styles preferences.

At this stage, data collected were examined to determine the relationship between learning styles and gender. Means and standard deviation for each language mode by gender are showed in Table 4.1. Males tend to prefer a little more the concrete experience and the abstract conceptualization quadrants contrast to females who seem to prefer also in a little way the reflective observation and the active experimentation quadrants. However the means do not show a significant difference between males and females in any of the learning styles modes. The standard deviations revealed small distributions around the means.

Table 4.1 also shows the results obtained from the Independent Sample t-test used to compare the four learning styles modes and gender. Therefore, no significant differences were observed with any of the learning styles modes as all the significance levels were above 0.05. However, it can be mentioned that there is a significant level which shows a considerable tendency where females tend to be more at the reflective observation level than males (t=1.684, p>0.05).

Learning Style	Gender	N	Media	Desviación estándar	Prueba t
Concrete experience	Female	86	31.2674	4.03929	t = 1.647,
	Male	99	32.2727	4.22775	p. = .101
Reflective observation	Female	86	29.2674	3.09620	t = 1.684,
	Male	99	28.4343	3.56617	p. = .094
Abstract conceptualization	Female	86	29.4535	3.37345	t = .978,
	Male	99	29.9293	3.23644	p. = .329
Active experimentation	Female	86	30.0698	3.75042	t = .677,
	Male	99	29.7172	3.32903	p. = .499

Table 4.1 Independent Sample t-test showing Learning Styles differences by gender

These findings contrast with the results Matthews and Hamby, (1995) found. They used the four-way Kolb's (1984) Learning Styles Inventory (Diverger, Converger, Assimilator, and Acommodator) and the results indicated that there are differences between high school and college/university students based on the gender variable. Female students differed significantly from the Diverger, Converger, and Assimilator styles. Another study carried out by Hernandez, (2003), revealed that female and male students of the Centro de Enseñanza de Lenguas Extranjeras (CELE), of the Universidad Autónoma de Mexico (UNAM) have higher predominance of the kinesthetic and lower predominance of individual learning style. Honigsfield and Dunn, (2003), achieved similar results in a study by exploring significant interactions between learning styles, gender and nationality. They concluded that male students tended to prefer more peer interaction rather than learning alone and more kinesthetic activities. Female students needed a more social variety of learning and they were more responsible in order to get high grades.

However, there are other investigations whose findings indicated no differences based on the gender variable. In 2007, Demirbas and Demirkan carried out an

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important study which was focused on design education using Experiential Learning Theory (ELT) and explored the effects of learning styles and gender on the performance scores of freshman design students in three successive academic years. Findings indicated that learning style preferences did not significantly differ by gender in all three groups. In the same year, Thomas (2007) examined the relationship between knowledge of style, gender conditioning, and personality type preferences of African American college students ages 18 to 25. Findings reported that personality type for African American college students was more associated with knowledge of style than gender conditioning. The factors of culture and gender conditioning do not show significance in this study. Peter (2008) also had as a main purpose to investigate the relationships between CAPSOL's nine learning style scale scores, GPA, boys and girls, and socioeconomic factors. The results provided a normal bell-curve distribution of the nine learning style scale scores. There were no significant differences found in learning styles preferences with regard to gender: visual, auditory, kinesthetic, individual, or group learning styles.

The lack of significant difference could be caused by a number of other things: most female and male students could have been taught in the same way using the same strategies and methodology in the classroom, most of them could have studied in the same type of schools with teachers who focused on the same specific topics and where they were not able to develop their own learning styles. The context also may have influenced the findings. Most of the participants live in the same place and share similar cultural aspects, hobbies and entertainment.

4.3 Learning styles and Age

The second research hypothesis was addressed to concern whether learning styles differed significantly by age. The second hypothesis was:

RH2: There is a relationship between EFL learners' age and their learning styles preferences.

The bivariate analysis method used for analyzing the relationship between learning styles and the variable age was Pearson's r correlation coefficient. The direction of the relationship was both positive and negative as shown in table 4.2. However the strength of the relationship was not closer to 1(+ or -) revealing thus no strong relationship. The results are reported as follows: Concrete experience (r=-.014,p>.001); reflective observation (r=.071,p>.001); abstract conceptualization (r=-.032,p>.001); and active experimentation (r=-.027,p>.001). Thus it can be assumed that it was not found a relationship between students' age and their styles.

These findings contrast with the studies found in the literature review with regards to the variable of age. All of them showed significant relationships between learning styles and age and agreed that as people get older and get new information, they get considerable changes in their learning styles preferences.

