UNIVERSIDAD DE CUENCA

Facultad de Filosofía, Letras y Ciencias de la Educación

Maestría en Lingüística aplicada a la enseñanza del inglés como lengua extranjera

Learning strategies to improve long term memory of english vocabulary

Trabajo de titulación previo a la obtención del Título de Magister en Lingüística Aplicada a la Enseñanza del Inglés como Lengua Extranjera

Autor: María Fernanda Pacurucu Pacurucu

C. I. 0102184165

Director: María Isabel Espinoza Hidrobo

C. I. 0102729837

CUENCA-ECUADOR
2019

Resumen

Este estudio analiza el impacto que las estrategias de aprendizaje tanto de memoria como cognitivas tienen sobre el mejoramiento de la memoria a largo plazo, la retención y recuperación de vocabulario en inglés de los estudiantes de tercer nivel de un aula heterogénea del Instituto Universitario de Lenguas de la Universidad de Cuenca.

Los participantes fueron 20 estudiantes, de 19 a 32 años de diferentes carreras de la Universidad de Cuenca, que tomaron un curso intensivo requerido, dictado en tres horas de clase diarias, durante cuatro semanas. La intervención se integró a las clases regulares de la profesora principal del curso.

Los datos se recogieron mediante la utilización de tres instrumentos de investigación, el Inventario de estrategias de aprendizaje del idioma (Strategy Inventory Language Learning - SILL), utilizado para una pre-prueba; una versión modificada de la Escala de Conocimiento de Vocabulario (Vocabulary Knowledge Scale -VKS), utilizado para la pre-prueba, post-prueba y una post-prueba retrasada; además una encuesta para recabar la opinión de los estudiantes.

El estudio mostró que los estudiantes utilizaban estrategias de aprendizaje de vocabulario antes de la intervención, estas estrategias no fueron aplicadas en la investigación y no tuvieron relación alguna con los resultados obtenidos. El impacto que las estrategias de aprendizaje aplicadas tuvieron sobre el mejoramiento de la memoria a largo plazo, retención y recuperación de vocabulario en inglés, fue positivo, ya que no hubo diferencias significativas entre los resultados de la post-prueba y la post-prueba retrasada. Los datos cualitativos indicaron que los estudiantes tuvieron una opinión positiva sobre las estrategias, de memoria y cognitivas, utilizadas en el aprendizaje de vocabulario, y que también habían empezado a utilizarlas en otras áreas de sus estudios y de su vida.

Palabras Clave:

estrategias de aprendizaje de vocabulario, retención de memoria a largo plazo, estrategia de memoria, estrategia cognitiva.

Abstract

This study examines the impact that memory and cognitive learning strategies have on the improvement of long term memory retention and retrieval of English vocabulary on students of a level three heterogeneous classroom of the Institute of Languages at the University of Cuenca. The participants were 20 students, nineteen to thirty-two years of age, from different majors, who took an intensive required course, involving three teaching hours per day during four weeks. The intervention was integrated with the regular teaching from the main class instructor.

The data was collected utilizing three research instruments: The Strategy Inventory Language Learning (SILL), used as a pretest; a modified version of the Vocabulary Knowledge Scale (VKS), used as a pretest, posttest and delayed posttest; and a seven-question questionnaire to elicit the students' opinions regarding the strategies and the use of the strategies.

The study showed that students used certain vocabulary learning strategies prior to the intervention. These strategies were not applied in the research, and had no connection with the obtained results. The impact that the applied learning strategies had on the improvement of long term memory retention and retrieval of English vocabulary was positive, since there were no significant differences between the results of the posttest and the delayed posttest. The qualitative data showed that the students had a positive opinion towards the memory and cognitive vocabulary learning strategies applied; also they started to use them in other areas of their studies and life.

Key words:

vocabulary learning strategies, long term memory retention, memory strategy, cognitive strategy.

TABLE OF CONTENTS

List of illustrations

Figures

Tables

Cláusula de licencia y autorización para publicación en el Repositorio Institucional

María Fernanda Pacurucu Pacurucu, en calidad de autora y titular de los derechos morales y patrimoniales del trabajo de titulación "Learning strategies to improve long term memory of english vocabulary", de conformidad con el Art. 114 del CÓDIGO ORGÁNICO DE LA ECONOMÍA SOCIAL DE LOS CONOCIMIENTOS, CREATIVIDAD E INNOVACIÓN reconozco a favor de la Universidad de Cuenca una licencia gratuita, intransferible y no exclusiva para el uso no comercial de la obra, con fines estrictamente académicos.

Asimismo, autorizo a la Universidad de Cuenca para que realice la publicación de este trabajo de titulación en el repositorio institucional, de conformidad a lo dispuesto en el Art. 144 de la Ley Orgánica de Educación Superior.

Cuenca, enero de 2019

María Fernanda Pacurucu Pacurucu
C.I: 0102184165

Cláusula de Propiedad Intelectual

María Fernanda Pacurucu Pacurucu, autora del trabajo de titulación "Learning strategies to improve long term memory of english vocabulary", certifico que todas las ideas, opiniones y contenidos expuestos en la presente investigación son de exclusiva responsabilidad de su autor/a.

Cuenca, enero de 2019

María Fernanda Pacurucu Pacurucu
C.I: 0102184165

Acknowledgements

I would first like to thank my thesis director, Maria Isabel Espinoza, for guiding me throughout this process with patience, for always irradiating positivity and for assisting me in fulfilling this research work with excellence.

I am also grateful to all my friends, classmates and coworkers who have been present through this journey and have encouraged me to achieve this goal.

Finally, my most profound gratitude goes to my family, it is with their example, generosity and support that this thesis has been written.

Dedication

To my beloved parents Saúl and Lucia, who in their very unique ways, are my inspiration for a great number of things. To my sister and brother whom I admire, and to Emilia who surprised me with her excellent command of the English Language at her young age, and without receiving extensive instruction.

Introduction

Not only when learning a foreign language, but in everyday life, when people read, watch television, talk to others or attend courses, they are exposed to new information. The information that they consider useful, they would like to keep in their memory and be able to remember at specific moments. How memory works, how it retains and retrieves information in the long run has always puzzled human kind, and many techniques and strategies have been developed to aid the learning of information in different areas. It has been said that some techniques, specifically mnemonics, originated among the Pythagoreans or perhaps even earlier among the ancient Egyptians (Yates, 1966).

In general, foreign language students at some point during their learning journey have been concerned with long term memory retention and retrieval of the information they consider important. In the area of foreign language acquisition, knowing how to internalize and retrieve the information is essential, and being able to store and recall successfully all the vocabulary, grammar, pronunciation, and other elements of the target language is key to learn it, understand it and communicate in it effectively.

According to Wilkins (1972), ". . . while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p.111), and Folse (2004), agrees by saying "without vocabulary, no communication is possible" (p. 25). Now as ever, memory techniques to learn vocabulary are being used by EFL students and teachers. Studies have been carried out in different universities in Iran, Turkey, India, Thailand, China, Colombia to test the efficacy of single memory techniques as well as a combination of two techniques, obtaining good results. Findings of studies supported that subjects who use various strategies in learning words could perform

better than those who use a single strategy (Lawson & Hogben, 1996; Rodriguez & Sadoski, 2000). Also O´Malley & Chamot (1990), stressed that vocabulary learning instruction might benefit from “a training system in which multiple strategies are taught within a single package” (p.169).

This study took place in a sensitive time, where it is not only important to teach vocabulary, but also efficacious techniques that will assist students in retaining and recalling the vocabulary taught. Consequently, this research study intended to determine the impact of cognitive and memory strategies on the improvement of university students’ long term memory retention and retrieval of English vocabulary.

The study was performed at an EFL intensive class comprised of 20 university students, three men and seventeen women, ages nineteen to thirty-two, from different majors, during the February 2017 intensive courses. The course was assigned to the researcher by the Institute of Languages of the University of Cuenca. It is important to clarify that the researcher was not the main teacher of the assigned class.

This study is presented in six chapters as follows:

Chapter one includes a description of the topic, background information, rationale and purpose of the research. It also presents the statement of the problem, research question, general and specific objectives, as well as the context in which the study was carried out. Additionally, the chapter closes with the definition of crucial terms that will be employed throughout the research study.

Chapter two comprises the theoretical framework that supports this study’s main theories regarding memory and how it functions. It also has the taxonomy in which the chosen cognitive and memory learning strategies were based. Next, it presents the literature review of past and present research regarding learning

strategies to improve long term memory retention and retrieval of English vocabulary.

Chapter three describes the research methodology implemented. It contains a detailed description of the participants, intervention, instruments and procedures for data collection prior, during and after the intervention, plus the quantitative and qualitative data analysis.

Chapter four depicts the research findings; it includes the statistical analysis of the quantitative and qualitative results of this study.

Chapter five presents the discussion of the results and limitations encountered, as well as the implications of the study.

Chapter six, states the conclusions and recommendations based on the research results and implications of the study.

To conclude, a reference list of the bibliography is provided and different documents are included in the appendix section.

Chapter I

Description of the Study

1.1 Introduction: Background, Rationale and Research Purpose

Despite the fact that in Ecuador English has been taught in schools for over a century, it has been done with different emphasis throughout the decades, regulations have depended on the presiding government.

It has been in recent years that the Ministry of Education has placed strong importance on English by working on new English curriculum guidelines in order to reinforce and support the teaching of this language, particularly in basic and secondary Education (Ministry of Education, 2016). Although these regulations do not include undergraduate's education, it is hoped that in the near future, the current efforts of the Ecuadorian government will fructify, and students will enroll in the University with strong English foundations. In this way, University English professors´ efforts will be directed towards helping the students become fluent in the English language and able to communicate with confidence, effectively and efficiently, without having to repeat the basics of the target language. However, at the moment, there is still work to do.

In a general context, unsatisfactory and worrying statistics were presented by the 2016 English Proficiency Index released by EF Education First, positioning Ecuador 47 out of 72, as one of the countries with low English proficiency; dropping even further from the previous year's ranking, where the average proficiency level for the country of Ecuador was 38 out of 70 (EF Education First, 2016).

In the field of higher education, the situation is more demanding, currently, there are not English language requirement for university enrollment, yet the students are required to approve a foreign language in order to graduate. If students

want to pursue a graduate degree program, they need to demonstrate a certain proficiency level in order to be admitted (Consejo de Educación Superior, 2013). At the University of Cuenca, in order to obtain an undergraduate degree, students have to approve 3 levels of English. When concluding the three levels, students are expected to reach a B1 English level, according to the Common European Framework of Reference (CEFR), adopted by the University Languages Institute (ULI), former Language Department in its reform of 2009 (Appendix A).

To add to this scenario, the performance reports of the Language Institute at the University of Cuenca indicated low scores for students' general knowledge, furthermore, the majority of those who completed the three required levels, did not attain the B1 level desired for a university student, thus, limiting their access to a graduate program (Appendix B). Unfortunately, this was also sustained by Dr. Lois Meyer, external evaluator from the University of New Mexico, who in the Final Report of the Evaluation of the English Language Program, Universidad de Cuenca, Ecuador, March 1, 2015 stated:

> The three Credit English courses required of all U Cuenca students do not achieve even the lowest Independent User language competencies (B1) of the EFL. The third basic Credit Course targets only very basic English language competencies (A2) and half of the B1 competencies. Students would have to take the Int-6 course in addition to the three credit courses in order to address all the B1 competencies. (Meyer, 2015, p. 33)

This reality presents a big concern particularly for educators, who clearly see a gap in the way in which students are taught and the way they are internalizing, retaining and retrieving the information taught. Educators wonder why most students

after studying the target language for years (during basic, secondary and higher education), and still have a low ability to communicate in the L2 language. Students do not seem to be able to retain and retrieve what is being taught, this sentiment has been experienced by the researcher herself and shared by fellow colleagues.

Each year students from all walks of life enroll in the University. Their English proficiency levels; their learning styles and their knowledge of tools or strategies, vary significantly from person to person. Perhaps if teachers emphasize on teaching their students tools that they can use to support their acquisition of information in different areas; not only the general scores will improve, but as a side effect, students might be empowered to become autonomous learners.

Despite the studies done, there is still a vast field to be researched in the area of effective memory strategies to learn, retain and recall vocabulary. Stewart & Cross (1991) as well as Scafidi-Iannone (2012) consider that learners are still confronted with the defiant job of recalling numerous new words or information in general, with this in mind, it is important to continue researching this subject, it could lead to identifying an effective strategy for adult English learners to retain and recall new information. It could support teachers in their efforts to transmit new vocabulary to their students. This research study could supply an answer to one of the main issues that foreign language learners face: improving their long term memory to remember and recall what they learn. Furthermore, if the strategies applied in this study yield positive results, they could become a useful way to help students achieve their goal of successfully learning the target language, and any other information.

1.2 Statement of the problem, Research Question

This mixed method study will address the phenomenon of long term memory retention and retrieval of English vocabulary.

Bearing in mind that vocabulary knowledge plays a central part in improving communication skills (Zarei & Mahmoodzade, 2014); and that the core of learning and communication is vocabulary (Schmitt, 2000), plus the fact that “language learners have a serious problem remembering the large amounts of vocabulary necessary to achieve fluency” (Oxford, 1990), consequently, long term memory becomes a key factor in the acquisition of a foreign language.

Therefore, this research proposal aims to test and answer whether memory and cognitive strategies better the internationalization process of information, particularly English vocabulary. This is supported by the claim that memory strategies serve as "a highly specific function: helping students store and retrieve new information" (p.37), (Oxford’s, 1990); as well as the suggestion that multiple exposures to the target language vocabulary; in various contexts and through a variety of vocabulary training techniques and strategies will help learners deal with many challenges (Nation, 2011; Schmitt’s, 2008). In addition to these premises, studies have revealed that deep semantic processing of target words has shown to be more effective than memorization techniques involving shallow processing such as oral rote repetition (O'Malley & Chamot, 1990; Oxford,1990). Therefore, a combination of cognitive and memory techniques of deep processing could offer a possible solution to the problem.

1.3 Research Question

To what extent memory and cognitive learning strategies improve university students´ long term memory retention and retrieval of English vocabulary?

1.4 Objectives

1.4.1 General.

- To determine the impact of cognitive and memory strategies on the improvement of university students' long term memory retention and retrieval of English vocabulary.

