

LEARNING STYLES AND THEIR RELATIONSHIP WITH ACADEMIC PERFORMANCE IN ENGLISH AS A SECOND LANGUAGE OF STUDENTS IN A MEXICAN UNIVERSITY

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Abstract:

Aim of this investigation was to determine if taking into consideration the learning styles according to Alonso, Gallego and Honey's theory, learning English as a second language in a group of undergraduate students is supported with the objective of improving their academic performance. To accomplish it, a qualitative case study method approach was used. Eleven participants of a private university in southern Mexico City took part. Instruments included the CHAEA questionnaire, class observations and semi-structured interviews. Analysis strategy involved a coding and category identification process complemented with information triangulation. Results seem to indicate that the students of English as a second language manifested their learning style neither in their selection of electronic platform tasks nor in class activities. However, learning styles strategies improved the student's concentration, establishing a proper relationship between the learning

styles and improvement of academic performance in learning English as a second language

Keywords: learning styles, educational resources, electronic platform, academic performance

LOS ESTILOS DE APRENDIZAJE Y SU RELACIÓN CON EL DESEMPEÑO ACADÉMICO EN INGLÉS COMO SEGUNDA LENGUA, EN LOS ESTUDIANTES DE UNA UNIVERSIDAD MEXICANA

Resumen:

El objetivo de investigación consistió en, tomando los estilos de aprendizaje de acuerdo con la teoría de Alonso, Gallego y Honey, conocer si se facilita el aprendizaje del inglés en un grupo de estudiantes universitarios, para mejorar su rendimiento académico. Se utilizó un método cualitativo de estudio de casos. Participaron once estudiantes de una universidad privada del sur de la ciudad de México. Los instrumentos incluyeron el cuestionario CHAEA, observaciones de clase y entrevistas semi-estructuradas. El análisis incluyó el proceso de codificación e identificación de categorías, complementado con triangulación de la información. Los resultados parecen indicar que los estudiantes de inglés no evidenciaron su estilo de aprendizaje en la selección de actividades de la clase, ni dentro de la plataforma electrónica utilizada. Sin embargo, su concentración mejoró por lo que se pudo establecer la relación del estilo de aprendizaje con un mejor aprovechamiento académico en el aprendizaje del inglés en estudiantes universitarios

Palabras clave: estilos de aprendizaje, recursos didácticos, plataforma electrónica y aprovechamiento escolar

Introduction

Globalization has created different demands and needs for new competencies and skills to cope with the requirements of the XXI century. They include assertive and effective, oral and written communication, adaptability to collaborative tasks and improved use of information technology. Thus, education practices have been adapting to the new challenges by including new planning and strategies to aid in the learning process with use of electronic technology, in which English plays an important role.

English as a second language learning has become a primary necessity as it is the mostly used tool in communication amongst nations and individuals for economic or business transactions, social, political, intellectual and inter-governmental exchanges and agreements, and especially for access to new findings in the academic fields. Therefore, English as a second language is actively studied around the world to enable the person to participate in it.

1. Learning styles and English learning

Authors like Alonso (2008), Gallego (2005), Honey (2005), Felder (2014), Fleming (2006) and Lozano (2007), among others, have recently been investigating students' learning styles. These authors observed that when following a process for learning occurs, certain characteristics and procedures are followed. These characteristics received the name of *Learning Styles*. These styles become evident in the cognitive, meta-cognitive and affectionate dimensions in the individual while the experience of learning is embraced (Alonso and Gallego, 2008).

These authors considered four main learning styles: active, reflexive, theorist and pragmatist. Helping other educators to identify the learning styles in individuals, they created an eighty-item questionnaire. The answers to the interrogations help to establish the individual's predominant learning style in university students, for whom it was created.

On the other hand, learning styles are not permanent. They can be modified by an incident (Aguilera and Ortíz, 2010) or when the individual feels it is required, becoming a new learning tool.

Furthermore, knowledge has also been conditioned by physical and environmental previous backgrounds, which influence the learning process of the students in many aspects (Antoni 2009; Artunduaga 2008; Consuelo 2006; Gutiérrez 2014; Lozano 2007). As a result, everyone has a predominant learning style.

Besides, learning styles have shown a direct relationship with preferences, tendencies and skills, which determine patterns of behavior, considering the strengths of individuals when they face the habitual tasks of learning in different contexts (Consuelo, 2008). Students at undergraduate level already know their learning style characteristics.

The latest theory behind the learning styles comes from Alonso and Gallego (2008). They established that, from a phenomenological perspective, knowledge has a relationship between thought development and the individual's personal characteristics, when establishing connections to reality. Therefore, psychological and previous experiences also affect the learning style. Thus, a series of activities and adequate strategies for all learning styles are suggested when undertaking any task assignment.