However, further analysis in the present study showed a negative relationship between concrete experience and reflective observation learning styles (r=-.313, p<.001). Students who prefer concrete experience learning style show lesser extend to reflective observation style. There was also a negative relationship between abstract conceptualization and active experimentation learning styles (r=-.211,p<0.05). Students who prefer abstract conceptualization style tend to prefer the active experimentation style in a lesser way.

It is worth mentioning that the two learning styles where students show a positive preference correspond to the grasping quadrants in the Kolb's Experiential Learning Theory while the learning styles where students show a negative preference correspond to the transforming experience quadrants. According to this theory, students' experiences in the grasping quadrants are based on observation and reflection. On the contrary, students in the transforming experience level are those who have assimilated the two grasping quadrants and are able to create new

experiences. These results can be compared with the results of the distribution of learning styles reported by all the participants of this study (see table 4.5) where almost half of the total preferred a grasping quadrant: the concrete experience.

		Age	Concrete Experience	Reflective Observation	Abstract Conceptualization	Active Experimentation
Age	Pearson Correlation	1	-.014	.071	-.032	-.027
	Sig. (2-tailed)	.	.846	.339	.668	.715
	N	185	185	185	185	185
Concrete Experience	Pearson Correlation	-.014	1	-.313(**)	-.319(**)	-.494(**)
	Sig. (2-tailed)	.846	.	.000	.000	.000
	N	185	185	185	185	185
Reflective Observation	Pearson Correlation	.071	-.313(**)	1	-.266(**)	-.218(**)
	Sig. (2-tailed)	.339	.000	.	.000	.003
	N	185	185	185	185	185
Abstract Conceptualization	Pearson Correlation	-.032	-.319(**)	-.266(**)	1	-.211(**)
	Sig. (2-tailed)	.668	.000	.000	.	.004
	N	185	185	185	185	185
Active Experimentation	Pearson Correlation	-.027	-.494(**)	-.218(**)	-.211(**)	1
	Sig. (2-tailed)	.715	.000	.003	.004	.
	N	185	185	185	185	185

Table 4.2. Pearson's correlation coefficient showing learning styles by age

Both results showed that there could be a necessity to involve students in activities where they can connect contents to everyday life situations and teachers should keep adapting or transforming the contents they are teaching to the different students learning styles so that they can get more opportunities to understand the contents in a better way and reach the objectives. Both teachers and students need to enjoy the learning activities in order to inquire and discover new knowledge. All in all, it is necessary that teachers not only know their students learning abilities but also analyze their own teaching abilities.

4.4 Learning styles and Levels of English

The third research hypothesis was addressed to concern whether learning styles differed significantly by level of English. The second hypothesis was:

RH3: There is a significant difference between EFL learners' level of English and their learning styles preferences.

Means, standard deviation, and standard error means for each language mode by level of English are showed in Table 4.4. The means hardly show a small difference between learning styles and level of English. As well as the variable gender, the standard deviations by level of English revealed small distributions around the means.

The difference in learning styles scores by basic and intermediate level of English was determined on the basis of independent sample t-test as shown in table 4.5. There was not a significant difference between leaning styles and the independent variable level of English because all the significant levels are greater than 0.05.

Learning Style	English Level	N	Media	Desviación estándar	Prueba t
Concrete experience	Basic	92	31.6957	4.52038	t = -.356,
	Intermediate	93	31.9140	3.79260	p. = .722
Reflective observation	Basic	92	28.8804	3.75000	t = .235,
	Intermediate	93	28.7634	2.97233	p. = .814
Abstract conceptualization	Basic	92	29.9674	3.60235	t = 1.063,
	Intermediate	93	29.4516	2.96910	p. = .289
Active experimentation	Basic	92	29.5543	3.80389	t = -1.256 ,
	Intermediate	93	30.2043	3.21531	p. = .211

Table 4.3 Independent Sample t-test showing Learning Styles differences by level of English

This finding is inconsistent with two learning style studies from the literature review, which found learning style differences by level of English and argued that this is a factor in the learning styles changing process while the other two studies proved that there was not any relationship between these two variables.

In order to give an interpretation of the previous results, it is necessary to mention all the levels of English at CEI. The self access center at the university offers the following courses: Introductory English, Basic English, Pre-intermediate English, Intermediate English, Post-intermediate English, and Advanced English. As there were a greater number of students in the basic and intermediate English courses than in the rest of the courses and taking into account the nature of a quantitative study, it was opted to find differences between basic and intermediate English subjects.