1.4.2 Specific.

- To determine whether students already use cognitive and memory strategies.

- To determine students' cognitive awareness of the use of vocabulary learning strategies that enhances learners´ autonomy.

- To analyze the impact of cognitive and memory strategies on students´ English vocabulary retention and retrieval.

- To analyze students' opinions regarding the cognitive and memory strategies.

1.5 Definitions

The definitions presented below closely relate to the terms used in this study.

1.5.1 Memory.

"Memory is the process of maintaining information over time." (Matlin, 2005), as cited by McLoys (2013). It is the structure and processes involved in the acquisition or encoding, storage, retention and consequent retrieval of information. As stated by Eysenck (2012), one who is not skilled at recalling past events, cannot learn or foster language, relationships, or personal identity.

1.5.2 Short Term Memory (STM).

Short-term memory, also known as active memory, is the information we are currently aware of or thinking about. Referred by Freudian psychology as the conscious mind. Most of the information stored in active memory will be kept for approximately 20 to 30 seconds. While many of our short-term memories are quickly forgotten, focusing more on the information allows it to continue to the next stage - long-term memory (Cherry, 2017).

1.5.3 Long Term Memory (LTM).

Long-term memory refers to the continuing storage of information, which is mostly outside of our awareness but can be called into working memory to be used when needed. LTM can store large quantities of information for possibly limitless time. Some of this information is fairly easy to recall, while other memories are much more difficult to access. (Cherry, 2017).

1.5.4 Memory recall or retrieval.

Refers to the process of recovering information from storage, this data has earlier been encoded and stored, it is colloquially known as “remembering”. When it is difficult to remember information, perhaps it is because we are unable to retrieve it (McLeod, 2007).

1.5.5 Learning Strategies.

Defined as a series of activities that facilitate the acquisition of knowledge. Tools students can use to learn, understand, remember and use academic language more easily. When one uses memory strategies, one performs mental activities that can help you improve your encoding and retrieval (Bransford, Brown & Cocking, 2001).

Extensive research reveals that learning strategies can be taught and that their use improves student proficiency on both academic language and content tasks

(Chamot, 2009).

1.5.6 Memory strategies.

Intentional, goal-oriented mental activities that a person performs in order to improve encoding and retrieval of information in memory, such as: REHEARSAL: Mentally repeat information over and over; VISUALIZATION: Make a mental picture of information; ASSOCIATION: Mentally associate new information with something familiar, etc. These are intellectual actions that concentrate in the creations of links that strengthen the internalization and recall of the information (Oxford,1990).

1.5.7 Cognitive Strategies.

Mental routines or procedures employed to accomplish a cognitive goal. Cognitive strategies allow students understand, manipulate and create information in various ways, in a significant manner. These improve oral production. These are intellectual actions that concentrate in understanding, revising and practicing the information (Oxford, 1990).

1.5.8 Mnemonics.

Defined by the American Psychological Association (2017) as “any device or technique used to assist memory, usually by forging a link or association between the new information to be remembered and information previously encoded.” In other words, they are learning techniques that assist with information retention and retrieval. They help associate the information one wants to remember with an image, a sentence, or a word.

Chapter II

Theoretical Framework and Literature Review

2.1 English Language Learning (ELL), English as a Foreign Language (EFL), Language Learning Strategies (LLS) and Vocabulary Learning (VL).

As the English Language is further recognized as the lingua franca for global communication in many areas, the demand for English Language Learning (ELL) also increases. Countries are adopting different and more consistent policies in order to make English Language Learning more available to a wider sector of their population, and also to improve its learning levels, in order to achieve higher language proficiency. Several factors are key in accomplishing this goal, such as new policies, quality teacher training programs resulting in effective instructors, ELL programs that offer continuity and access to quality education and scholarships. These are amongst the fundamentals that the Ecuadorian government wants to set in place and improve by funding and implementing reforms to reach the key and end goal of providing an education in English Language Learning that will result in people that can effectively communicate in English (Cronquist & Fiszbein, 2017).

English as a foreign language (EFL), refers to the teaching of English in a country or region where English is not commonly spoken (Gunderson, D'Silva, & Odo, 2009), which is the case of Ecuador, where ELL faces numerous challenges that greatly affect the acquisition of this target language. Generally, the main learning environment for the students is the classroom, and even though other learning spaces can be provoked, Ecuadorian EFL students, to this day, do not necessarily have an autonomous learning culture or the motivation to pursue such environments outside the schoolroom (British Council, 2015).

Keeping in mind that successful ELL for EFL students encompasses a diversity of

skills, practices and aptitudes; challenges and difficulties may be encountered in many areas; therefore, the required or expected progress of a student is not accomplished due to a combination of causes (Shank, 2001; Schwarz, 2003). In many cases students become dependent on the instructor, as well as on the constant use of their native or first language.

Researchers in the foreign language acquisition specialty believe that a lack of language learning methods contribute to poor learning, as it was previously mentioned, learning strategies can be taught and when used, they improve students' target language proficiency (Oxford, 2001; Chamot, 2009). Furthermore, as Allwright (1990) and Little (1991) noted, learning strategies can also enable students to become more independent, autonomous, lifelong learners, which is the goal of most EFL teachers and one of the specific objectives of this study.

Becoming independent learners requires the management of strategies (Ghazal 2009), also concurred by Pineda (2010) who found that learners that are trained on the identification and use of language learning strategies tend to become more autonomous. Making the students realize the power of the strategy and consequently having them use it in a conscious way, it is a job that will not only benefit the students with a faster and more effective learning process (Nyikos & Oxford, 1993 as cited by Oxford, 2003), but also the teacher, who will feel his efforts have been rewarded, as it has been the author's personal experience.

Over the years foreign language teaching has seen several tendencies; different methods have been in vogue at different times, each approach has had its own emphasis on vocabulary teaching, although it has been rather on the limited side (Ketabi & Shahraki, 2011).

The latest approaches that give importance to vocabulary learning are: Incidental

Vocabulary Learning, where, according to Rieder (2003, 2002), vocabulary is learned as a consequence of extensive reading. This type of vocabulary leaning needs deeper mental processing and results in better retention, since in order to better retain the language, elaborative cognitive processing has to occur during the learning process (Tan, Pandian, & Jaganathan, 2015).

The other approach is Intentional Vocabulary Learning, where specific activities are carried out with the deliberate intention of learning vocabulary, and if these activities do not involve a cognitive process, they are not successful; instead they tend to promote rote learning (Ahmad, 2012).

Even though some scholars may favor a systematic intentional approach over the incidental one, the researcher supports Hunt and Beglar's (2002) suggestion of combining these two approaches, as well as their recognition of the need to teach students strategies to learn and retain vocabulary, due to the fact that certain tasks performed during the intervention of the current study promoted incidental learning and others intentional learning.

As affirmed by Mediha & Enisa (2014), communication cannot happen with scarce vocabulary, students with limited vocabulary have a difficult time understanding written and oral information regardless of their knowledge of grammar and syntax. This proves true to the researcher's own experience. She knew the rules to structure a sentence in the target language, yet she could communicate little, as she had not learned enough vocabulary to properly understand, all the written information she encountered. At the same time, again due to her lack of lexis, she could not hold a fluid conversation. This situation agrees with West (1930, cited in Espinosa, 2003. p. 514), who said "the primary thing in learning a language is the acquisition of a vocabulary, and practice in using it" because as observed by Widdowson (1978), it is easier to

understand not grammatically correct utterances with correct vocabulary than those with accurate grammar but imprecise vocabulary. Students' lack of vocabulary knowledge is a linguistic limitation which becomes a principal obstacle to their comprehension of the target written and spoken language (Rassaei, 2017; Yusuf, Sim & Su'ad, 2014).

Acquiring a vast vocabulary is very important in ELL, it is essential for the communication of meaning (Wilkins, 1972) and for mastering a language (Schmitt, 2008); however, this is not a simple task. Learning new words often involves learning new ideas and information; memorizing definitions is not the same thing (Stahl & Fairbanks, 1986). Scholars agree that to retain and recall a new word in the long term, students must see and use the word numerous times in several contexts. Nation's (1990) claims that to dominate new words, learners must be exposed to them at least 5 to 16 times. It is also important to select different strategies (Blachowicz, Fisher, Ogle & Watts-Taffe, 2006) and to offer settings in which learners use the new words in authentic and engaging contexts, through the practice of the four main skills (Carlo et al., 2004).

Unfortunately, in Ecuador, at the moment, teachers seem to struggle with covering every theme in the syllabus for each course. There is enormous pressure to cover all corresponding topics, fill out the paper work and have a high percentage of passing students. Grammar is still strongly stressed over vocabulary, which is left to be handled by the learners themselves (Alqahtani, 2015), as observed by the researcher, in most cases vocabulary learning strategies are not explicitly taught, and vocabulary is memorized in isolation through the usage of the well-known strategy of repetition.

2.2 How Memory Works – core theories and concepts supporting this study

The author, first, describes the memory process as explained by the Multistore Model of Memory proposed by Atkinson and Shiffrin (1968), because to this day, it continues to be one of the most influential models for the existence of different components in the memory system (Norris, 2017), and it is the foundation for future memory models.

Subsequently, the researcher describes the main theory on which this study is based, which is the Levels of Processing Theory or Depth Processing Theory proposed by Craik and Lockhart (1972), this theory, which remains current, resulted as an alternative to the Multistore Model, it does not focus on the stores and structures, but on the depth of processing of information.

2.2.1 Multistore Model of Memory (Atkinson & Shiffrin, 1968).

The Atkinson & Shiffrin's (1968) model is a structural model, which suggests that memory comprises three stores or storage systems: Sensory Store, Short-Term Memory (STM), Long-Term Memory (LTM). The information passes from storage to storage in a linear way, with an input, process and output.

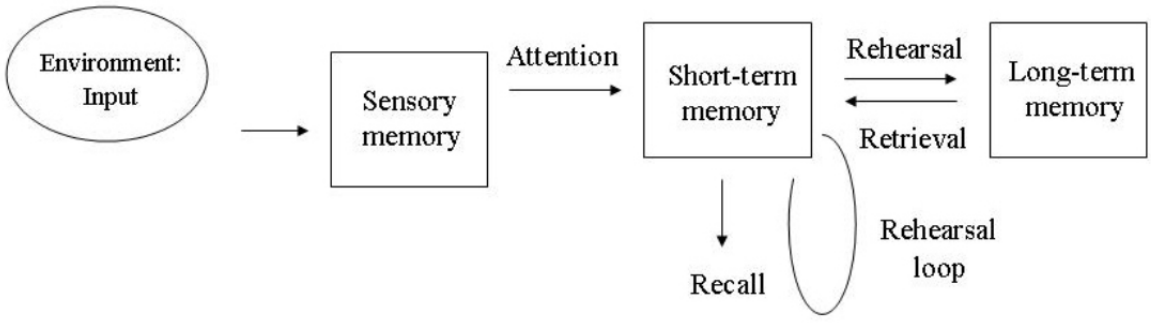


Figure 1. **Multistore Model of Memory by Atkinson & Shiffrin (1968).** ***Reprinted from Simply Psychology.***

The information received from the environment enters the sensory memory and if

this is attended, it goes into the short-term memory, and only if the data is rehearsed (repeated), it will be relocated to the long term memory storage. When repetition does not happen, then information is forgotten, and lost from short-term memory.

Through the senses (sight, hearing, touch, feeling and taste), humans experience innumerable things, yet they can only remember a fraction of it, this was the basis of the Atkinson-Shiffrin's model.

Each store has its particular characteristics regarding: encoding, capacity and duration, this means how information is encoded prior to being stored; how much information can be stored, and for how long can the information remain in each store.

Sensory Memory

The information stays for a very short period of time, ¼ to ½ second. The most common types of sensory memory are iconic memory which refers to visuals, and echoic memory which refers to sounds (Neisser, 1967). It is important to note that sensory memory cannot be controlled.

Short-term Memory

Memories can last from 18 to 20 seconds (Peterson & Peterson 1959), up to 30 seconds (Posner, 1966), its capacity is of 7 +/- 2 items, in accordance with Miller's law (1956). The encoding is mainly auditory.

Long-term Memory

Its duration and capacity are unlimited and the encoding is mainly semantic, but can also be visual and auditory. Atkinson and Shiffrin state that the longer an item is held in the short-term memory, the stronger its memory trace will be in the long-term memory. They sustain this by citing research done by Hebb (1961) and Melton (1963), which demonstrated that repeated rote repetition enhances long-term memory. At this point it would be significant to recall Ebbinghaus' (1913) original memory experiments

which exposed that items that are studied fewer times, tend to be forgotten more frequently.

Although, on one hand, this model has been criticized for its simplicity and for being too linear and rigid, and some may argue that it emphasizes only on attention and maintenance rehearsal (repetition), disregarding elaboration rehearsal which encodes information in a more meaningful way, for example, using images, giving words a meaning or linking them with previous knowledge, all which results in a better recall. It also overlooks aspects such as motivation, effect and strategy, all key to the learning process. On the other hand, it has given good understanding on the structure and process of memory, which has allowed for further research and new theories on the subject, such as the one presented in the Levels of Processing Theory or Depth Processing Theory by Craik & Lockhart (1972), fundamental theory supporting this study, which has gone beyond the Atkinson and Shiffrin model, dealing with the recall of information, giving a deeper and different understanding about memory and how it operates, thus both theories need to be understood; however, the Levels of Processing Theory better supports the fulfillment of the objectives of this research study. In this theory Craik & Lockhart (1972) state that other aspects, not recognized by the multi-store model, are important in attaining retention in the long term store. They suggest that it is not the intention to memorize something, but it is the motivation during the encoding process that matters for future retrieval of the information; accepting the idea that memory consists of three main stages: *encoding* (acquisition of information), storage (maintenance of the information) and *retrieval* (use of the information that was stored), (Atkinson & Shiffrin, 1968).

Before continuing, it is important to observe that although rehearsal was initially described by Atkinson and Shiffrin as maintenance rehearsal (repetition of information),

Shiffrin later indicated that rehearsal could be elaborative (Raaijmakers, & Shiffrin, 2003).