Moreover, Alonso, Gallego and Honey (2005) mention four phases in the individuals' learning process. The first phase consists of collecting information; the second, involves reflecting and analyzing that information; in the third, the individual synthesizes and structures the information; and in the fourth phase the individual is capable of using the information.

English, as previously mentioned, acts as an important information and communication tool in today's world; therefore, the language learning process has

been studied consistently. Nudžejma and Azamat (2012) determined that a student learns following his dominant learning style and later adjusts the received information. Students of English as a second language mostly follow that process.

Equally, several authors have also performed research on English as a second language as part of public and private education improvement plans. Chiang, Echeverry, Martínez and Ren (2013) recognize visual, audio, kinesthetic and tactile, and group or individual work as perceptions that play an important role in English language acquisition, following Fleming's VARK theory (1987). These sensory perceptions should support the students' predominant learning styles, catering to all of them.

In addition, Ortiz and Aguilera (2005) following Alonso, Gallego and Honey (2005), stipulate that the students take activities in their affectionate, behavioral and physiological forms which are found in the cognitive phenomenon and processes. At the same time, they all mentioned that pedagogic strategies are directed into skills development or competencies building, essential now in future working lives.

Furthermore, the activities presented on the electronic devices should also consider the learning styles and sensory perception skill appealing to the individuals' learning styles to support and enhance the learning process, following the theory of Alonso, Gallego and Honey (2005), without disregarding any of the main four learning styles herein described.

1.1. Academic performance

Different definitions of academic performance have to be considered. These include the way students respond to current education demands. The main ones consider proper use of IT, collaborative work and a proper communication interaction in today's globalized world.

Then too, theoretical and technological advances require constant updating. Therefore, more use of technology has been incorporated to the learning process. Additionally, platforms have proven effective in supporting the learning process (Garbanzo, 2007). In this platform-based information, the student is provided with material in a contextual manner, which enables him or her to reach and understand the object of study better.

Yet again, from a practical viewpoint, academic performance refers to the results, separating the short term (success or failure) from the long term (working connections in efficacy and productivity). From a wider perspective, performance is measured through failure or success in approval exam percentages, the amount of students presenting exams and attitudes towards studies, institution, subject, etc., also by the level of student satisfaction experienced. (Tejedor y García-Valcárcel, 2007).

Moreover, if a student needs to spend more time performing an activity, tiredness and disappointment become evident more quickly, which in turn affect his learning capacity. Should there be an excess of mal-manipulated strategies, bad presentation and practice of the knowledge, the student is affected (Navarro, 2003). Therefore teachers must be sensitive to the learning styles present in their groups and to balance times, strategies and students' efforts.

Other factors intervene in the learning process. Jiménez (2000) states that the level of knowledge demonstrated in an area of study needs to be compared to the norm of age and academic level in students to establish performance. From his perspective, age and capability should be considered in academic performance. He expands this to considering the school motivation and social abilities as two other factors playing an important role in academic performance. Cominetti and Ruiz (1997) recognize that when the students feel comfortable, they perform the activities better supporting their learning process. Guthrie (2000) states that when the teacher is aware of the motivational factors, they use them as support in their

students' learning process.

On the other hand, Rodriguez (2012) concludes in his research made in Ibaguè - Tolima, Colombia that use of platforms or technological tools cannot sustain improvement in academic performance in university students. He mentions commitment to the subject and lack of training in the use of technology as important divergent factors.

1.2. Related studies

As for Khosravi (2012), he made a study in English as a second language in an adult language school in Iran with high efficacy and performance rates. These students were using learning strategies linked to their learning styles more often with a positive impact on their performance. Students recognizing the traits of their personal learning style in the activities presented, found them easier and more enjoyable to follow.

Moreover, Yao and Iriarte (2013) observed in their investigation made with medicine university students of English as a second language a significant co-relation between the theorist learning style and academic performance. They centered their studies in partial grades.

Furthermore, Sanabria (2009) studied Civil Engineering and Psychology university students and found the reflexive learning style as predominant in students of the first semester. The style changed for the Civil Engineering students of the second semester, when they acquired the pragmatist learning style. In his study, he did not find differences in academic performance considering the learning styles.

In addition, Yea Ru Tsai (2012) when attempting to establish a relationship between cognitive, motivation and strategies used in reading comprehension in English at I Shou University in Taiwan, stated that the learning styles approach following Alonso, Honey and Mumford proved beneficial when developing and applying strategies using technological resources as hypermedia systems and programs.

On the other hand, Gallardo (2013) in his research performed with 93 teachers of Valencia University, Valencia Polytechnic University and the Catholic University of Valencia found that teachers who developed strategies following their students' learning styles, also developed better attitudes and deeper knowledge in them. At the same time, the students improved if the teacher had adequate strategies.