One of the reasons that could support the lack of significant differences in the present study is that the period of time between the two levels is not that extensive so that students could develop more learning styles. Moreover, the use of the same type of coursebook in all the levels can have an influence on the students' learning styles variation because the contents can be presented in the same way from both parts the books and the teachers.

Another reason could be that students from both levels share similar study habits and similar learning strategies in relation to learning a language. The majority of them come from state schools where the English teaching is low because of the time given to it as a subject is not much and they do not have the opportunity to experiment that enough with the language.

4.5 Learning Styles and Major

The fourth research hypothesis was addressed to concern whether there are differences in learning styles across the university majors. The fourth hypothesis was:

RH4: There is a significant difference in learning styles preferences across the university majors.

According to the descriptive information participants were classified into 18 different groups. Nevertheless, there were groups where the number of participants was less than 10 cases. Bearing in mind that the low number in those groups might affect the level of significance difference across the majors where the number of cases was above ten participants, five groups out of the total were taken into account to address the last hypothesis. Figure 4.5 shows these five majors.
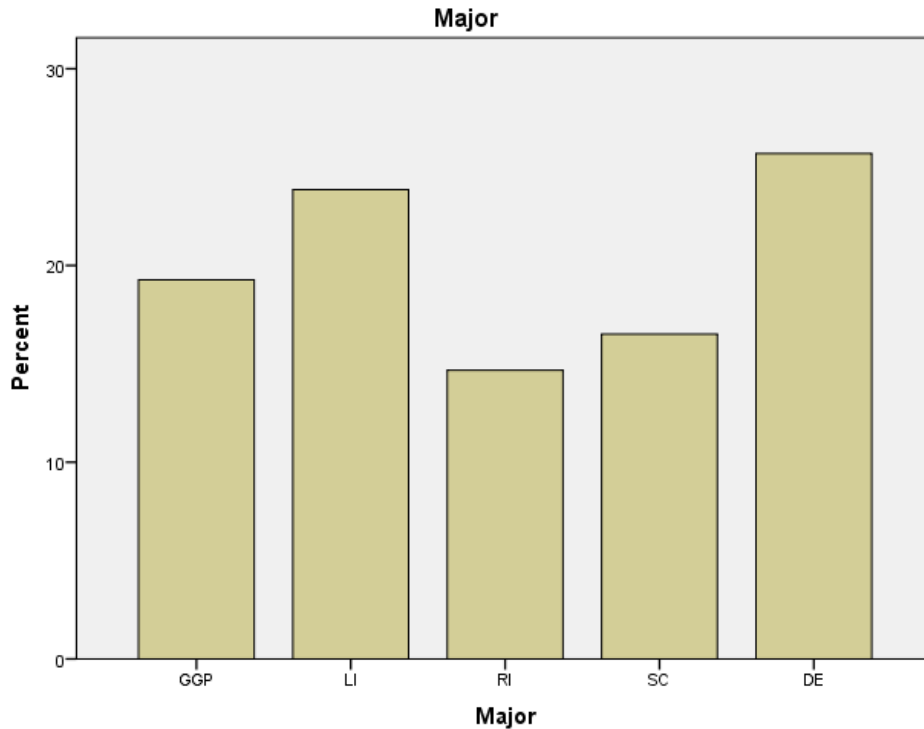

Figure 4.6 Participants classified by five majors

One- way between subjects and one-way within subjects ANOVA was conducted to address the fourth research hypothesis of the relationship between the five majors and the four learning styles modes as shown in table 6. The former method was useful to determine if there were differences in learning styles across the 5 university majors. The latter was used for the analysis of the four learning styles within each of the majors. The data analysis revealed that there is only a significant difference in Reflective Observation mode and the major groups ($P < 0.05$).