2.2.2 Levels of Processing Theory or Depth Processing Theory proposed by Craik & Lockhart (1972).

This theory of memory proposed that the human mind processes information on several different levels, a deeper level of processing results in stronger long lasting memories, while shallow processing leads to short-term retention. The way the information is presented also plays an important role, content that provokes a strong emotion or personal significance will most likely produce deeper processing.

This theory does not focus on the stores STM and LTM, but on the processes involved in memory, shallow and deep.

Shallow Processing

Which results in short-term retention, it involves maintenance rehearsal, a rote repetition of an item's auditory representation. It has 2 forms:

Structural: The mind encodes the physical attributes of the information, how words look like.

Phonemic: The mind encodes the auditory parts of the content, how words sound.

Deep Processing

It involves interacting with the information and analyzing it. Paying attention to meaning and relating an item to something else. Deep processing occurs through elaborative rehearsal, which takes place when the learners think about the meaning of the item or make connections between the item and something they know. It has one form:

Semantic: Learners encode the meaning of the information and then connect it to similar information that is already in their memory banks. They may also form an

association between two new ideas and explore their relationship, such as comparing and contrasting them.

Semantic processing occurs in three ways: the process of relating an object/situation etc. to something else; when the meaning of something is thought of and when learners process the importance of something.

Semantic processing prompts to a longer lasting memory trace as it uses deeper processing, whereas with structural processing learners will not form a connection with the subject matter, because they are only perceiving the superficial aspects of the information, it uses only shallow processing leading to a weaker memory trace.

Numerous experiments, that will be mentioned shortly, were conducted following Craik and Lockhart's positions, which confirmed the premise that deep semantic processing was an efficient approach to retain and remember information. This theory tried to explain why certain things are remembered better and for much longer than others, and how learners can use elaboration rehearsal to aid memory. As learners go from shallow to deep processing, more links to other elements in memory are established, resulting in long term memory retention of the information.

For this specific study, the author continues to mention important generalities, to hold present, regarding memory and how it functions, from both: Atkinson & Schifrin's (1968) Multistore Model of Memory and Craik & Lockhart's (1972) Levels of Processing Theory.

Memory is the ability to encode, store and recall information, it is the process that one uses to acquire, retain, and later retrieve information. The memory process involves three territories: encoding, storage, and retrieval. In the encoding stage, attention is crucial, emotion increases attention.

Encoding

It refers to how a person processes incoming information so it can be recorded into the memory, it demands paying attention to information and linking it to existing knowledge in order to make the new information meaningful and thus easier to recall, either from short-term or long term memory. It begins with perception through the senses. It is considered that encoding for short-term memory storage depends principally on acoustic encoding while long-term memory encoding relies predominantly, but not completely, on semantic encoding (McLeod, 2007). Deeper processing results in more effective encoding and retrieval than shallow processing (Goldstein, 2011, pp. 174-175).

There are four primary ways in which information can be encoded (Atkinson & Shiffrin, 1968):

- Visual (picture), when someone looks at a written name or number.
- Acoustic (sound), when the person says that name or number out loud.
- Semantic (meaning), if that name or number are related to a special person or date, then the information is given meaning and is semantically encoded.
- Tactile (touch), encoding is the encoding of how something feels, normally through the sense of touch.

According to Anderson & Bower (1980), human memory is primarily associative, which means that information is retained better if it can be associated with knowledge that has been previously assimilated and is firmly secured in memory. The encoding will be more effective when the association is truly significant. Due to the associative nature of memory encoding can be enhanced with the use of mnemonics.

Storage

It is the process of retaining information in the memory for a period of time. To

store the information, three main storage areas are considered:

Sensory memory, stores sensory information in detail for a fraction of a second.

Short-term memory, stores information for about 30 seconds. It is believed to hold about seven pieces of information, plus or minus two pieces concurring with Miller's law (1956).

Long-term memory, has an unlimited storage capacity, information can remain there for a lifetime, although one is not always able to remember it, the recall process presents difficulties caused by a poor initial encoding or a faulty retrieval. The way information is stored in the LTM affects its retrieval.

Retrieval / Recall

Refers to the process of accessing the information that has been encoded and stored in the LTM and bringing it to the present. There are occasions in which one cannot recall the information, according to Schacter (2001), this is due to the lack of correct retrieval prompts to activate the memory, or purely because the relevant information was not correctly encoded into memory.

In order to assimilate pertinent information, one must pay attention to the way in which one encodes that information, providing sufficient cues by giving meaningful associations, as well as using meaningful repetition in different contexts. It will help to recall the information when needed. The retention and recall are improved when one dynamically participates in construction of one's own knowledge (Tigner, 1999).

2.3 Oxford's 1990 Taxonomy of the Language Learning Strategies

The strategies used in this study are based on the taxonomy of Language Learning Strategies developed by Rebecca Oxford in 1990. As explained in Lee (2010), Oxford separates language learning strategies in two main classes, direct and indirect. Direct strategies are techniques that directly involve the use of language, and

encompass: memory, cognitive and compensation strategies. Indirect strategies do not involve using the language directly; however, they support language learning (Ehrman & Oxford, 1990). These include: metacognitive, affective, and social strategies.

Oxford (1990) explains that memory strategies help to store and retrieve information; cognitive strategies help understand the learning and produce the language; compensation strategies help the use of the target language regardless of the lack of knowledge and they help to overcome knowledge gaps to continue the communication; metacognitive strategies help coordinate the learning process; affective strategies are concerned with the emotional needs of the learners, and social strategies help learning with others, they augment interaction with the L2.

It is important to know that these six general strategies contain nineteen secondary ones, and these classifications constitute the basis for the Strategy Inventory for Language Learning (SILL), also created by Oxford (1990), and one of the instruments used in this study.

Oxford's (1990) Learning Strategies' taxonomy from which this research will employ the direct strategies' two subdivisions: Memory and Cognitive, is as follows:

2.3.1 DIRECT STRATEGIES.

I. Memory

A. Creating mental linkages

B. Applying images and sounds

C. Reviewing well

D. Employing action

II. Cognitive

A. Practicing

B. Receiving and sending messages strategies

C. Analyzing and reasoning

D. Creating structure for input and output

III. Compensation strategies

A. Guessing intelligently

B. Overcoming limitations in speaking and writing

2.3.2 INDIRECT STRATEGIES.

I. Metacognitive Strategies

A. Centering your learning

B. Arranging and planning your learning

C. Evaluating your learning

II. Affective Strategies

A. Lowering your anxiety

B. Encouraging yourself

C. Taking your emotional temperature

III. Social Strategies

A. Asking questions

B. Cooperating with others

C. Empathizing with others

2.4 Early research studies supporting Levels of Processing Theory

The earliest and most significant studies supporting the Levels of Processing Theory were those performed by Elias & Perfetti (1973), they used the incidental learning paradigm (not intentional or deliberate learning). The participants were given a list of words to which they had to find rhyming words (acoustic coding, thus shallow level

of processing) or find synonyms (semantic coding, thus deep level of processing). Results showed that participants recalled significantly more, the words in which they looked for synonyms than the words in which they had to find rhyming words, suggesting that deeper levels of processing lead to better recall.

Also Hyde & Jenkins (1973) supported this theory when they performed another experiment using as well the incidental learning technique. They used two groups with five subjects each; the first group did not know that they were going to be asked to recall the information, while the second group was told to learn the words. These two groups were given shallow and deep processing tasks to perform with the list of words. There was also a third group which was told to learn the words but did not do the tasks. All three groups took the test of free recall right after completing the tasks. Hyde and Jenkins found that the tasks which involved semantic processing produced the best recalls. Also, an important finding was that the incidental learners performed equally as well as intentional learners in all tasks, implying that it is the nature of the processing that determines how much one will remember, rather than intention to learn. The more deeply information has been processed the more likely you are to remember it.

Similarly, Craik & Tulving (1975) validated the former research, they directed an experiment with three groups of participants, and each subject was given a list of 60 words and instructed to perform one of three tasks which tested three different levels of processing. The unexpected memory recognition test determined that the words semantically processed had a greater recall than the ones that were phonemically and visually processed. They concluded that semantically processed words involve elaboration rehearsal and deep processing, causing more accurate recall, whether phonemic and visually processed words implicate shallow processing causing less accurate recall.

Morris, Bransford & Franks (1977) made a key observation for this theory based on the findings of their study, in which they gave participants a list of words to process either semantically or phonologically. Recall was assessed either by recognition or a task where participants chose words that rhymed with the original word list. Their results also showed that semantic processing was better than phonological; however, they affirmed that this was the case, only if the recovery task required the recall of meaning, if the recovery task required a rhymed task, then phonological processing produced a far better result. In other words, the best level of processing is the one that is more in accordance with the recovery task. Based on this findings, Morris et al. (1977) introduced transfer-appropriate processing (TAP), initially intended as an alternative to the Level of Processing Theory (Craik & Lockhart, 1972); but later it became part of this structure (Ekuni, Vaz & Bueno, 2011). TAP stipulated that memories are most easily and efficiently stored and retrieved when the person is in the same frame of mind as when the memory was initially stored, i.e. a happy memory is easier to recall when the individual is happy.

Lockhart and Craik (1990) disclosed the term "robust encoding" which explained that levels of processing impact the transfer-appropriate processing (TAP), because a more deeply encoded feature is accessible to more cues at the time of recall. Hence, Craik (2002) indicated that the idea of transfer-appropriate processing is complementary to Levels of Processing Theory (Craik & Lockhart, 1972), as deeper encodings are associated with greater retrieval potential when recall is required. Thus, when learners study a particular topic, the more associations they establish with it, the more cues they will have accessible to remember the content (Ekuni et al., 2011).

Employing the later technologies Nyberg (2002), neuroimaging and computed tomography (CT) and positron emission tomography (PET) scan studies were used to

verify the relationship between these studies and the LOP theory. Nyberg (2002) affirmed that due to the overlie of encoding-retrieval at the time of information recovery, the brain area that was stimulated when encoding should have been re-stimulated. Nyberg (2002) offered evidence implying that some sectors of the brain stimulated during encoding were re-stimulated during retrieval. This concurs with Craik & Lockhart (1972) whom claimed that memory trace is a result of processing during encoding; that is the memory trace depends on how the content was encoded.

One main criticism to the LOP framework is that learners spend a longer time processing the deeper or more difficult tasks. Therefore, it may be that the outcomes are in part due to more time being spent with the information. To this Craik (2002) indicates that deeper processing does not necessarily require more time than shallow processing, however, deeper processes require more attention (Treisman, 1964; Craik & Byrd, 1982), and divided attention results in shallow encoding.

Also Eysenck (1978) stated that the ideas of 'depth' and 'elaboration' are not defined clearly, which complicates the measurement, yet Eysenck (1974), as well as Hyde & Jenkins (1969) agreed that different results have disclosed superior recall for items processed deeply compared to those items processed at the shallower level.

Overall, throughout the years, despite the criticism and changes Levels of Processing Theory significant addition and impact to the research of human memory can not be disregarded nor can it be abandoned, as Lockhart & Craik (1990) stated their LOP supreme contributions came from studies that are more procedurally than structurally, corroborating the idea that stores do not determine the success of retention and that the processing that occurs during encoding is key to for long term memory, thus memory is seen as pure construction (Tulving, 2001).

Nevertheless, some questions remain unanswered, such as why can learners

recall certain words that are shallowly processed? (Roediger & Gallo 2002), which could be because reading a word may automatically access its semantic meaning (Kirsner, 1973), but since speculating is never the best practice, it is essential to continue researching and performing experiments that would conduct to a clearer guideline for successful long-term memory retention and retrieval of information.

2.5 Current studies done in the field of learning strategies and long term memory retention

Nemati (2009), at the University of Mysore, Karnataka State, India performed similar studies to the present research; the first study was on “Memory vocabulary learning strategies and long-term retention”.

Nemati (2009) stated that many students do not acquire appropriate mastery of vocabulary memory strategies and giving strategy awareness can facilitate them to store and retrieve new vocabulary items, because the usage of memory strategies results in learning that offers long lasting knowledge.

Also the participants from the experimental group exceeded both in short-term and long-term scores, showing dominance of memory strategies in short-term and long-term retention. Being memory or mnemonic strategies examples for deep levels of processing, and as previously mentioned, according to LOP theory (Craik & Tulving, 1972), cited in Nemati (2009), how well information is remembered, does not depend on how long a person is exposed to that information, instead, it depends on the nature of the cognitive processes that are employed in order to process that information.

Then, the findings of Yagoub & Mortaza’s (2012) study done at the Islamic Azad University, at the Miandoab Branch in Iran, on “The impact of imagery strategy on EFL learners’ vocabulary learning”, claimed that there is a “close association between

vocabulary learning, deep processing, cognitive engagement, and better retention." Thus supporting as well, the assertion of the depth of processing theory in that the more deeply you process information, the better it is retained. This study had forty students, ages 19 to 27. Twenty students from the experimental group received imagery instruction for the semester and the remaining twenty from the controlled group used the direct translation method. A pretest and posttest was given to measure the effects of imagery strategy and compare its effect with the direct translation method of vocabulary acquisition, with the above mentioned results. This research also supports Nemati (2009) findings who suggest that teachers should consider using memory strategies improve short-term and long-term retention.

In 2013 Nemati at the Islamic Azad University, Jahrom – Iran, performed another study on "Vocabulary Learning Strategies: A Short Way to Long Term Retention". This time the emphasis was placed in teaching participants the learning strategies, so they could manage their own learning. As scholars have pointed out that more skillful language learners use a variety and numerous learning strategies (Lee & Oxford, 2008; O'Malley & Chamot, 1990; Wharton, 2000).

The participants were 303 female pre university students randomly selected; also they were randomly divided into control and experimental groups, within similar proficiency levels. They used Oxford's direct strategies' classification: memory, cognitive and compensation, and their sub-strategies, seven in total: grouping, placing new words into context, using imagery, analyzing expressions, highlighting, using linguistic clues and finally using other clues.

The study findings showed that the experimental group performed better than the control group which meant that "teaching through direct strategies was an effective

and better way of learning and remembering the vocabulary items."