1.3. Participants

The current study was performed in eleven university undergraduate students of different majors. In some cases they had been studying English since their kindergarten years, while some others started studying English for the first time at university. Some study to pass the subject and be able to graduate; some others want a successful, long lasting knowledge of the language. The language acquisition is determined by the student situation, besides their personality and the depth of the approach to the object of study, which brings quality to the learning process (Valle, Vieiro, Cuevas, González, Rodríguez and Baspino, 1997).

2. Background

When studying English, the most commonly considered characteristics are the sensory perceptions of individuals according to Li (2012). These are: visual, audio, reader/writer and active, following Fleming (2001). Nowadays is uncommon in Mexico for the English teachers to know, value and consider Honey, Alonso and Gallego's (2005) theory of the learning styles, their classification and characteristics and to put them to use when preparing the educational resources to help students learn English as a second language.

2.1. Background of the problem

Currently, the process of learning English as a second language has been supported with the use of technological information in the form of electronic platforms by creating a blended or hybrid learning. According to Sankey, Birch y

Gardiner (2011) these platforms also need to consider the student's learning style, which should be taken into consideration and catered, too.

2.2. Problem statement

In the process of learning English the development of four skills is imperative. These skills include reading, writing, listening and speaking abilities with the foundation of solid grammar. At the time when the teachers prepare their resources, they have to focus in keeping a balance between all skills, taking into consideration their students' learning styles (Lozano, 2013).

As a result a topic question arises: How should academic performance be improved in English as a second language, according to the students' learning styles based on Alonso, Gallego and Honey's theory, making use of activities, resources and electronic platforms specially designed for that purpose to strengthen the learning of that language?

2.3. Research objective

The main objective of this research was to identify the learning styles of English as a second language in university students, and to determine according to Alonso, Gallego and Honey's theory of learning styles if they have a repercussion in academic performance with technology involvement.

2.4. Research suppositions

Students and teachers of English can support and facilitate the learning process with the knowledge of the learning styles. Teachers should know them in order to foster the learning process taking advantage of those characteristics. At the same time, the teacher who is familiar with them selects and implements the most adequate educational activities to support them. Therefore the suppositions are:

Students who know their learning styles benefit because when encountering the

object of study, supported in their learning characteristics find possibilities of strengthen their own learning processes.

Moreover, electronic platforms offer a variety in the approach to the objects of study as foundation for the different students' learning styles. Their constant use allows the student to acquire the knowledge in different ways respecting and supporting their learning styles.

On the other hand, the knowledge and adaptability of materials to the learning styles may have a repercussion in the academic performance of students in the learning of English as a second language, at university undergraduate level.

2.5. Justification

In Mexico, an organization called *Mexicanos Primero* (Mexicans First) did research about the situation of English teaching and learning. They had implemented an important education plan that gave emphasis to English as a second language learning in students. The results were evaluated after 1600-1900 hours of teaching. After that time, the students did not reach an intermediate level in their knowledge of the language. At the same time, it was reported that the teachers did not have the sufficient knowledge of the language to improve their students' results.

A reason for this might be that the students' learning styles were not playing an important role in the teachers' planning and activities selections. Therefore, it is important to consider the learning styles play an important role in order to support the learning process, in this case of English as a second language (Hernández, 2004).

2.6. Limits and delimitations

The objective was to expose the reality of English as a second language, at an upper-intermediate level, analyzed from their learning styles perspective, educational activities and use of a commercial electronic platform, in a private

university in southern Mexico City. Results are restricted to this context.

As for the incidence in academic performance that knowing about the learning styles characteristics upon education has, the manner in which students responded to the educational demands within the classroom context was considered.

3. Method

Present investigation was based on qualitative case study research as Stake (2007) suggests. Yin (2003) indicates that the researcher wants to find out the how or why so a study of the peculiarities and complexity of one case in a contextual environment is carried out. This research primal goal was to analyze the learning process of English as a second language in undergraduate students, considering the characteristics within an upper-intermediate level, their repercussion in academic performance, with use of technology, in view of their learning styles. In the case of this research, it deals with a description and analysis of limited circumstances in participants, time and space.

3.1. Participants

A permit by the education institution was issued. Participants also signed an agreement in participation format. Eleven students from different school terms of Architecture, Business Administration, Communication, Law, Gastronomy and International Relationships participated, with ages ranging from 21-24 years of age.

3.2. Instruments

The first one was answering the CHAEA questionnaire of learning styles and the subsequent report of the numbers obtained by the participants for each style. Alonso, Gallego and Honey (2005) created an 80-item questionnaire to determine the style, with 20 items related to each one. The highest number of the four indicates the predominant learning style.

Second instrument used was a modified Middendorf y Mc. Nary (2011) observation class guide. It allowed some flexibility and was adapted to the learning styles of English as a second language class environment. The guide offered the advantage of allowing efficient registration of observation points. There were 25 observation items with multiple-choice markings, which were validated for this research study.

Third instrument used was a semi-structured interview, previously prepared and guided towards achieving the objectives of this research. The guide included 16 questions with the support for their answers to learn about the students of English as a second language process.