Learning style	Majors	N	Mean	ANOVA
Concrete Experience	GGP	21	32.9524	F = 1.222, p = .306
	LI	26	30.9231	
	RI	16	31.2500	
	SC	18	30.0556	
	DE	28	31.8571	
Reflective Observation	GGP	27.0000	2.60768	F = 2.813, p = .029
	LI	29.1923	2.62327	
	RI	29.8125	5.17969	
	SC	30.3333	3.77297	
	DE	29.3214	3.01912	
Abstract Conceptualization	GGP	28.6667	3.15172	F = .804, p = .525
	LI	29.3077	2.86732	
	RI	30.3125	3.70079	
	SC	29.6111	3.79068	
	DE	30.2143	3.90969	
Active Experimentation	GGP	31.2857	2.49285	F = 1.925, p =

				.112
LI		30.9231	2.72651	
RI		30.0000	3.36650	
SC		29.6667	3.34312	
DE		29.1071	3.73511	

Table 4.4 One way ANOVA between and within groups across university majors

It is important to note that one-way ANOVA cannot tell specifically in which major groups there are differences. In order to get that information Bonferroni Post Hoc tests were used to obtain comparisons of the five major groups with one another. The means differences taken from the post hoc tests revealed that there is only a significant difference between GGP and SC[2] in terms of the reflective learning style mode.

For the reflective observation mode, GGP showed lowest scores, while SC showed the highest scores. This means that students were least likely to prefer learning English through Reflective Observation when studying GGP, and most likely to prefer learning English through Reflective Observation when studying SC. Taking into account the candidate profiles of both majors, the requirements they asked for are quite similar, however in the SC major there is a greater stress on the analysis of specialized reading and the logical reasoning more than in the GGP major.

According to the graduate profile it can be stated that GGP students are able to evaluate and analyze the problematic of the country and the influence of politic, economic, social, and cultural issues in relationship to the government. On the other hand, SC students are more focus on the process of business systems that offer goods and services to the society. The previous comparison is a significant point of reference in this analysis of the results because it gives an idea of why SC students are more reflective than GGP students. It can be said that SC students

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[2] Government and Public Administration and Business Systems

are more reflective because they have to be part of the process of a business creation, the analysis of sale strategies, and the market research that offer different supply and demand while GGP students professional activity relies more on established government departments.

With regard to the relationship among learning styles and the other majors it can be argued that the possible reasons of the lack of differences is that the five majors are grouped in only two Divisions which share similar characteristics. GGP, EL, and IR belong to the Division of Policy and Humanities Sciences, while SC and Law belong to the Division of Social and Administrative Sciences. The five majors are focus at some point on social and educational problems and on the analysis of strategies that look for possible solutions in favor of the society.

Other reasons could be that students are not consciously aware of their learning style preferences and there is a lack of the use of strategies that help students to activate in them different forms to process the information they get in the classrooms. As students bring different experiences and knowledge bases it would be helpful that teachers increase their number of teaching strategies.

To conclude with this chapter, it can be stated that the findings of the present study showed, in general, few differences between the four variables and the learning styles modes. On the one hand, no significant differences in preferred learning style modes were found by gender and level of English. On the other hand, carrying out some further research, age and major showed some differences in terms of the learning style modes. There was found a negative relationship between concrete experience and reflective observation regarding age and one learning style quadrant varied by two of the five majors chosen to be compared.

CHAPTER V CONCLUSIONS

This final chapter presents the conclusion of the study in five sections. The first section reviews the research design, data collection and data analysis procedures and then lists the four hypotheses of the study. A summary of findings from the analysis data makes up section two. The third section relates to the limitations of the study. The suggestions for further research along with the pedagogical implications make up section four and five.

5.1 Summary of the General Study

As the University of Quintana Roo houses students that come from different places who have different backgrounds there was the need to know what their learning styles are as well as the changes they have in their learning styles preferences. In an attempt to document the existing learning styles in a particular group of students the purpose of this quantitative study was to identify the learning styles of basic and intermediate English students at the CEI as well as their level of significant differences in terms of gender, age, level of English and major.

This investigation was important to be conducted because it is one of the few attempts in the local area to discover the learning styles of an important number of students in this institution. One hundred and eighty three students participated in this study, conducted in 2011. Four research hypotheses were posed to determine if there would be significant differences among the learning styles of CEI English students by gender, age, level of English and major. The 12 items Learning Styles Inventory IIa by David Kolb was used to assess the learning styles of the participants.

Data were electronically analyzed by Statistical Package for the Social Sciences (SPSS). Descriptive analysis was calculated for each of the variables of the study and inferential analysis was established by t-test, Pearson r correlation, ANOVA and Bonferroni Post hoc test.

5.2 Summary of Major Findings

What follows is a summary of the principal findings of the study according to the four hypotheses of the investigation.

1. Learning styles by gender

The first research hypotheses was addressed concerned whether learning styles differed significantly by gender.

RH1 There is a significant difference between females and males EFL learners in terms of learning styles preferences.