It is important to mention Banisaeid (2013) findings upon her research on "Comparative effect of memory and cognitive strategies training on EFL intermediate learners' vocabulary learning", in Iran. The subjects were divided into two groups, one group was trained on cognitive strategies and the second group, on memory strategies, the results showed that cognitive and memory strategies training have an important role on making learners more autonomous in using different kinds of vocabulary strategies. Cognitive strategy training improves the learners' use of metacognitive strategies in a superior manner than memory strategy training; therefore, in order to increase learners' autonomy, more cognitive based strategies need to be taught and used. Banisaeid (2010) affirmed that those who employ more cognitive strategies when acquiring vocabulary are more self-regulated in their learning. However, no significant difference was found in the students' success to say that memory or cognitive was a better strategy.

Contributing results to topics researched in this study are noteworthy, thus Ramezanali (2017) from the University of Ontario, in her doctoral thesis study on "Short and long-term vocabulary learning and retention through multimedia glossing: A mixed method research", as many other scholars, states that two strategies work better than one, nevertheless in some cases, to certain learners, one strategy will be enough, and this factor could be attributed to the learners' learning style. This is something teachers should consider in order to avoid bombarding students with innumerable strategies that might not be necessary. The participants were 132 intermediate language learners, who formed one control and three experimental groups. The experimental groups received target words in different glossing modes; the control group received no glossing

instruction.

In relation to retention and recall of concrete and abstract words, Sadoski & Pavio's (2004) from the Texas A&M University and the University of Western Ontario, respectively in their paper "A dual coding theoretical model of reading", present findings from different studies related to the interaction between frequency, regularity, and imageability in words. They concluded that imageabilty in particular, facilitated the naming and recollection of low-frequency irregular or abstract words. They found an even stronger effect for low-frequency regular or concrete words. When the words concrete or abstract were equally familiar, the participants recalled them nearly twice as well; when the abstract words were more familiar, the participants recalled them equally well.

In regards to learner's autonomy, Haddad (2016), from the Palestine Polytechnic University in Palestine, wrote a very informative paper on "Developing Learner Autonomy in Vocabulary Learning in classroom: How and Why can it be Fostered?". The author accentuates the importance of learner's autonomy for vocabulary learning, additionally, he explains why teachers should encourage learners' autonomy. Haddad agrees with other scholars in that students who think and work strategically are more driven to learn, they have a higher confidence in their own learning ability. Also students who know and apply effective learning strategies have greater possibilities of succeeding academically. They are more inspired in learning by themselves.

Finally, the scholar believes that it is not the teachers' responsibility to teach all vocabulary to the students, however, teacher should simplify and accelerate this process by teaching strategies for learning vocabulary independently, personalized strategies if possible.

☒ One last important study on “The Acquisition of Vocabulary Through Three Memory Strategies” is the one executed by Pérez & Alvira (2017) in Colombia. Although the participants were 11th graders from an urban technical high school, the methodology was similar to the present studies and the results important within this study’s context. The strategies used were. The students average age was 17. They had been preparing to take “SABER” examinations, which evaluate all high school seniors, every year. The students had been struggling with retention and recall of vocabulary, and the teachers decided to impart word cards; association with pictures and association with a topic, as the main strategies to train them in vocabulary development and help them acquire the needed vocabulary. The study finding showed that students improved vocabulary learning and language skills. An interesting finding was that students considered “association with a topic” as a boring and difficult strategy, yet they recalled vocabulary better when they used it.

Since the fundamental objective of teaching English is to flourish students’ communicative proficiency, so they may communicate effectively in the real world (Rababah, 2002), it is still imperative to find suitable and accessible learning strategies to help students accomplish this objective.

Chapter III

Methodology

3.1 Type of Study

The proposed research is a mixed method sequential embedded research study, with an experimental scope, performed with the authorization and support of the Institute of Languages of the University of Cuenca.

In this mixed methods research study, information was gathered by using quantitative and qualitative instruments and procedures This was done following the premise that combining these two methods results in a broader, deeper, and more useful information (Johnson, Onwuegbuzie & Turner, 2007).

Creswell & Plano Clark's (2011), indicate that mixing the approaches permits a better understanding of the research problems, as opposed to using each method separately, and using mixed-methods will compensate the weaknesses of each separate approach in order to better explain quantitative and qualitative results.

Furthermore, sequential mixed methods direct you to start out with quantitative research and then to expand on the data to later explain by using qualitative research (Creswell, 2013). Both forms of data collecting are joined in the analysis by inserting or embedding the information. "Embedded mixed method design involves the sequential use of the data, but the core idea is that either quantitative or qualitative data is embedded within a larger design" (Creswell, 2013, p. 16).

In this way, the present research aimed to integrate the qualitative data obtained from the students' viewpoints and opinions regarding the learning

strategies and their application, collected in the seven-question questionnaire, in order to provide a broader and deeper understanding of the quantitative results, gathered from the quantitative research instruments: The Strategy Inventory Language Learning (SILL) and the Vocabulary Knowledge Scale (VKS) used in the pretest, posttest and delayed posttest.

3.1.1 The participants.

The study used a non-probability convenience sample consisting of a group of 20 university students (out of an original class size of 29: nine men and twenty women), three men and seventeen women, ages nineteen to thirty-two, the majority of the students being twenty to twenty-two years old.

The students were from different majors, who in order to complete their study program were required to approve a third level English credit course. This particular group registered in a four-week intensive course in which they not only had to perform the intervention tasks, but also do their regular class activities, demanded by the class instructor (not the researcher), in order to approve the course.

The majority of the students reported that they had been studying English since they were in primary school and a few since they were in high school. Despite the numbers of years that the students had been learning the language, only seven perceived that their proficiency in the language compared to other students in the class was “good”; ten said “fair” and three said “poor”. Regarding their English proficiency compared to native speakers, half of the students said “fair” and half said “poor”. All the participants considered that learning English was very important to them, mainly because their study program required them to approve the subject, and also they believed they will need it in their future careers; unfortunately, not all students enjoyed learning the language.

Some students had jobs, were married and with children.

3.1.2 The Context.

The course for the intervention was selected by the Institute of Languages of the University of Cuenca amongst the 18 intensive credit courses offered during February 2017. The Institute of Languages granted the required permission for this research to be conducted (Appendix C). The selected intensive course was a required third-level English credit course, delivered in three teaching hours per day, five days a week, during four weeks from 8h00 to11h00.

The researcher was not the class instructor, therefore she had to organize and plan with the instructor the schedule in which the intervention took place. Thus, the intervention intermingled with the regular teaching hours from the class instructor, a total of 20 in class intervention hours, combined with 15 online hours, in which different tasks, such as readings, presentations and writing activities were performed. The intensive one-month course occurred from the 1st to the 24th of February of 2017. It is important to note that the 27th and 28th of February were Carnival national holidays.

3.1.3 Ethical Concern.

To initiate the intervention, the students were informed of the study and its purpose. It was explained to them that their participation was strictly voluntary and that the results would not affect their grades in any way, the students were guaranteed anonymity. Afterwards, an informed consent form was given to the students to read and sign. To ensure that all students understood what they were signing, the form was written in Spanish. No parental consent was required, since all students were adults (Appendix D).

3.1.4 Exclusion Criteria.

This study considered Mackey and Gus' (2012) predetermined exclusion criteria, which refer to factors that could eliminate participants from a research study, such as withdrawal from the research, missing important sessions that could generate inconclusive results, among others.

The study started with 29 students, however only 20 students completed the intervention, data from 9 students was excluded from the final results.

- Three students abandoned the course.

-Two students withdrew from the study, due to a change in their work schedule, which left them with no time to do the activities at home. In general, tasks in this course were very demanding, since it was an intensive course, plus the students had to do the activities given by the course principal instructor.

In addition to the above mentioned loses:

-Two students missed the posttest, indispensable activity to measure and compare data.

-Two students missed the delayed posttest, critical step to obtain the final results.

3.1.5 Instruments and Data Collection Procedure.

The quantitative data was collected applying research instruments in four periods. After the participants signed the informed consent form, they filled out the Strategy Inventory Language Learning (SILL) version for speakers of other languages learning English (version 7.0 in Oxford, 1990), (Appendix E). This self-report questionnaire is based on a five- scale Likert measurement including the following options: never, usually not true, sometimes, usually true and always. This instrument was used to gather background information from the participants as well

as information regarding the type of learning strategies the students use when learning English and the frequency of use: high, medium or low.

For the pretest, posttest and delayed posttest, a modified version of the Vocabulary Knowledge Scale (VKS) of Paribakht & Wesche (1993), was implemented. This VKS has become very popular in second language vocabulary assessment and has been employed in a variety of studies (Waring, 2002). The vocabulary tested in the VKS was vocabulary from five topics: technology; life experiences; possibilities; traveling and inventions, vocabulary required by the syllabus of the participants' corresponding level.

A list of a hundred words was used in the study. The words were selected from two sources: the academic Word List (AWL), developed by Averil Coxhead at the School of Linguistics and Applied Language Studies at Victoria University of Wellington, New Zealand (Coxhead, 1998). The list is comprised of 570 words, consolidated from a corpus of 3.5 million words that appear with high frequency in an extensive array of academic texts and are specific to the academic context. The second source was the Cambridge English: Preliminary (PET) vocabulary list, which is used in the Cambridge Preliminary English Test and shows mastery of the basics of English and proficiency of practical language skills for everyday use (Preliminary (PET), n.d.).

From these 2 main sources, the final 100 words were chosen in accordance with the 5 themes required by the syllabus of the course and ratified by the class Instructor.

The purpose of this VKS is to determine initial recognition and use of new words, this instrument combines self-report and performance elements to elicit and demonstrate knowledge of specific words in written form. The rating scale ranges

from total unawareness, through recognition of a word to the capacity to use the word with grammatical and semantic accuracy in a sentence (Appendix F).

For the qualitative data collection, a seven-question questionnaire was given to the participants. The questionnaire was answered, after the posttest (Appendix G).

All the instruments were validated, they were applied to a group of thirty students from different majors from the university of Cuenca, also enrolled in a third level English course.

3.2 Main study's intervention

The main study was carried out in three steps, first the application of pretests: SILL questionnaire and the VKS, then the treatment followed by the posttest and lastly, the delayed posttest.

3.2.1 Pretests.

3.2.1.1 SILL questionnaire was answered by the students the first day of the course, the completion of the questionnaire was guided by the researcher and translated to Spanish when needed to assure accurateness in the students´ comprehension and therefore in their answers.

3.2.1.2 The vocabulary knowledge scale (VKS) was also administered. It consisted of the list of one hundred words from the five topics: technology; life experiences; possibilities; traveling and inventions. This provided the researcher with valuable information, which was used to organize the activities for the intervention based on the words the students knew and those they did not know. This same instrument was employed in the posttest and the delayed posttest.

3.2.2 The Teaching Phase.

It started with the researcher explaining the students about learning

techniques, their use and value in an L2 learning environment. The techniques that would be employed in class to learn the selected vocabulary words were explained to the class, they were: picture, context and linkage. A total of 20 in class intervention hours, combined with 15 online hours, in which different tasks, such as readings, presentations and writing activities were performed.

Due to the fact that this course was an intensive course, time was an important factor; the students had to receive the regular course teaching to accomplish the syllabus objectives, and also the instruction from the researcher´s treatment, which for this study pertained to covering five vocabulary topics: technology; life experiences; possibilities; traveling and inventions. Time had to be optimized to the maximum; consequently, the researcher decided to integrate the techniques (linking the words to a picture; linking the words to something meaningful and using the words in context), and apply them together for the learning of the 100 words, rather than to use them separately and allocate a number of words per strategy.

A Four-Corners Vocabulary Chart (Appendix H), is a tool that helps students learn new words in a direct manner. It was used as the foundation tool to convey to the students the three strategies. This tool enabled the participants to contextualize words by drawing a picture or illustration, writing a sentence with the specific word, the sentence was required to be linked to a meaningful experience or anecdote for the students. Also, they had to write the definition, meaning, synonym and or translation of the word. This tool integrated the strategies in one activity.

It was instructed to the students that the picture and sentence had to be related to a real experience or anecdote from their lives, in order for them to create a personal and emotional connection with each vocabulary word, as well as to

generate a deeper understanding of each term. As Arias (2017) suggests, establishing different types of links between words, helps vocabulary to be meaningfully stored in long-term memory. Students also made linkages amongst word, meaning, picture and context-sentence. “These charts provide more context and clues than typically word walls because they include an illustration, definition and sentence for each vocabulary word” (p.81), as Echevarria, Vogt & Short (2014) stated.

This tool is similar to the Frayer Model, a graphic organizer designed by Dorothy Frayer and her colleagues at the University of Wisconsin to provide for a thorough understanding of new words (Appendix I).

To enhance the students understanding of this tool, examples were presented. Their first task was to create a chart per word, the first set of words corresponded to the first topic according to the syllabus: technology. Each week new words from the remaining topics were added and mixed with the previous ones.

The researcher prepared Power Point presentations, especially for words that were subjective or that did not describe tangible objects, using the Four-corners Vocabulary Charts. This was done to emphasize the desired way in which students needed to do their vocabulary charts, as well as to stress the employed learning techniques and their value in the learning process, in general. The students’ vocabulary words’ charts were revised weekly and corrected, if needed, with the corresponding explanation (Appendix J).

In each class, time was dedicated to reviewing the vocabulary previously instructed, through different activities, for example: by revising randomly students’ cards, or by giving them definitions, clues from words that had been charted in the presentations, and having the students guess the words, etc. The remaining of the

class was devoted to studying more vocabulary through presentations from the researcher or the students, and also by performing related reading, writing exercises, mind maps and games, all with the aim of accentuating the information in their memories through elaborative rehearsal tasks which led to deeper processing, achieving a more effective encoding and retrieval of the information (Goldstein, 2011, pp.174-175).

One thing that cannot be forgotten is the proverb that says practice makes perfect, of course, the right practice; just as Ziglar (2008) said: “Repetition is the mother of learning, the father of action, which makes it the architect of accomplishment”.