3.3. Procedure and strategy for data analysis

First, CHAEA questionnaire was answered and participants' learning styles were identified and recorded on a matrix. Secondly, the observation guide was applied in two classes and in the language laboratory. Data collected was registered for further later analysis in the matrix. The information included students' attention, body language, contact with classmates and teacher, patterns of learning in class as student and the observation of their learning activities and style under which the data was gathered to simplify the analysis. Thirdly, the participants' interviews took place and were recorded to be later transcribed, analyzed, coded and gathered in the excel matrix with four main categories: their preference for English as a second language and the reason, activities and process performed to learn English, use of the commercial platform and the best hour to study and learn.

Triangulation of information collected from the CHAEA, the three in class observations, the interviews and the information gathered from recognized authors on the topic was followed once the information had been analyzed. All of the above gave validity to the findings.

4. Results

4.1. CHAEA results

There were eleven participants in the group, six men and five women from different majors. Their learning styles are depicted in the following Table (Table 1). The group shows a predominant pragmatist learning style, followed by the reflexive learning style. The less found were the theorist and active learning styles.

Table 1: Predominant learning styles found in the 11 participants with the numbers obtained as a result from the CHAEA questionnaire.

Participants	Pragmatist	Reflexive	Active	Theorist
1	15			
2	17	17		
3	16			
4		18		
5			17	
6				16
7		17		
8	18			
9	20			
10	18			
11		14		

It is important to highlight that there was a multimodal participant and that two others had a difference of only one point between the predominant and second and third place learning styles. In the remaining of the participants there were more differences in their learning styles. In the group, the predominant learning styles were: six pragmatists (one multimodal), four reflexive (one multimodal), one theorist and one active.

4.2. Observation results

Three English classes were observed to perceive the participants' attitudes toward the activities performed in English class and their behavior in their learning process considering their learning styles. One was done with use of computers while the

other two in the classroom. Learning activities included a verb tense presentation. In it, the teacher tried to cater to all of the learning styles in different manners to capture their attention, promoting activities, more understanding and better practice, providing enough time for them to reach conclusions.

4.2.1. Preferences and attitudes towards English as a second language learning in their careers

During the verb tense electronic presentations in class, the participants showed curiosity, pondered the topic in more depth and used the structures. Students took notes, made special marks and later provided statements using the structure that had been presented.

The teacher attended to all four learning styles by explaining the use and structure of the verb tense, giving them time to take notes, assimilate what they were looking at and later asked them to issue a statement of the student's creation to commence oral practice. The students were allowed to write their statements before they expressed them. Nine participants showed interest but not a preference for learning English. They showed a positive reaction to the educational resources without the investigator being able to identify the activities pertaining to their learning style except in one participant with a reflexive learning style that did not take notes. The rest had pragmatist, reflexive and theorist learning styles.

4.2.2. Activities performed to learn English

Students were motivated into understanding and using the verb structures after the teacher's presentation. They all showed deep concentration on the topics being presented. Nine participants took notes and made marks on them, six of them with pragmatist, two reflexive and one theorist predominant learning styles. The eleven participants seemed to enjoy putting the structures into practice within a context. All eleven participants performed the activities of each learning style at different times during the class.

4.2.3. Use of the commercial platform Let's learn English

During one of the observations, students had access to a commercially licensed platform. Participants showed enthusiasm for what they were doing. In their attitudes and activity selection no traces of their dominant learning style were observed. At the same time, the four learning styles were catered in the tasks to be performed. All of the students participated actively as their concentration was enhanced, without performing the activities expected for their dominant learning styles. However, they performed a variety of tasks disregarding their learning style but considering all of the tasks that were appealing to them.

The platform mainly considered the visual, audio and reader/writer individuals in the way the information was presented and the practice to be performed. There were written grammatical explanations before the tasks. The exercises required the student to write an answer, select or match information. Furthermore, the material was first introduced in the form of a situational video or audio recording, from which the student had to provide the correct answer.

Moreover, some students were attracted by the explanations, some by the written activities and others by the recordings, but not in a constant manner. Eight participants performed the tasks not according to their learning styles but to what was attractive to them in that moment. The four Individuals with pragmatist learning styles did not stop at explanations but jumped into providing answers, the active learning style student stopped to analyze the explanations. The benefit for learning English as a second language was the practice they had while using the commercial electronic platform, which in turn increased their assertiveness and self-learning approach, because their learning styles were being attended.

4.3. Interview Results

Data was collected, analyzed and classified according to different categories and codes.

4.3.1. Preferences in English language learning in their careers

All of the students commented about liking the subjects of their careers, being passionate about them and also being good students with satisfaction experienced in scores and contests in which they had participated. English, on the contrary, is a subject they have to credit and is not studied because they like it. The majority of students said that when they like any subject, they have no problem for studying it. Unfortunately, that was not always the case for English.