Inferential statistics including means and the standard variations taken from the Independent Sample t-test were used to compare the four learning styles by gender. Results showed that there is a little tendency for males to prefer the concrete experience and the abstract conceptualization modes while females showed a little tendency for the reflective observation and active experimentation modes. Nevertheless, the significance levels were not below 0.05 to accept this first hypothesis and it can be stated that there were no significant differences found between any of the four learning styles modes in relationship with gender.

2. Learning styles by age

The second research hypothesis was addressed concerned whether learning styles differed significantly by age. The second hypothesis was:

RH2 There is a significant difference between EFL learners' age and their learning styles preferences.

To obtain the correlations between learning styles and age Pearson's r correlation coefficient was used. Results did not show any strong correlation between students' learning styles and their age. Even thought the hypothesis was rejected, further analysis showed that there were some relationships whiten the learning styles. Students who preferred the concrete experience mode demonstrated a lesser preference for the reflective observation; and students who preferred the abstract conceptualization mode showed a lesser preference for the active experimentation mode. It can be assumed that while students show a greater preference for a learning style mode that belongs to grasping knowledge, they low their preference to a learning style mode that belongs to transforming knowledge.

3. Learning styles and level of English

The third research hypothesis was addressed concerned whether learning styles differed significantly by level of English. The third hypothesis was:

RH3: There is a significant difference between EFL learners' level of English and their learning styles preferences.

Independent Sample t-test was also used for the sake of comparing learning styles and level of English. The results were above the 0.05 showing that there are not significant differences between the four learning styles modes and level of English.

4. Learning styles and major

The last research hypothesis was addressed concerned whether learning styles differed significantly by major. The fourth hypothesis was:

RH4: There is a significant difference in learning styles preferences across the university majors.

One way ANOVA and Bonferroni post hoc test were used to compare learning styles and major. Results revealed that there is an only significant difference between GGP and SC in terms of the Reflective Observation mode. Students from GGP have a greater preference for this learning style mode while SC students tend to have a lesser preference for that learning style mode.

5.3 Limitations of the Study

Limitations of this study were as follows: first of all, there was not a probabilistic sampling; the subjects would not be taken at random. As the population was confined to a sample the results are unable to be generalized. Other limitations that were faced during the development of this research are: the student found it difficult to understand some concepts while answering the questionnaires; students had problems with timelines and then not hand in the questionnaires answered on time. Besides that, another limitation was that some students had already taken the inventory that was chosen. Sheard and Lynch (2003) noted a study in which students already knew their learning styles from previous course work and this knowledge affected the outcome of the study. However, it was hoped that participants did not know their specific learning styles associated with the inventory that was chosen.

5.4 Suggestions for Further Research

Some suggestions for further research are highlighted in this section in order to encourage further considerations on the main issues found here. This work was mainly concerned with learning styles of students at the basic and intermediate level. Advanced English students could be taken up and thus results could reveal

more significant differences between learning styles and the variable age because there would be a broader of time experiencing the language learning between basic and advance students. Also a larger sample should be included in the three levels of English in order to get more significant differences.

Another research could be carried out to look in more details the differences within the learning styles modes taking into account students for the English Language major since they are more exposed to the English language and thus with more learning strategies. The variables age and level of English could be analyzed in more details since there are subjects of English from one to eight. Age could be analyzed in terms of the time students spend during the eight English subjects.

Since the distribution of learning styles reported by the whole sample (see 4.1.2) showed that almost 50% of them prefer the concrete experience mode, further research could be conducted with teachers in order to analyze if their learning styles preferences are similar to the ones students preferred or not. Also, it would be a way to know if teachers learning styles preferences have an influence in the ones the majority of students chose.

In conclusion the nature of the this quantitative approach leaves the door open to further research and through the small contributions to the field of learning styles it is important to encourage teachers of the English language major or from other majors to conduct investigations in this field using the recommendations outlined above or taking into account other suggestion or variables in order to enrich the learning styles field.

5.5 Pedagogical Implications

The pedagogical implications outlined here are concerned with teaching and learning issues since both aspects are interrelated in this learning styles study.

It has been found that in general students are in the first stage of the ELT (concrete experience) where students only grasp the information rather than transform that information. Based on this finding it can be suggested that English language teachers have to look for more learning strategies which help students to develop the other learning styles modes and also help them with activities and materials that really encourage their critical thinking.

Another pedagogical implication should be drawn on the basis of the usefulness of the instrument used in this research. Kolb's Learning Styles Inventory could be used in classes at the beginning of a course in order to be aware of students learning preferences and thus take into account the results as a guide to improve students' weaknesses and strengths.