All lesson plans followed a format similar to the one below, the actual lesson plan for the the first intervention:

LESSON PLAN NO.1 **Objectives:** - At the end of the session, students will know what are learning strategies in general. - Students will know what are cognitive and memory strategies particularly. - Students will be able to use the Four-Corners Vocabulary Chart, and will start applying it to learn the first set of words related to technology.	
ACTIVITY	**TIMING**
Greetings and call the roll. • **Warm-up activity – Introduce the concept of earning Strategies.** Ask the students: - Have you heard about learning strategies? If yes give examples. • **Video: Language Learning Strategies** https://www.youtube.com/watch?v=Fy7Q2LCqq0E&t=48s • **Class discussion:** Students discuss in groups of 3, and share with the class, the strategies they have used giving an example. • Introduce the Four-Corners Vocabulary Chart, and and explain how to use it, with a power point presentation. • Respond questions from students. • **Group Work:** divide students into groups, give each group a few words from the first topic (technology), and have them apply the Four-Corners Vocabulary Chart. • **A** representative from each group will explain to the class the given word and how it was used. Feedback provided by the teacher, after each presentation.	5 minutes 3 minutes 7 minutes 10 minutes 5 minutes 15 minutes 15 minutes
Homework given: Students will use the the list from the first topic "Technology and will apply the Four-Corners Vocabulary Chart to each word of the list.	

For a better comprehension of the performed activities, one of the lesson plans per topic and week are included (Appendix K).

Due to time availability related issues, but also to support the students' learning process, it was required that the students do tasks outside the class, therefore Schoology, an online platform was used. The students had to log in to it in order to see their tasks, which included writing paragraphs, readings, fill in the blank exercises as well as cross-word puzzles, all with the words from the vocabulary list. Also, students had to upload finished activities that had been started in class. The presentations and other material were made available for them to review; also feedback on certain activities was given through this platform. After all, there were a hundred words to work with and only four weeks to do so.

3.2.3 Posttest.

It measured the short-term performance of the students, immediately after finishing the instruction phase. It took place on the 24th of February of 2017. The test was the same as the vocabulary knowledge scale used in the pre-test.

3.2.4 Delayed Posttest.

Once the one-month intensive course had concluded**,** on the 15th of March, nineteen days after the posttest took place, the delayed posttest was conducted. It is important to know that delayed recall after 2 weeks under experimental conditions is normally referred to as "long-term retention" (Yongqi, 2003, p. 12). The reliability estimate for VKS was established through test-retest administration. The delayed posttest was the same as the pretest and posttest.

3.3 Statistical analysis

The processing of the data was carried out using the Statistical Package for the Social Sciences, SPSS version 23, which is a statistical software used to perform statistical analysis and graphical presentation of data. The tables and graphs portraying the data analyzed were edited in Excel 2016.

The study was conducted with a total of 20 students, 17 women and 3 men, all of them from the third level credit course of English of the University of Cuenca, who voluntarily agreed to participate in the study and completed it with all of the requirements. The participants were between the ages of 19 and 32 years with a mean of 22.2 (SD=2.95)

The results concerning the learning strategies were displayed by absolute frequency, measures of central tendency and dispersion and for a better visualization of the results, a graph of bar and line was used.

For the analysis of the results of the applied evaluations, measures of central tendency and dispersion were used and these were represented by a box-and-whisker diagram, in addition an individual evaluation by words was carried out. The data presented a normal distribution, this was confirmed by the normality test for small samples - Shapiro Wilk ($p > 0.05$), therefore parametric tests were employed. For the comparison between the uses of the strategies, an ANOVA test was applied as well as Tukey's Post Hoc test for multiple comparisons; in order to evaluate the global results, the statistical Student's T-Test for related samples was used, and for the analysis by item, the test for related samples of McNemarc was employed. The decisions were made with a consideration of 0.05.

For the qualitative data analysis, the tool used was a seven-question questionnaire. The data was analyzed and interpreted to find out the students' opinions regarding the strategies and the use of the strategies, if any, outside the intervention, in different areas of their academic and personal lives.

Chapter IV

Data Analysis and Results

The data gathered in this research addresses the general objective: to determine the impact of cognitive and memory strategies on the improvement of university students' long term memory retention and retrieval of English vocabulary.

The analysis of the results from the quantitative and qualitative data, collected through the various instruments employed during the research, is presented as follows:

The quantitative results respond to whether participants used learning

strategies prior to the intervention; which strategies they used, and how often they used them; also, the correlation among the use of the strategies.

The general results from the pretest and posttest, as well as the delayed posttest are shown, revealing the impact of the strategies on the improvement of university students' long term memory retention and retrieval of English vocabulary. Lastly, the results of the scores per word from each of the five vocabulary topics and the relationship between the pretests and posttest, and the posttest with the delayed posttest are analyzed.

Lastly, the qualitative findings obtained from the seven-question questionnaire are presented, these show the participants' opinions and sentiments towards the cognitive and memory strategies applied, and their use outside the intervention.

4.1 Quantitative Results

A quantitative analysis was conducted to analyze the results from the Strategy Inventory for Language Learning (SILL) employed as a pretest; as well as the results from the Vocabulary Knowledge Scale (VKS) employed as a pretest, posttest and delayed posttest.

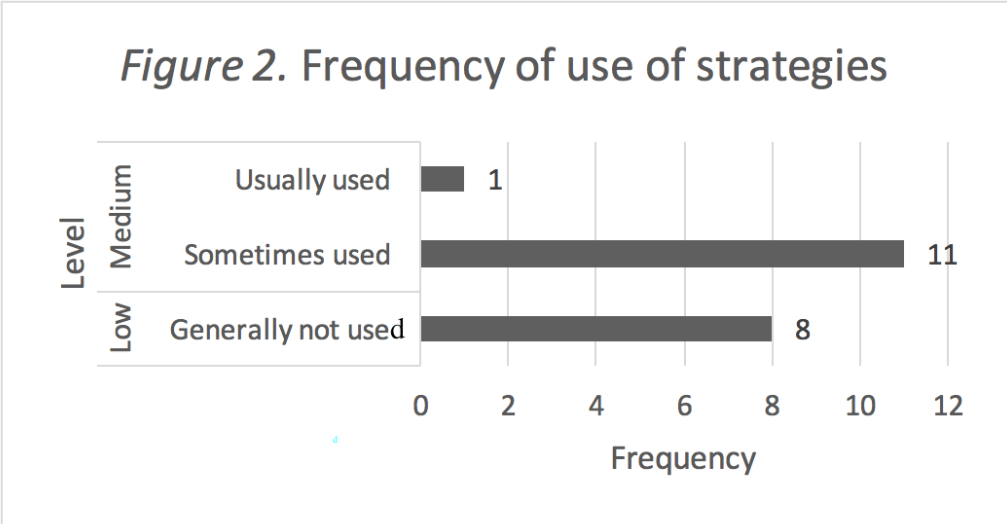


Figure 2. **Frequency of use of strategies**

Figure 2 shows the results from the inventory SILL in relationship to the frequency in which students use the strategies for learning English. It revealed that there is still a significant number of students that need to be taught learning strategies. As indicated in the chart, although, 55% of the participants "sometimes" used strategies for their English language learning; 40% “generally did not use” any strategies; and only 5% “usually used” strategies for learning English. The average general scores ranged between 1.88 and 3.60 with a mean of 2.75 (SD=.51) reaching a "Medium” level of frequency. The next step was to find out which learning strategies are used by those students that “sometimes” use them.

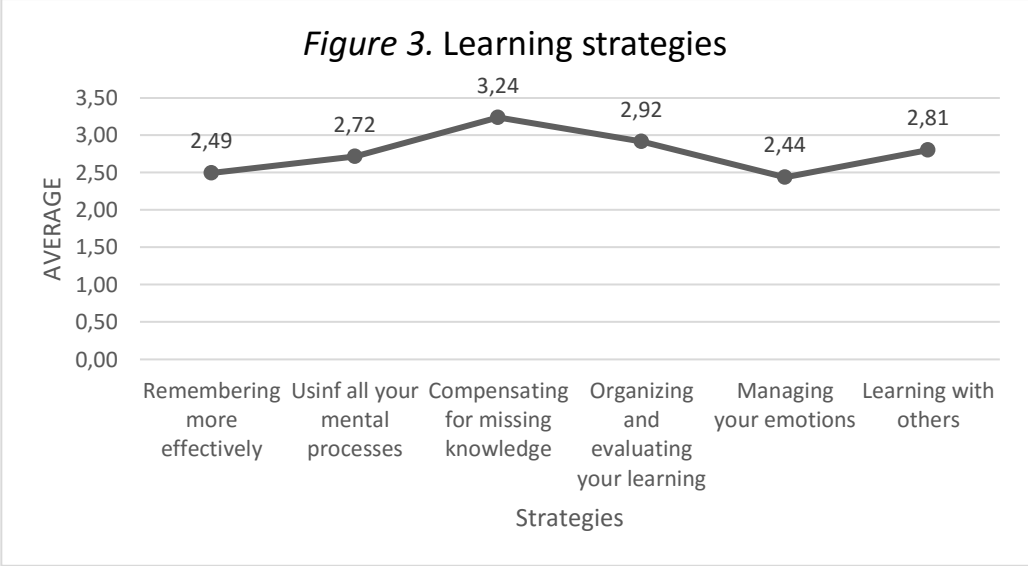


Figure 3. **Most used language Strategies**

Figure 3 indicates the different learning strategies used among the participants. The main result is that the principal strategies used in this study are the least used by the participants. This was a key finding since it allowed to test the effectiveness of a new method, unknown to most students. "Remembering more effectively" is one of the least employed strategies with an average of 2.49 (SD=0.70), followed by "Managing your emotions" with an average of 2.44 (SD=0.70). The ANOVA test reflected significant differences among the obtained scores (p=0.02).

The predominant learning strategy in the group was: "Compensating for missing knowledge" with scores between 2.5 and 4.16, with an average of 3.24 and a low dispersion of data (SD=0.56), followed by the strategy: "Organizing and evaluating your learning" with scores of 1.44 and 4.33, and an average of 2.92 (SD=0.68).

Table 1 below, shows the results obtained by the Tukey Test used to compare the use of the different strategies. Significant differences ($p < 0.05$) were found only in the scores between the strategies "Remembering more effectively" and "Compensating for missing knowledge" of 0.745; and between the results of "Compensating for missing knowledge" and "Managing your emotions" of 0.801.

Table 1

Multiple comparisons (Tukey Test)

Strategy		Difference of means	p
Remembering more effectively	Using all your mental processes	-.222	.896
	Compensating for missing knowledge	-.745	.007*
	Organizing and evaluating your learning	-.424	.335
	Managing your emotions	.056	1.000
	Learning with others	-.312	.672
Using all your mental processes	Compensating for missing knowledge	-.523	.133
	Organizing and evaluating your learning	-.202	.929
	Managing your emotions	.278	.768
	Learning with others	-.089	.998
Compensating for missing knowledge	Organizing and evaluating your learning	.321	.641
	Managing your emotions	.801	.003*
	Learning with others	.434	.309
Organizing and evaluating your learning	Managing your emotions	.480	.206
	Learning with others	.112	.995
Managing your emotions	Learning with others	-.368	.498

*Note: * Significant difference*

Table 2 indicates that strong, direct correlations were found between strategies: "B and D", and "C and F" (r = .731 and r = .801); also strong, moderate, positive correlations were found between strategy "A" with "B", and "D" with "B", and "C, E, F"; the Strategy "D", with "E and F". Finally, it was reported a relationship between strategies "E and F". As the score of a strategy increases, the other also grows.

Table 2

Relationship between the use of strategies

		Using all your mental processes (B)	Compensating for missing knowledge (C)	Organizing and evaluating your learning (D)	Managing your emotions (E)	Learning with others (F)
Remembering more effectively (A)	r	.648*	.311	.532*	.331	.403
	p	.002	.182	.016	.154	.078
Using all your mental processes (B)	r		.513*	.731*	.620*	.606*
	p		.021	.000	.004	.005
Compensating for missing knowledge (C)	r			.248	.338	.801*
	p			.293	.144	.000
Organizing and evaluating your learning (D)	r				.619**	.521*
	p				.004	.019
Managing your emotions (E)	r					.644*
	p					.002

*Note: * Significant difference*

About the Tests

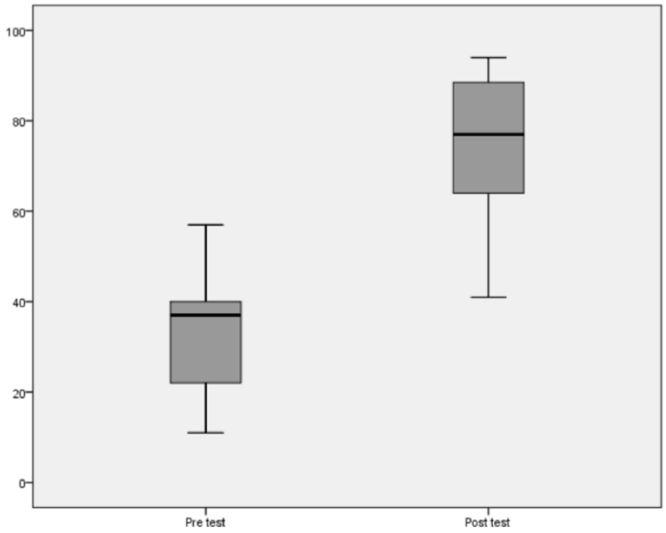


Figure 4. **Results from Pretest and Posttest**

Figure 4 indicates the results from the pretest and posttest. In the pretest students were able to complete the vocabulary test successfully, between 11% and 57%, with an average of 33.55% and a high dispersion of data (SD=12.68). The results showed that 2 of the 20 participants had successfully completed more than 50% of the test; while in the posttest the success rate was between 41% and 94%, with an average of 74.35% and a moderate dispersion of data (SD=14.16). The t-test for related samples reflected a significant difference (p = 0.000).

Table 3 displays the results pertaining to the topic of TECHNOLOGY. The words related to technology with the greatest rate of successful responses in the pretest were "download" and "link" with 19 correct answers, while the words: "techie", "attachment" and "retrieve" were the words with no correct answers. In the posttest all students answered correctly to 4 of the 31 words corresponding to this theme. These words were: "download", "social media", "web surfing" and "tablet". The word with the lowest incidence of success was: "retrieve" with 6 correct answers, followed by "browsing " "keep track" and "layout" with 7 correct answers. A

total of 15 significant positive changes were reported in the results of the pre and posttest. In this group of words, students answered correctly, in the pretest, a minimum of 5 and a maximum of 24 of the 31 proposed words ($\bar{x}$ = 11.4; SD= 4.61).