The participants also expressed that the subjects that require practice are the ones they enjoy the most, as repetition provides sound support to their learning process. They explained that practice provided assertiveness, disregarding the mistakes they could make or the following future correction. Contrasting the participants learning styles to the preferences for studying English, nothing specified the liking of the subject.

4.3.2. Attitude towards learning English

Six participants expressed a lack of interest because they had not thought of it as important before. Five of them reported pragmatist and one with theorist dominant learning styles. Three other participants had had negative attitudes toward English as second language learning in either their homes or at school, which has limited the development of their full potential.

Eight participants recognized not having developed the skills for correct use of English grammar structures yet. They considered the theory behind the grammar more difficult to understand and apply. Therefore the practice presupposed a challenge for them. Four students, two with pragmatist, one active and one theorist predominant learning styles commented that there are too many exceptions to the rules, which are difficult to apply. The same participants considered that in order to learn, they required the use of memory after understanding the explanations. Six participants with pragmatist dominant style declared that they do not like to learn

through memorization. Thus, they need to re-enforce through constant practice, which is a coincidence with Honey, Alonso and Gallego's learning styles theory. Again their concentration and focus on the topic presented were attracted as their learning styles were being catered.

Students communicated in the interview that they reacted in different ways towards the activities and the educational resources. They said they felt comfortable within the class environment. Each learning style had something appealing to them. Therefore, it was evident that all of the learning styles were catered in different manners and had a positive impact on their concentration, at different times in either the class or the platform presentation. However, it was difficult to determine the way to improve academic performance in university students of English as a second language taking into consideration only their dominant learning style and the activities selection. Despite that, all learning styles should be catered as they produced a positive effect on the students' concentration.

4.3.3. Use of the licensed commercial platform Let's learn English

The eleven participants expressed their favorable opinion towards the use of the commercial platform involving additional practice on the topics seen in class. Everyone agreed that their use was beneficial because of being dynamic, having interactive activities and the way they introduced the topics in different forms while at the same time providing further practice in a varied manner.

Nine participants, four with pragmatist, three with reflexive, one active and one theorist predominant learning styles explained that they do not enjoy repetition in the presentation of the topics. In general, these students agreed that they preferred the platform as it avoided duplication. Additionally, in no case did they suggest any changes to it. This could be due to their dominant learning styles being catered. On the other hand, the practice actually made a difference in their learning process by consolidating their knowledge and that improved their academic performance.

4.3.4. Activities performed to learn English

Seven participants confirmed their note taking in class while four declared that they do not. Of these, three had a dominant pragmatist learning style, one of them multimodal with pragmatist and reflexive dominant styles, two participants with reflexive dominant learning styles, and one more with predominant theorist learning style. Overall note taking has a direct relationship with the reflexive, the theorist and the pragmatist dominant learning styles performed in the English as a second language class. The activity implies deeper concentration that was enhanced by the catering of all of the learning styles.

On the other hand, note taking is designed to help students in their academic performance. Moreover, it is the practice, after understanding the language grammatical or function rule that makes the difference in academic performance. Therefore, the more tasks considering the different learning styles a student performs using the English language, the better their academic performance will be. The expected results improve if all of the learning styles characteristics are considered in the way the tasks are presented and required to perform.

The other five participants indicated that they concentrated and listened to the teacher in order to understand better. Two of them had pragmatist, one theorist and another two with reflexive dominant learning styles (being one of them multimodal). The predominant participants' learning styles did not coincide with the acceptance or follow up of the activities performed in class or with what was reported in the interview. The theorist predominant learning style participant did not only pay attention to the explanations given, but immediately wanted to give an example, instead of devoting time to establishing a theory of his own.

The predominant active learning style participant looked more thoroughly at the explanations given. He seemed to be trying to understand the clarifications provided by the teacher to then provide an example of his own, taking some time in grasping what was just explained.

In the case of the pragmatist learning style participants, they also looked forward to confirming the topic learnt through practice, after hearing the details provided by the teacher. As all of the learning styles were catered in this case, this was a coincidence with the Alonso, Gallego and Honey's learning styles theory. Again, the educational resources prepared considering all learning styles brought an improved concentration on the topic being presented.

Some participants recognized that the visual resources helped them to understand the topic better. Three of them had a reflexive learning style. Five students added audio material to understand the topic better; three of them had a pragmatist, one a reflexive and one a theorist dominant learning styles.

Six participants preferred to discuss the topics seen in class with their teacher, friends and family to provide answers to their doubts and understand better. In that case, four participants had a reflexive and two had a pragmatist predominant learning style. It also became evident that the information and tasks presented should cater to all of the learning styles in order to provide variety and become attractive to the students at different times during the class, thus creating an environment with improved concentration from the students.