Besides that, this study has made an effort to provide the significant role of learning styles in teaching and learning and thus bring self-reflections about our teaching practices and the necessity to respond to a wide and diverse student body and to be concerned not only with covering the content but also to get the message across different type of students.

Finally, more pedagogical implications can be stated on the results obtained from the relationship between learning styles modes in terms of gender and level of English. As there were no significant differences found it can be assumed that teaching could have been linear and there have not been room left for students to discover or develop different learning styles.

All in all, the pedagogical implications stated above have the aim to help in the teaching and learning process through knowing the learning styles of different students taking into account their gender, age, level of English, and major.

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APPENDIX A

KOLB'S (2005) LEARNING-STYLE INVENTORY VERSION 3.1

Los estilos de aprendizaje describen la manera de cómo aprendes y cómo manejas las ideas en situaciones diarias de tu vida. En la parte de abajo hay **12 enunciados** con 4 opciones de completamiento. Enuméralos de acuerdo con tu propia experiencia de aprendizaje. Es decir, usando el espacio proporcionado escribe 4 si la forma en la que aprendes es la mejor que se adapta a ti y descendiendo hasta 1 como lo que menos se parece a ti. Asegúrate de enumerar todos los finales de oraciones de cada unidad. Por favor no hay empates.

Ejemplo de una oración completa

1. **Cuando aprendo**: _2_ soy feliz. _1_ soy rápido. _3_ soy lógico. _4_ soy cuidadoso.

Recuerda: 1 = Nada parecido a mi
2 = Más o menos parecido a mi
3 = Parecido a mi
4 = Muy parecido a mi

1.Cuando aprendo:	__	Me gusta hacer frente a mis sentimientos.	__	Me gusta pensar en ideas.	__	Me gusta estar haciendo cosas.	__	Me gusta ver y escuchar.
2.Aprendo mejor cuando:	__	Escucho y veo cuidadosamente.	__	Dependo de mi manera lógica de pensar.	__	Confío en mi memoria y sentimientos.	__	Me esfuerzo mucho para obtener buenos resultados.
3.Cuando estoy aprendiendo:	__	Tiendo a resolver las cosas razonando.	__	Soy responsable de las cosas..	__	Soy tranquilo y reservado.	__	Tengo sentimientos y reacciones fuertes.
4. Aprendo por:	__	Sentimiento	__	Haciendo	__	Viendo	__	Pensando
5. Cuando aprendo:	__	Estoy abierto a nuevas experiencias	__	Tomo en cuenta todos los lados del problema	__	Me gusta analizar las cosas, en partes.	__	Me gusta probar cosas.
6.Cuando estoy aprendiendo:	_	Soy una persona observadora.	_	Soy una persona activa.	_	Soy una persona intituiva	_	Soy una persona lógica.

7. Aprendo mejor de:	__	La observación	__	Relaciones personales.	__	Teorías razonables.	__ La oportunidad de probar y practicar.
8. Cuando aprendo:	__	Me gustan los mejores resultados de mi trabajo.	__	Me gustan los tratados y las teorías.	__	Tomo mi tiempo antes de actuar	__ Personalmente, me envuelto en las cosas.
9. Aprendo mejor cuando::	__	Confío en mis observaciones.	__	Confío en mis sentimientos.	__	Puedo probar cosas por mí mismo.	__ Confío en mis ideas.
10. Cuando estoy aprendiendo:	__	Soy una persona reservada.	__	Soy una persona tolerante.	__	Soy una persona responsable.	__ Soy una persona racional.
11Cuando aprendo:	__	Me involucro.	__	Me gusta observer	__	Evalúo las cosas.	__ Me gusta ser activo.
12. Aprendo mejor cuando:	__	Analizo ideas.	__	Soy una persona receptiva y de mente abierta.	__	Soy una persona precavida.	__ Soy una persona práctica.

Información Demográfica

(En los ítems que presentan opciones, marcar con una (√) la respuesta elegida)

Matrícula: _____

Carrera: _____

Institución _____

Edad: _____

Género: Femenino ____ Masculino _____

Tiempo de estudio de inglés (en toda tu vida): _____ años _____meses

Nivel de inglés que yo considero tener actualmente

____ principiante _____ intermedio _____ avanzado

Acudo al Centro de Auto-Acceso:

___ siempre ___frecuentemente ___ algunas veces ___ nunca

Muchas gracias por su cooperación