Table 3

Technology (Vocabulary)

ID. Word	Word	Pretest	Posttest	p
1	TECHIE	0	19	.000*
2	DOWNLOAD	19	20	1.000
3	UPLOAD	15	18	.250
4	SOCIAL MEDIA	8	20	.000*
5	GADGET	5	18	.000*
6	BROWSING	3	7	.125
7	ATTACHMENT	0	16	.000*
8	UPGRADE	2	11	.012*
9	BACKUP	1	10	.004*
10	WIRELESS	2	18	.000*
11	WEB SURFING	13	20	.016*
12	GO ONLINE	14	18	.219
13	TABLET	16	20	.125
14	DEVICE	9	17	.008*
15	MALWARE	7	18	.001*
16	BATTERY	17	20	.250
17	NETWORK	4	9	.063
18	DATA	5	16	.001*
19	DRAG	2	8	.070
20	KEEP TRACK	2	7	.125
21	LAYOUT	2	7	.063
22	LINK	19	18	1.000
23	OUTPUT	3	16	.000*
24	INPUT	4	16	.000*
25	RANDOM	7	13	.031*
26	REPAIR	18	19	1.000
27	RETRIEVE	0	6	.031*
28	SCANNER	15	15	1.000
29	SOURCE	3	8	.063
30	PRINTER	9	15	.070
31	TOOL	4	17	.000*

*Note: * Significant difference*

Table 4 displays the results pertaining to the topic of LIFE EXPERIENCES. In this section the word with the largest number of successful answers in the pretest (18) was: "best", followed by "amazing" and "dangerous" (17 correct answers). The words "tastiest" and "wiser" did not obtain any correct answers. In the posttest 7 of the 18 words were correctly answered by all students. "Exciting" was the word with less successful responses in the posttest. In this section 12 significant positive changes ($p < 0.05$), were reported. The successes per student in this section in the pretest were a minimum of 2 and a maximum of 14 ($\bar{x}$= 7.65 SD= 3.33).

Table 4

Life experiences (Vocabulary)

ID. Word	Word	Pretest	Posttest	p
32	TASTIEST	0	18	.000*
33	SWEETEST	5	18	0.00*
34	MOST	10	17	.016*
35	LEAST	5	15	.002*
36	EXCEPTIONAL	14	20	.310
37	WISER	0	14	.000*
38	WORSE	1	11	.002*
39	BEST	18	20	.500
40	PROGRESSING	13	20	.016*
41	AMAZING	17	19	.625
42	EXCITING	5	10	.227
43	DANGEROUS	17	20	.250
44	PUSH YOURSELF	4	16	.000*
45	RISK TAKER	4	10	.031*
46	GIVE UP	4	14	.002*
47	VOLUNTEERING	5	20	.000*
48	EXTREME	16	20	.125
49	ARTISTIC	15	20	.063*

*Note: * Significant difference*

Table 5 is concerned with the topic of POSSIBILITIES. Here is noted that the word "probably" reported greater amount of correct answers both in the pre-test (18) and in the posttest (19), while the words "daresay" and "likely" did not get any correct answers; the word "might" had the lowest incidence of success in the posttest. In this section, 6 significant differences in 15 words were reported. The students correctly answered between 1 and 12 words in the pretest with an average of 5.25 (SD=2.55).

Table 5

Possibilities (Vocabulary)

ID. Word	Word	Pretest	Posttest	p
50	WOULD	6	12	0.109
51	COULD	13	17	0.219
52	MIGHT	3	6	0.453
53	MAY	3	11	0.021*
54	PERHAPS	2	9	0.016*
55	POSSIBLE	15	17	0.687
56	IMAGINE	17	19	0.5
57	DARESAY	0	10	.002*
58	SUPPOSE	10	15	0.18
59	EXPECT	5	12	0.065
60	LIKELY	0	10	.002
61	UNLIKELY	1	10	0.004*
62	NO WAY	5	14	0.004*
63	PROBABLY	18	19	1
64	CHANCE	7	16	0.004*

*Note: * Significant difference*

Table 6 shows that out of the 22 words that were evaluated in the topic TRAVELING, not significant changes were reported in 3 words, ($p > 0.05$). The results of the pretest showed that in 5 words no student was successful in responding them. These were: "departure", "luggage", "carry on", "baggage claim" and "take off". The word with more correct answers was "passport", 16 in the pretest and 20 in the posttest. The word with less successful answers in the posttest was: "departure". In this section, there were students who initially had zero successes and students with a maximum of 12 correct answers out of the 22 evaluated ($\bar{x} = 6.5$ SD= 4.15).

Table 6

Travelling (Vocabulary)

ID. Word	Word	Pretest	Posttest	p
65	DEPARTURE	0	4	.125
66	PASSPORT	16	20	.125
67	BOARDING	5	15	.002*
68	TRIP	10	17	.016*
69	LUGGAGE	0	15	.000*
70	BAGGAGE	4	18	.000*
71	SUITCASE	2	12	.013*
72	BACKPACK	5	19	.000*
73	CARRY ON	0	15	.000*
74	CHECK IN	4	17	.000*
75	BAGGAGE CLAIM	0	15	.000*
76	JOURNEY	3	10	.016*
77	TOUR	11	18	.039*
78	TAKE OFF	0	17	.000*
79	LANDING	1	14	.001*
80	CUSTOMS	1	15	.000*
81	HOLIDAYS	11	18	.016*
82	VACATION	15	19	.125
83	BUSINESS	10	18	.008*
84	TICKET	12	18	.031*
85	RESERVATION	11	19	.008*
86	LOST	9	17	.008*

*Note: * Significant difference*

Table 7 indicates results related to the topic of INVENTIONS. It was found that initially no student succeeded in 4 of the 14 words evaluated: "brainstorm", "breakthrough", "cutting edge" and "rough draft". The word with the highest rate of success was "creation" in which half of the participants answered correctly. In the results of the posttest, 18 students responded correctly to the words: "innovation", "creation" and "patent"; however, the words: "breakthrough" and "rough draft" were the least successful, with 4 and 6 correct responses, respectively. The words "develop", "creativity" and breakthrough" reported no significant statistical differences. The participants who had a better success rate in the vocabulary of this topic in the pretest obtained 8 correct answers of the 14 words proposed ($\bar{x}$ = 2.75 SD= 2.67).

Table 7

Inventions (Vocabulary)

ID. Word	Word	Pretest	Posttest	p
87	DEVELOP	5	11	.109
88	BRAINSTORM	0	14	.000*
89	CREATIVITY	7	13	.070
90	FOCUS	1	15	.000*
91	GENERATE	8	17	.004*
92	INNOVATION	8	18	.002*
93	RESEARCH	3	11	.008*
94	BREAKTHROUGH	0	4	.125
95	CUTTING EDGE	0	7	.016*
96	CREATION	10	18	.008*
97	CONCEIVE	2	15	.000*
98	ROUGHDRAFT	0	6	.031*
99	PATENT	2	18	.000*
100	COLLABORATION	9	17	.008*

*Note: * Significant difference*

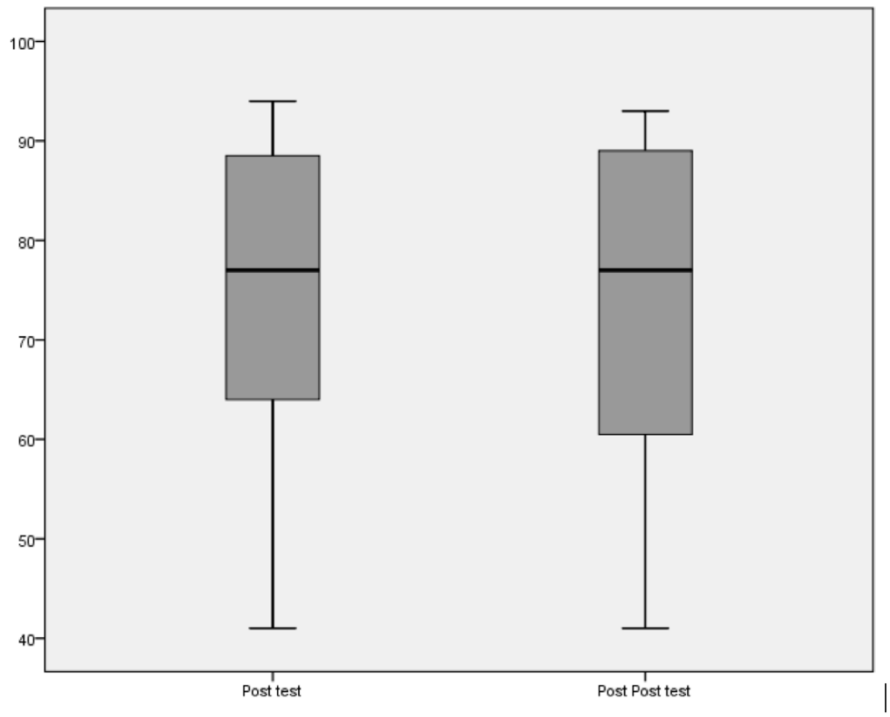


Figure 5. **Results from Posttest and Delayed posttest**

Figure 5 shows that in the delayed posttest, the results ranged between 41% and 93% of successful completion of the test with an average of 73.85% (SD=15.28%). There was no significant difference compared with the results obtained in the posttest (p=.281), which suggests that students were able to retain and recall the majority of the learned vocabulary.

The individual analysis of the vocabulary evaluated in the delayed posttest in the five topics reported a positive change in 20% of the test. Twenty words had an incidence of greater success in the delayed posttest; however, there were no significant differences in any of the cases (individual words). The details of the results by word, obtained in each topic of study, are displayed in tables: 8, 9, 10, 11and 12.

Table 8 relates to the topic of TECHNOLOGY. It shows that in the posttest the average rate of success was of 23 (SD=4.84) words; while in the delayed posttest the average rate of success was of 23.6 (SD=4.99); therefore, no significant differences were found. (P > 0.05).

Table 8

Technology (Vocabulary)

ID. Word	Word	Posttest	Delayed posttest	p
1	TECHIE	19	19	1.000
2	DOWNLOAD	20	20	1.000
3	UPLOAD	18	18	1.000
4	SOCIAL MEDIA	20	19	1.000
5	GADGET	18	18	1.000
6	BROWSING	7	8	1.000
7	ATTACHMENT	16	13	0.508
8	UPGRADE	11	10	1.000
9	BACKUP	10	13	0.250
10	WIRELESS	18	19	1.000
11	WEB SURFING	20	19	1.000
12	GO ONLINE	18	18	1.000
13	TABLET	20	19	1.000
14	DEVICE	17	16	1.000
15	MALWARE	18	18	1.000
16	BATTERY	20	19	1.000
17	NETWORK	9	11	0.687
18	DATA	16	18	0.500
19	DRAG	8	12	0.125
20	KEEP TRACK	7	8	1.000
21	LAYOUT	7	10	0.250
22	LINK	18	19	1.000
23	OUTPUT	16	18	0.500
24	INPUT	16	18	0.500
25	RANDOM	13	13	1.000
26	REPAIR	19	19	1.000
27	RETRIEVE	6	5	1.000
28	SCANNER	15	14	1.000
29	SOURCE	8	9	1.000
30	PRINTER	15	15	1.000
31	TOOL	17	17	1.000

Table 9 shows the results of the topic of LIFE EXPERIENCES. Here the results of the posttest yielded an average of 15.1 (SD=2.59) correct answers, and in the delayed posttest the reported average was 15.15 (SD=2.5). There were no significant differences reported ($p > 0.05$).

Table 9

Life experiences (Vocabulary)

ID. Word	Word	Posttest	Delayed posttest	p
32	TASTIEST	18	18	1.000
33	SWEETEST	18	19	1.000
34	MOST	17	18	1.000
35	LEAST	15	14	1.000
36	EXCEPTIONAL	20	20	1.000
37	WISER	14	13	1.000
38	WORSE	11	8	0.375
39	BEST	20	20	1.000
40	PROGRESSING	20	20	1.000
41	AMAZING	19	19	1.00
42	EXCITING	10	13	0.375
43	DANGEROUS	20	20	1.00
44	PUSH YOURSELF	16	16	1.00
45	RISK TAKER	10	12	0.5
46	GIVE UP	14	15	1.00
47	VOLUNTEERING	20	19	1.00
48	EXTREME	20	19	1.00
49	ARTISTIC	20	20	1.00

Table 10 shows the results related to the topic of POSSIBILITIES. Here the average rate of success registered was of 9.85 correct words out of the 15 proposed in both the posttest and the delayed posttest. (P > 0.05).

Table 10

Possibilities (Vocabulary)

ID. Word	Word	Posttest	Delayed posttest	p
50	WOULD	12	8	0.289
51	COULD	17	18	1.000
52	MIGHT	6	9	0.453
53	MAY	11	10	1.000
54	PERHAPS	9	10	1.000
55	POSSIBLE	17	18	1.000
56	IMAGINE	19	17	0.500
57	DARESAY	10	8	0.625
58	SUPPOSE	15	16	1.000
59	EXPECT	12	12	1.000
60	LIKELY	10	11	1.000
61	UNLIKELY	10	11	1.000
62	NO WAY	14	14	1.000
63	PROBABLY	19	18	1.000
64	CHANCE	16	17	1.000

Table 11 relates to the posttest results for the topic of TRAVELING. In this theme integrated by 22 words, the average rate of success obtained in the posttest was 17.5 (SD=4.86), and in the delayed posttest the average was 16.55; however, there was no significant difference between the results ($p > 0.05$).

Table 11

Traveling (Vocabulary)

ID. Word	Word	Posttest	Delayed posttest	p
65	DEPARTURE	4	5	1.000
66	PASSPORT	20	20	1.000
67	BOARDING	15	13	0.5000
68	TRIP	17	16	1.000
69	LUGGAGE	15	16	1.000
70	BAGGAGE	18	15	0.250
71	SUITCASE	12	12	1.000
72	BACKPACK	19	18	1.000
73	CARRY ON	15	13	0.500
74	CHECK IN	17	16	1.00
75	BAGGAGE CLAIM	15	13	0.500
76	JOURNEY	10	10	1.000
77	TOUR	18	18	1.000
78	TAKE OFF	17	14	0.375
79	LANDING	14	12	0.500
80	CUSTOMS	15	14	1.000
81	HOLYDAYS	18	17	1.000
82	VACATION	19	20	1.000
83	BUSINESS	18	16	0.500
84	TICKET	18	17	1.000
85	RESERVATION	19	19	1.000
86	LOST	17	17	1.000

In the section related to INVENTIONS shown in Table 12, out of the 14 learned words, an average of 9.2 (SD=3.87) was obtained in the posttest and an average of 8.7 (SD=3.73) in the delayed posttest. The registered difference was not significant, (P > 0.05).