The active dominant learning style participant declared in the interview that note taking was important but preferred to study with his friend's notes; the participant enjoyed team work, paying attention in class, was a reader/writer, liked to understand what he was studying but had a kind of a psychological blockage to grammar concepts in English. In the classroom the researcher could not observe such variety of activities. He was seen concentrating on the presentation.

The theorist predominant learning style participant stated that he understood the information presented with visual resources, took notes, also considered audio resources important, enjoyed doing exercises and also had a blockage when he needed to study or use grammar structures in English. Nevertheless, his predominant learning style was catered and his concentration improved. The

teachers should cater to all learning styles by developing educational materials that are appealing to all different characteristics of the students' learning styles to contribute to their academic performance.

4.3.5. Best time of day to study

Ten participants admitted to studying better between 8 p.m. and 3 a.m.; another student confirmed 4 a.m. as the most alert time of day, after having rested. This factor may have affected their academic performance in English as a second language class, as it had a schedule from 2:30 to 4:00 pm, which did not coincide with the more alert time of day for the participants.

At the same time, five of the students commented they preferred to study when there was no noise around them. Learning styles from CHAEA results do not establish a relationship with either the best time of day to study, or the observations, or the interviews.

4.4. Information Triangulation

In order to provide validity to the findings, information triangulation was carried out. Theoretical framework was the basis for the triangulation of the results obtained in the questionnaire, observations and interviews, which are depicted in the following three-entry table (Table 2)

Table 2. Categories, observation and interviews information triangulation

Category	Observation	Interview
Fondness for professional studies and English.	All of the students became active, concentrated on the topic being introduced, pondered, concluded and applied what they were learning in the presentation. They participated in the practice with a minimum degree of difficulty. At first, they showed	Students commented that they enjoyed their professional studies. They believed that they were good students and were passionate about their career studies. They had shown very good academic performance in the subjects of their

Category	Observation	Interview
	<p>curiosity. Later they were concentrating on the structure being presented. Their concentration was influenced by the way the structures were presented as all of the learning styles were catered to in both the class and the use of the electronic platform. They did not seem to enjoy learning English as a second language. They showed they were there more as an obligation.</p>	<p>careers scores and had acquired prizes in a number of contests. They were not fond of learning English even though they said they understood its importance. Some of them have experienced negative comments or attitudes either at home or at school about learning English, which in turn have affected their full potentials.</p>
Attitude towards learning English	<p>The participants were curious at first and then willing to search for new ways to practice what they were learning in class, applying it to a context. They felt insecure at the beginning. The practice started to make them feel more assertive in the use of the structures. The more the practice, the better the use of the structure.</p> <p>All of the learning styles were catered but no evidence was clear as to the selection of activities they were carrying out as they jumped from one to the other without much hesitation and without performing the ones expected as pertaining to their particular learning style.</p>	<p>The participants commented that they understood the structure, pondered and tried to consider it logically before they went into practice. This process helped them to record the structures in their memory.</p> <p>An important factor mentioned was motivation. In general, they explained that they did not like English but needed to credit it to graduate. They expressed a necessity without motivation, as they do not fully comprehend the importance the language acquires when applying for a job or when performing in the working world.</p>
Licensed platform use	<p>They enjoyed the variety of activities that reinforced their knowledge. They seemed to jump from one activity to the next without much consideration for the type of exercises they were</p>	<p>They enjoyed the platform use as they found it interactive and varied. It allowed them to know whether their answers to the exercises were correct immediately.</p>

Category	Observation	Interview
	<p>performing. All of the learning styles were catered in the way the activities, explanations and tasks to be performed were presented. They seemed to disregard the mistakes made and went on to the next practice not before checking what the correct answers were. With that they seemed to improve on the next exercise.</p>	<p>They commented that they enjoyed avoiding duplication in the way the exercises were presented. They all belonged to the technological era and were attracted by its interactivity. They expressed that the time went by quicker when they worked on the platform and also said that they thought they learned more when they practiced as the topics were recorded better in their brains. The use made them sure of the correct way to use the structure, its meaning and function.</p>
<p>Activities performed to learn English</p>	<p>They took notes, commented with their classmates, helped one another with doubts, marked their notes, pondered, arrived to conclusions and put what had been learnt into practice. At first they felt shy and insecure. Once they started, they gained confidence from the practice. Some participants decided to write the sentence they were going to say out loud in their notebook, before expressing it. That process helped them to feel more confident. It enabled them to check whether their examples had been thought of, either expressed by another classmate, or to corroborate the correct use of the structure. The teacher allowed some time for the participants to feel ready to provide an example.</p>	<p>They concentrated and took notes. Later they passed them into a cleaner format of material and also produced visuals. They said that the process of synthesizing, summarizing and then turning the information into a concept map, synopsis or drawing helped them to keep the information in their memory and to learn. That helped them to generate conclusions and to have practice with better foundation. Some skipped from the presentation to the practice. Some of them said they listened to songs, watched TV or movies in English or even had conversations via <i>Skype</i> with English speaking foreigners they know, to improve their pronunciation and fluency.</p>

Category	Observation	Interview
Best time of day to study	They were tired at the time of the class, as it did not correspond to their most alert time of day. Participants agreed that they were more alert between 8 and 4 am. One of them after having rested. In the class they seemed to be struggling with the time of day as it was 14:30 pm.	They studied better at night. Ten participants did it better between 8 pm and 3 am and one after having rested, at 4 am. They explained that they preferred that time because their surroundings were quieter and that enabled them to concentrate better and record the topics in their minds quicker.