Table 12

Inventions (Vocabulary)

ID. Word	Word	Posttest	Delayed posttest	P
87	DEVELOP	11	12	1.000
88	BRAINSTORM	14	13	1.000
89	CREATIVITY	13	15	0.500
90	FOCUS	15	13	0.500
91	GENERATE	17	17	1.000
92	INNOVATION	18	17	1.000
93	RESEARCH	11	9	0.500
94	BREAKTHROUGH	4	2	0.500
95	CUTTING EDGE	7	7	1.000
96	CREATION	18	16	0.500
97	CONCEIVE	15	13	0.500
98	ROUGH DRAFT	6	4	0.500
99	PATENT	18	18	1.000
100	COLLABORATION	17	18	1.000

Finally, Table 13 shows that no relationship was found between the learning strategies used by students before the intervention and the results of the tests. There was a moderate-to-high direct relationship between the rate of successful completion in the pretest and posttest, as well as a high positive relationship between the results of the posttest and delayed posttest. (r=.979; p = .000).

Table 13

Relationship: Strategies and test (1/2)

		Remembering more effectively	Using all your mental processes	Compensating for missing knowledge	Organizing and evaluating your learning	Managing your emotions
Pretest	r	.287	.217	-.090	.227	-.088
	p	.219	.358	.705	.337	.712
Posttest	r	.181	.297	.221	.107	-.258
	p	.446	.203	.349	.653	.272
Delayed posttest	r	.156	.238	.099	.030	-.333
	p	.512	.313	.678	.900	.152

Relationship: Strategies and test (2/2)

		Learning with others	Overall average	Posttest	Delayed Posttest
Pre test	r	-.056	0.163	.632**	.667**
	p	.816	.493	.003	.001
Posttest	r	.127	.170		
	p	.594	.472		
Delayed posttest	r	-.008	.078	.979**	
	p	.974	.744	.000	

4.2 Qualitative Analysis

The last stage of the data analysis and interpretation of the study findings comprises the qualitative data, which was gathered from a seven-question questionnaire, conducted in Spanish with the aim of creating a comfortable environment which allowed the students to give complete and ample responses, eliminating the fear caused by a lack of vocabulary. The questions were made to elicit the participants' perceptions and opinions regarding the applied strategies as well as to find out whether they had used the strategies beyond the intervention's activities. The questionnaire comprised two close-ended questions, four open-ended ones and one multiple choice question. The questionnaire took place after the intervention.

For purposes of language consistency and a greater understanding by possible non Spanish speaking readers of the present research, the questions as well as the students' responses have been translated to English.

Question 1: Have you, previously, used these techniques in order to learn and remember information?

In this question, Student 1 and Student 19 said that they had used the learning strategies applied in the intervention; the rest of the participants had not used any of the applied strategies. This shows that the majority of the participants had not been taught these strategies and their value for learning vocabulary and perhaps, other information.

Question 2: Which technique helped you the most to learn the vocabulary?

Participants selected different techniques, they responded that every technique helped them learn the target vocabulary. Linking the target words to a picture and linking the required words to something meaningful, were useful and

effective. However, students' answers showed that using the words in context was a popular strategy, but most participants believed that using all three strategies together, helped them to better recall the target words.

It can be inferred by the participant's responses, that they felt that using the combination of the strategies is what helped them succeed. Also their different choices in preferred strategies might be attributed to their specific learning styles.

Question 3: What do you think you could have done, in order for the techniques to be more effective?

Students responses varied, however, they mainly recognized that practicing or reviewing more, would have increased the techniques' effectiveness.

Participants also mentioned that writing more examples in the word cards and doing all the instructed tasks, as well as doing more activities that require the use of the target words, would extend the techniques effectiveness.

The students' responses show that they consider practicing in different ways, with more activities or exercises that involve the target words, as well as reviewing the material, necessary to achieve success.

Question 4: What factors do you believe affected the performance of this intervention?

Participants said, principally, the lack of time was a main factor that affected the accomplishment of the intervention's goal. Other participants considered that not being able to do all the intervention's extra course work from the virtual platform, was a main factor that affected the accomplishment of the intervention's goal. Their main course homework was abundant. Finally, the number of target words and missing sessions was also considered as a main factor that affected the accomplishment of the intervention's goal.

The students' responses indicate that they consider the lack of time as one fundamental factor affecting the intervention; followed by their concern of having plenty of homework sent by the course's main teacher, which impeded them to complete all the extra work required by the researcher for the intervention. Other factors were the number of target words, one hundred in total, and their absences from the intervention sessions.

Question 5: Do you think you can apply these techniques in other areas of your life?

All participants responded that they could apply the techniques in other areas of their lives. The conclusive response to this question presumes that the participants understood the strategies and recognized their value and versatile application, not only in the classroom but in their personal life.

Question 6: After being taught the strategies, have you used them in other situations outside the intervention, in which ones?

Students responded affirmatively to using the techniques to remember information outside the intervention, as it is stated by **Student 3**:

> I use the techniques to remember other information taught by the course main teacher.

Meanwhile, other participants had used the techniques to remember information taught in subjects relevant to their main areas of study, as **Student 12** indicates:

> Yes, I use the techniques to remember information related to my career.

Students also responded that they had used the techniques to remember information outside the academic field. **Student 17** responded:

I use the techniques in order to remember things from my personal life.

One response showed that a student had not used the strategies outside the intervention.

In question number five, students affirmed that the strategies are useful in other areas of their lives. In question number six, they indicate that they have used them mainly for learning and retaining information taught in the main course, by the main instructor, outside the intervention. Also they had used the techniques to remember information from their particular majors, and in their lives, outside the university.

Question 7: Write your suggestions, opinions or comments about the learning strategies applied in this intervention.

The students' answers showed that they had an overall positive experience with the intervention, the activities and the way it was imparted. They found the applied strategies useful inside and outside the classroom. They also request more exercises and games. This is shown in the following learners' responses, listed and transcribed as follows:

Student 2: I thought it was a good and easier way of learning.

Student 4: The examples given were very good and interesting.

Student 5, Student 17: These methods should be used in all English levels.

Student 7: This time has been great and dynamic; I liked it very much to be a part of this study, although, I am conscious that I need to give more in order to learn more.

Student 10: The techniques are very good and applicable in other areas of my major.

Student 12: It helped me remember words that I could not.

Student 13: The images helped me remember the words.

Student 15: There should be more games like Bingo, to reinforce.

Student 16: Do more exercises in class.

Student 20: Even though this was an intensive course, I was able to learn vocabulary through various useful techniques.

Chapter V

Discussion

This section discusses the significance of the results from the quantitative and the qualitative research. Additionally, it links the quantitative and qualitative results to the objectives of the study in order to analyze the relation between the two, as well as the relation with the findings of previous studies done in this area. To provide objectivity, the limitations found will be presented.

The main question of this study was: to what extent memory and cognitive learning strategies improve university students´ long term memory retention and retrieval of English vocabulary? In order to respond to this question as well as to the main objective of determining the impact of the cognitive and memory strategies, the Vocabulary Knowledge Scale (VKS) was applied as a pretest, posttest and delayes posttest. The main findings obtained from the VKS posttest and delayed posttest indicate there is a positive impact, as the scores presented a minimal change after nineteen days of ending the intervention, they presented an insignificantly decrease from 74.35% to 73.85%.

The results from the VKS pretest and the posttest showed a significant increase in scores, students' scores increased from an average success rate of 33.55% to 74.35 %, which represents an improvement of 40.8%. It was expected to find some sort of improvement, after the intervention; however, the percentage obtained exceeded the researcher's expectations. This increment could be due to the fact that new strategies, entirely focused on vocabulary learning, were incorporated to the student's body of knowledge, with great acceptance and results. Yagoub & Mortaza (2012) had similar findings, they attributed the improvement in vocabulary to the impact caused by memory strategies' instruction, particular

imaging, for its deep processing components.

As mentioned above, the findings are very positive regarding this study's main objective. However, it is imperative to point out one major limitation: the small sample size. In general, courses at the University Institute of Languages are of 30 students per classroom, and then this number usually suffers a reduction due to different students' personal issues. This was the case in this study, and due to the small number of participants partaking in this research, it is not possible to generalize the results for all English students at the University of Cuenca or beyond. Perhaps for future studies more courses could participate; or various teachers together in one research.

Also, another limiting factor to validate the study's results was the lack of a control group, it would have aided to support that the improvement of the grades found in the posttest, and the recall scores obtained in the delayed posttest are attributed to the employed memory and cognitive techniques; although students reported through the questionnaire that the intervention techniques helped them learn the vocabulary.

In order to determine whether students already used cognitive and memory strategies (prior to the intervention), the Strategy Inventory Language Learning (SILL) questionnaire, was applied before the intervention started. The results showed that 55% of the students (prior to the intervention), "sometimes" used learning strategies in a moderate way, while the remaining 45% did not use any strategy. For the students that "sometimes" used learning strategies, the predominant strategy was "Compensating for missing knowledge".

One important finding from this questionnaire is that it determined that the strategies students used the least were Cognitive and Memory, which were the

target strategies employed for this particular research study. The results specifically found that “Remembering more effectively" were the least used strategies and there was a significant difference among the usage of the most and the least utilized strategies, thus providing a clean ground to increase cognitive awareness of these vocabulary learning strategies and further disseminate their usage. This finding concurs with the results in the study done by Nemati (2009), who found that despite the importance of memory strategies, the use of them was very low; and a deeper awareness of them helped students’ retention and retrieval of vocabulary.

Regarding the strategies, the significant strong correlations found among some of them; for example, between “Compensating for missing knowledge” and “Learning with others”, as well as “Using all your mental processes” and “Organizing and evaluating your learning”, to a point, this results depict logic, when one does not know something, the natural tendency is to ask others or look for the support of others. In the same way, one’s mental learning processes are greatly reinforced and accomplished when organization and evaluation are implemented.

Regarding the words used, it is important to point out that the tests showed that abstract words obtained lower scores than concrete ones, this coincides with other studies which have also found that the recalling of concrete words is usually much superior than that of abstract ones (Sadoski & Paivio, 2001, 2004). “Possibilities” was the topic, second to last, with less recall success rate, and this particular topic has a fair amount of abstract words, such as daresay, might, could, unlikely, amongst others. On one hand, this result may be due to the fact that these words do not have an object to represent them, which makes it difficult for the learner to create a picture to relate. It becomes even more complex when the word needs other words to make sense, to one of their multiple possibilities, as it is the

case of “could” or “might”.

The topic with more success was “Life experiences”, and it is essential to notice that even though many of the words in this area were also abstract, yet students were able to remember them. This section had words such as: wiser; risk-taker; best; extreme. The success in this section could be in part, due to the fact that learners were able to relate the words to personal experiences they have lived, transforming them into vivid memories, processing the words in a deeper level; nonetheless, one must keep in mind that words like “best” and “extreme” are commonly appearing in the Ecuadorian context, TV shows, boutique names, special days’ cards; for example, “best friend”; “extreme sports”, this singularity could be responsible for the better recall of the words in this particular section, as stated by Sadoski & Paivio (2001, 2004), with abstract words, it is frequency of use that would help their retention.

The third best scores were obtained by the topic of “Travelling”, in which the majority of the words were concrete objects or places, aside from the concreteness and facility to link the words with a particular image; this is also a topic that is taught in most courses.

The topic with the lowest scores was, unexpectedly, “Innovation”. The words in this topic were neither as complex nor as abstract as the ones found in the topic of “Possibilities. The fact that this was the last topic learned, during the last week of class, gave the students less time for practicing the vocabulary with exercises and tasks, and this could be the reason for which nineteen days later, the vocabulary from this section was less settled in the students’ memories.

A limitation regarding the selected words was the number of words, a 100 in total, the time limitation did not allow to dedicate the same amount of time and

activities to every word. Also the type of words, perhaps it would have been better to choose words that are mainly concrete. The large number of words to be taught in a short period of time was registered by one of the participants in the opinions questionnaire.

When analyzing the impact of cognitive and memory strategies on students´ English vocabulary retention and retrieval, the SILL results showed that there was no correlation between the strategies the students knew before the intervention and after it. There was a positive high percentage increase in the scores from the pretest and the posttest; this could be due to the fact that, as previously mentioned, the students used other strategies, but not the memory and cognitive ones, which gave them an extra tool to improve their scores. Furthermore, between the posttest and the delayed posttest there was also a 20% increase in some vocabulary scores, nonetheless, it was not a meaningful one. At the same time, there was an expected decrease in the overall scores as over two weeks had passed from the end of the intervention to the delayed posttest and the participants had not revised or practiced the vocabulary; however, the decrease was of 0.05%, which is certainly, not significant and it indicates that the results obtained in the posttest, after the intervention and the delayed posttest applied 19 days after the intervention did not vary in a significant manner. This might be because the taught strategies; in fact, accomplished their objective of helping the participants learn the target words and, furthermore, in retain the majority of this learned vocabulary. This results are similar to the ones obtained by Nemati (2009), she also had the participants increase their retention and recall of vocabulary, however she applied the delayed posttest 14 days after the posttest.

In this study memory and cognitive strategies were not analyzed separately to find their individual success; however, it is important to point out that Banisaeid's (2013) findings showed that no significant difference was found between the outcomes from students using memory strategies compared to those of students using cognitive ones. However, she supports the training of more than one strategy, as well as others scholars do. The researcher herself believes that the more learning tools students are given, the more possibilities they have for finding an adequate strategy that suits their particular learning styles.

As far as determining students' awareness of cognitive and memory strategies, the qualitative results suggest that after the intervention students were more aware of the learning strategies, as only 10% of the participants stated that they had previously used the strategies applied during the intervention. This researched aimed not only to make student more aware of cognitive and memory strategies, but though them to motivate student's autonomous learning.