In table 2 we can appreciate that in the category, observation and interview entries, the participants of the English as a second language class recognized they had been attracted by the variety of activities and educational resources the teacher provided in the class and the use of the licensed commercial electronic platform, as all of their learning styles were catered.

Participants with different dominant learning styles enjoyed the different practice of what they were learning. At the same time, they were not performing the activities expected for their predominant learning styles. Preferences, predispositions and skills of participants determine different patterns of behavior, considering the strengths, which determine the differences between individuals (Lozano, 2007). In this case, in the interview the participants commented of the different tasks performed to learn English as a second language.

Additionally, the eleven participants said at the interview that they performed different tasks that involved practice in order to learn English as a second language. In the class observation the researcher witnessed that each of the participants looked for the activities that were more appealing to each one of them to acquire the knowledge, not always following what could be expected from their learning styles characteristics. Antoni (2009) indicates that individuals have their own process of analysis and synthesis over the topics learnt and it is when they perform activities with that knowledge that they acquire it. The changing of activities was

evident in the participants during the class observation.

Furthermore, the design of the licensed commercial platform offered attractive interactive exercises with consideration to all preferences for predominant learning styles. As for the use of technology, Vigentini (2009) indicates that when using it as an educational tool, the learning styles overlap or repeat. Thus the same exercise has been designed and is presented in a way that it caters to two or more learning styles at the same time. In this particular group of participants, all the learning styles were present, even with a multimodal participant and all enjoyed the practice using technological resources with a positive effect on their concentration.

Every participant decided to perform the activities they knew were best to support their learning process with good results, as seen in the class observation, and the interviews. Valadez (2009) mentions that the actions the learner follows are supported in psychological aspects that determine the reaction and performance over the object of study. They acquire assertiveness and that gives them the solid foundation to learn, which was evident in the class observation and corroborated by the students at the time of the interview. It is also important to emphasize that constant practice is what helps the student to learn, especially in the case of English as a second language.

As for the best time of day to study, participants mentioned it was at night or even midnight or early morning when they were more alert. Lozano (2013) investigated about this peculiarity in individuals. The time of the class was at 14:30, which had no coincidence with the best hour for them to be more alert. That could have affected their performance in class. On the other hand, the CHAEA questionnaire does not contemplate this aspect in the learning styles items.

5. Conclusions

How can improvement in academic performance be strengthened in students of English as a second language, in accordance to the learning styles in Alonso,

Gallego and Honey's theory, making use of educational resources, activities and electronic platforms designed to make progress in the learning process of that language? The activities should be designed taking into consideration the dominant learning styles of the participants and they should all be catered when learning English as a second language, as this has proven to bring more effective concentration on the students. During this research, the academic performance of the participants was based on the activities performed in class and the use of a licensed commercial electronic platform. They provided activities catering to all learning styles. The participants chose to skip from activity to activity, not always following what could be expected as support for their predominant learning styles, but only their interest and motivation for using the grammatical structure learnt after they concentrated better on the topic presented.

Additionally, it became evident that the use of the platform provided a bigger number of exercises to consolidate practice, which in turn motivated the participants into continuing to work, disregarding failure or mistakes made. The design was attractive because it catered to all of the learning styles with the consequence of an improved concentration on the participants.

As a conclusion, emphasis should always be made on the resources prepared and selected by the teacher and the licensed commercial platforms to take into consideration all the learning styles in the activities performed in class to improve the academic performance of the students of English as a second language. It is advisable to have variation of activities catering to all learning styles also to improve their concentration.

CHAEA questionnaire helped in the identification of the participants' dominant learning styles. According to the results, the participants reported six pragmatist, four reflexive, one theorist and one active dominant learning styles, with a multimodal student with pragmatist and reflexive dominant learning styles. Alonso and Gallego (2008) indicate that the learning style emerges from the personality

development and is manifested at individual and social levels, being the reason for this variety.

At the same time, the learning styles that performed better the activities suggested by the teacher were the pragmatist dominant learning styles as they pondered and later performed a variety of activities. This could have been due to the fact that the activities had a brief grammatical explanation followed by examples and then an easy first practice exercise, which provided the students with confidence and assertiveness.

On the other hand, the theorist dominant learning style had less participation. He seemed a little bit lost in an abundance of information, unsure of which one to work on to perform. It took him longer to produce an example with the presented structure. Sanabria (2009) confirmed that students of Civil Engineering in their second term had a predominant pragmatist learning style, which could be considered as a coincidence with this research. The students, in this case, were from a variety of terms, but their predominant learning style was pragmatist, followed by the reflexive predominant learning style. It could have been due to being more mature students, who already know that practice supported in rules as foundation provide better and longer lasting knowledge.

Besides, the motivational factors play an important role in the process of learning English as a second language, as it does in other areas of study. Once more, the eleven participants showed concentration, curiosity and interest instead of preference for learning the English language. Seven participants with pragmatic, reflexive and theorist dominant learning styles showed and expressed a need to cover the requirement of crediting the subject in order to graduate. In the group of participants there was actually a demotivation to learn the English language, as they had already heard that it was useful to know English but they did not value the advantages it could bring to them.

At the same time, they presented a sort of a blockage at the time of revising,

applying or studying grammar. This could be due to no one having paid special attention to their learning styles and therefore not feeling attracted to learning English as a second language. The Grammar word generated insecurity and instability in them. However, eight of the participants, mainly with pragmatist but others with reflexive and theorist predominant learning styles tried to develop techniques to attempt to overcome this problem. They kept on looking for something that would increase their motivation to learn English as a second language as it is pointed out by Guthrie and Wigfield (2000). They found improved concentration on the materials that were prepared considering their learning styles.

Additionally, in the class observation that involved the use of the *Let's learn English* platform, the participants were observed performing different types of tasks, skipping from one to the other and disregarding failure or success encountered. As soon as they finished with one, they continued with another one, depending on what attracted their attention. They definitely belong to and are surrounded by electronic technology, which they thoroughly enjoy. They commented that there is no repetition or duplicity of activities, which was very attractive to them. Besides Vigentini (2009) points to the relevance that learning styles acquire in the production and selection of educational resources that are presented in the electronic platforms, so all of the learning styles should be catered.

Moreover, Lozano (2007) ponders on the preferences, predispositions and skills that mark different behavioral patterns in the learning process. In the class observation no relationship between the predominant learning style and their preferences in the selection of activities performed was properly established. This research is relevant as it shows findings that are different from other subjects regarding academic performance within a university environment.

In addition, it is important to point out that those psychological aspects of each individual have an effect on the person's learning style according to Valadez (2009). At the same time, the activity selection by the participants and the

multimodality of predominant learning styles could have caused the students to select activities that did not correspond fully to their learning styles.

On the other hand, Hernandez (2004) states that the teachers should not disregard their students learning styles. Therefore, it is pertinent that the teacher, respecting the learning styles characteristics within the group, introduces any topic catering to all of the learning styles, as it was observed in this case.

In current research of English as a second language at university level and its effect on academic performance, there have been relationships between learning styles and selection of activities established following Alonso, Gallego and Honey's theory of the learning styles, considering the reported participants' dominant learning style. In this case, the concentration of the students suffered a positive effect produced by the educational materials presented in the class and in the electronic platform, as they catered to all of the learning styles. It is recommended that future studies revise other contexts to see if the same occurs.

On the other hand, the use of technology provided the learner with additional contact with English as a second language in the form of persistent practice, with a repercussion on academic performance. Moreover, all learning styles were catered in the activities and use of the platform. All were attracted to perform tasks that helped in their understanding and practice, as their learning styles were being catered. The students looked and found the resources appealing according to their learning styles.

This research was performed on the first week of English as a second language class, at university level, with ages ranging from 21 to 24 years and from different careers in different school terms. The students were still feeling unsure of their individual and group interaction, which could have affected the outcome of this study.

On the other hand, at the time of the interviews, the participants made a physical

recognition of the researcher and their answers were open. Furthermore, the time for the research was too brief to determine a definite manner to improve the academic performance relationship to the learning styles and their improvement in learning English as a second language. It is advisable to devote more time to the research.

As for the use of the licensed commercial platform, all of the participants worked on it. Unfortunately, when the teacher concentrated on one student, some participants opened other website pages and then returned to the requested tasks. In the end they were observed working on the platform, not opening other pages. If replication of this research occurs, elimination of possibility of opening other webpages is suggested.

Educational resources from the teacher were accepted and appreciated by the participants at different times within the class and in diverse manners. These resources did not get the same reaction from every participant. Not having a constant response from the participant, the participant's dominant learning style was difficult to identify. If there is a replication of this research, it is suggested to know the participants first and associate them to their learning styles ahead, to have a proper identification of the tasks performed according to their learning styles.

More research on the positive effect on students' concentration influenced by the learning styles theory is recommended with ulterior effects on academic performance in learning English as a second language in university students and their repercussions on the educational resources chosen by the teacher. At the same time, research on these resources designed considering all learning styles to promote an improvement in academic performance of university students is suggested.

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