It was perceived that students learning autonomy was enhanced as students responded that they had used the techniques in other situations, outside the intervention, such as: to remember other information taught by the course main teacher; to remember information pertaining to their fields of study, and to remember things from their personal lives. This results concur with Haddad's (2016) writings on developing learner's autonomy, that Learner's autonomy can and should be promoted by teachers, through training their students in different learning strategies, Haddad goes even further by stating that the instructed strategies will be more effective in enhancing autonomy if they are personalized to the student's needs, interests and learning styles, which certainly constitutes something for additional exploration.

Similar to what the present research exposes, Pérez & Alvira (2017) recent study's results confirmed, once again, that vocabulary strategies training developed students' language skills, and expanded the retention and retrieval of words, also this new knowledge empowered students to be more independent with their learning.

Informative and valuable students' opinions were obtained from the qualitative questionnaire. Most students perceived that using all three strategies: linking the words to a picture; linking the words to something meaningful and using the words in context, helped them better recall the vocabulary, which is in agreement with findings from many studies, (Lawson & Hogben, 1996; Rodriguez & Sadoski, 2000; Ramezanali, 2017).

Most students manifested that practicing the material or reviewing it more, would increase the techniques' effectiveness, they were aware that doing the work help them reach the goal, as they also responded that performing all required tasks and using more examples in the four corners vocabulary charts, would have been of great help.

Students saw as the main factor against the development of the intervention, the lack of time; the number of words to learn, and missing important sessions. Their opinions regarding the intervention were largely positive, they liked the methods and techniques employed and suggested that these be taught in all English levels. Students realized the techniques are applicable in other areas of their majors and personal lives. Participants felt the teaching was dynamic.

Indeed, as noted by the students, the greatest limitation faced was time. It was certainly challenging to perform the intervention in a month intensive course, despite the fact that every activity was planned in advance and the right amount of time had been allocated, the heterogeneous nature of the group: the different ages,

nineteen to thirty two, their different areas of study, but particularly the fact that despite all being enrolled in a third level English course, they did not share the same level of English proficiency as it was shown by the high dispersion of data evidenced in the VKS pretest results. This reality presented some issues such as learners requiring further instructions or more time to do the tasks. From the three class hours per day, one was dedicated to the intervention and in the other two, students had to work with the main course instructor and complete the syllabus to pass the course, which had its own mandatory load of activities. Adding to the time factor, this particular course also faced Carnival obligatory holidays.

It is relevant to say that in spite of students' different proficiency levels and those with less developed skills, requiring extra time and attention, it is fundamental that all levels receive training on learning strategies, because no matter their level, the results showed an improvement in every single participant.

A last important finding is that, to the researcher's knowledge, no other similar study had integrated the applied strategies in one single tool, such as the four corners vocabulary chart, for the sake of teaching the learning techniques, as well as to determining the impact of their use in the long term memory, retention and recall of the English vocabulary. The researcher chose to use this tool due to time constraint, yielding a very positive outcome, particularity which opens a window for further research this tool and its possibilities of applicability with other strategies as well as other types of information. On the downside, combining the strategies in one tool, did not permit to determine which specific strategy proved to be best for the learners, and while this was not an objective of this research, this concern could be revised in future investigations.

One final limitation has to be address, it is the space in which the intervention

took place, the classroom itself was small, the students tables were long and made it extremely difficult and sometimes impossible to move them around in order to rearrange the class setting for the different activities planned, it was also problematic for the researcher to move around the classroom or reach the learner who called for assistance, to top the situation, there were heavy dark curtains to impede the morning sun light into the students' faces, even though this solved one issue, it darkened the entire classroom. This situation might have or not affected the results obtained, but it is important to keep in mind that the classroom setting is vital in keeping students involved in the material being taught, thus, permitting them to succeed in the classroom (Ryan, 2013).

5.1 Implications of the study

The findings of this study strengthen the recommendation regarding the need of teaching effective learning techniques in order to assist students in retaining and recalling the vocabulary taught.

This study also contributes to identify that joining strategies in one tool, such as the four corners vocabulary chart is a productive and a practical way to teach English vocabulary, fortifying retention and recall.

In a broader context the research done enriches the present-day evidence on memory and cognitive strategies to improve long term memory retention and retrieval of English vocabulary, as it seeks to increase empirical evidence to this area of investigation, notwithstanding its limitations. Furthermore, it pursues to expand the scant research done in the area within the Ecuadorian context.

To conclude this the chapter, it can be said that despite the statistical results showing a significant improvement in the participants' vocabulary retention and

recall, and the students' positive perceptions about the intervention, it is important to revise the limitations to reassure the findings.

Chapter VI

Conclusions and Recommendations

This chapter presents the conclusions and recommendations based on the findings and limitations encountered in the present research.

The current study intended to explore the topic of improving long term memory retention and retrieval of English vocabulary, through the application of cognitive and memory strategies, particularly: picture, context and linkage.

The first and central conclusion drawn from the intervention´s findings is that memory and cognitive strategies do improve university students' long term memory retention and retrieval of English vocabulary. The results showed a significant improvement of the students' scores between the pretest and the posttest; also there were not significance differences between the posttest and the delayed posttest. The impact that the cognitive and memory strategies had on students' retention and retrieval of English vocabulary was positive, as they were able to retain and recall the target vocabulary 19 days after the intervention.

As far as the sample size, a clear recommendation is to increase the number of participants, working with a larger number of subjects, not only could possibly lead to generalizable results, but it could also determine new findings. Another recommendation is to have a control and an experimental group that will permit a more objective comparison and determination of the effectiveness of the applied cognitive and memory learning strategies.

The results also concluded that only 2 participants had previously used the strategies applied in the intervention, however they did not used them frequently. The students actively participated in the different activities. They showed interest

and willingness to learn, despite all the work the intensive course entailed.

The questionnaire responses permit to conclude that the students felt, for the most part, comfortable and pleased with the intervention and the activities performed. However, they also pointed out the necessity of more time to fully take advantage of the teachings.

Considering the above, it is recommended to perform the study during a longer period of time, perhaps a semester or longer; in this way neither the students nor the researcher or the course's instructor would feel pressed to complete all the tasks planned, especially if the researcher is not the instructor of the class being intervened. Also, a longer intervention time could allow a longer period between the posttest and the application of the delayed posttest, thus testing memory retention and recall of the vocabulary, even further.

Based on the responses from the students towards the intervention, as well as the positive results from the tests, it can be concluded that students became more aware of the strategies and were able to use them, independently from the intervention and in their own. It is recommended that teachers educate and train their students in using learning strategies, they can promote the students' autonomous learning as well as enhance their long term memory, thus helping them in the process of achieving their goal of communicating effectively in a second language, because as stated by Mutalib, Kadir & Robani (2014), a person with a restricted lexicon will not be capable to speak, write, read or understand a language effectively.

As formerly explained both strategies were combined into one tool, which brings out the next conclusion, the four corners' chart in which the strategies were

joined, deemed effective to teach English vocabulary with successful results in retention and retrieval. If teachers implement this practice in their classes, the students' success can signify a great impact in their language teaching approaches, and a recompense for their hard work and efforts.

A final conclusion is that the findings of his research support the claim of the Levels of Processing Theory (Craik & Lockhart, 1972), in that the deeper one processes information, the stronger it is retained, thus easier to recall when needed.

Finally, it is recommended to perform further research in this area in order to establish the individual impact of cognitive and memory strategies; as it would also be worthwhile researching the four corners' chart as an instrument to aid in long term memory retention and retrieval of different types of information.

References

Ahmad, J. (2012). Intentional vs. incidental vocabulary learning. *ELT Research Journal* 2012, 1(1), 71-79.

Allwright, D. (1990). Autonomy in Language Pedagogy. CRILE Working Paper 6. Centre for Research in Education, University of Lancaster, U.K.

Alqahtani, M. (2015). The importance of vocabulary in language learning and how to be taught. *International Journal of Teaching and Education, III*(3), 21-34. doi:10.20472/te.2015.3.3.002

American Psychological Association (2017). Glossary of psychological terms. Retrieved on August 13, 2017 from http://www.apa.org/research/action/glossary.aspx?tab=3

Anderson, J. R., & Bower, G. H. (1980). *Human associative memory*. Hillsdale, NJ: L. Erlbaum Associates.

Arias, L. D. (2017). Memory? No way! *Revista Folios,* (18), 115-120. doi:10.17227/01234870.18folios115.120

Atkinson, R. C., Shiffrin, R. M. (1968). Human memory: A Proposed system and its control processes. Psychology of learning and motivation, 2, 89-195. doi:10.1016/S0079-7421(08)60422-3

Banisaeid, M. (2010). The relationship between self-regulated strategies and strategy-based vocabulary acquisition of Iranian EFL learners at the academic level. Paper presented on February 2010 in the second postgraduate conference on issues in language teaching and learning in Iran.

Banisaeid, M. (2013). Comparative effect of memory and cognitive strategies training on EFL intermediate learners' vocabulary learning. *English Language Teaching*, *6*(8), 108–118. https://doi.org/10.5539/elt.v6n8p10

Blachowicz, C. L. Z., Fisher, P. J. L., Ogle, D., & Watts-Taffe, S. (2006). Vocabulary: Questions from the classroom. *Reading Research Quarterly, 41*(4), 524–539.

Bransford, J. D., Brown, A.L., & Cocking, R. R. (2001). *How people learn: brain, mind, experience and school.* Washington, D.C.: National Academy Press.

British Council (2015). English in Ecuador -An examination of policy, perceptions and influencing factors. (2015, May). Retrieved on February 25, 2018, from https://ei.britishcouncil.org/sites/default/files/latin-america-research/EnglishinEcuador.pdf

Carlo, M., August, D., McLaughlin, B., Snow, C., Dressler, C., Lippman, D., Lively, T., & White, C. (2004). Closing the gap: Addressing the vocabulary needs of English language learners in bilingual and mainstream classrooms. *Reading Research Quarterly, 39 (*2), 188–206.

Chamot, A.U. (2009). *The CALLA handbook: implementing the cognitive academic language learning approach.* White Plains, NY: Pearson Education.

Cherry, K. (2017, May 21). *What Is Memory and How Does It Work? An overview of Memory and How it Works.* Retrieved on September 03, 2017, from https://verywell.com/what-is-memory-2795006

Consejo de Educación Superior. (2013). *Resolución No. RPC-SE-13-No.051-2013*. Retrieved from http://www.snna.gob.ec/wp-content/themes/institucion/dw-pages/Descargas/regimen_academico.pdf

Coxhead, A. (1998). *The development and evaluation of an academic word list: a thesis submitted to the Victoria University of Wellington in fulfilment of the requirements for the degree of Master of Arts in Applied Linguistics.*

Craik, F. & Lockhart, R. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Language and Verbal Behavior,* 11, 671-684.

Craik, F.I.M., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology: General*, 104, 268-294.

Craik, F. I. M., & Byrd, M. (1982). Aging and cognitive deficits: The role of attentional resources. In F. I. M. Craik & S. E. Trehub (Eds.). *Aging and cognitive processes* (pp. 191-211). New York: Plenum.

Craik, F. I. M. (2002). Levels of processing: Past, present and future? *Memory, 10*(5/6)*,* 305- 318.

Creswell, J.W. & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research. (2nd Ed.). Thousand Oaks, CA: SAGE.*

Creswell, J. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.*

Cronquist, K. & Fiszbein, A. (2017, September). English Language Learning in Latin America. Retrieved on February 25, 2018 from http://www.thedialogue.org/wp-content/uploads/2017/09/English-Language-Learning-in-Latin-America-Final-1.pdf

Ebbinghaus, H. (1913). *Über das Gedächtnis [Memory: A Contribution to Experimental Psychology].* Translated by Henry A. Ruger; Clara E. Bussenius. New York: Teachers College, Columbia University.

Echevarria, J., Vogt, M. E., & Short, D (2014). *Making content comprehensible for Elementary English language learners: The SIOP model.* Boston, MA: Allyn & Bacon.

EF Education First. (2016, November 3). EF English proficiency index. Lucerne. Retrieved from www.ef.edu/epi/

Elias, C. S., & Perfetti, C. A. (1973). Encoding task and recognition memory: The importance of semantic encoding. *Journal of Experimental Psychology, 99*(2), 151-156.

Ekuni, R., Vaz, L. J., & Bueno, O. F. (2011). Levels of processing: The evolution of a framework. *Psychology & Neuroscience,4*(3), 333-339. doi:10.3922/j.psns.2011.3.006

Ehrman, M., & Oxford, R. (1990). Adult Language Learning Styles and Strategies in an Intensive Training Setting. *The Modern Language Journal,74*(3), 311-327. doi:10.1111/j.1540-4781.1990.tb01069.x

Espinosa, S.M. (2003). Vocabulary: Reviewing trends in EFL/ESL instruction and testing. *Odisea*, *4*, 97-112.

Eysenck, M.W. (1974). Age differences in incidental learning. Developmental Psychology, 10, 936-941.

Eysenck, M.W. (1978). Levels of processing: A critique. *British Journal of Psychology, 69*, 157-169.

Eysenck, M. W. (2012). Fundamentals of cognition. New York: Psychology Press.

Folse, K. (2004). *Vocabulary myths: Applying second language research to classroom teaching.* USA: Michigan.

Ghazal, L. (2009). Learning vocabulary in EFL contexts through vocabulary learning strategies. *Novitas- ROYAL, 1*(2)*,* 84-91. Retrieved from http://pdfcast. org/pdf/learning-vocabularyin-efl-contexts-through- vocabulary-learning-strategies.

Goldstein, E. B. (2011). *Cognitive psychology: connecting mind, research, and*

everyday experience (Third ed.). Belmont: Linda Schreiber-Ganster.

Gunderson, L., D' Silva, R. A., & Odo, D. M. (2009). ESL (ELL) literacy instruction: A guidebook to theory and practice. New York: Routledge.

Haddad, R. H. (2016). Developing Learner Autonomy in Vocabulary Learning in Classroom: How and Why can it be Fostered? *Procedia - Social and Behavioral Sciences,232*, 784-791. doi:10.1016/j.sbspro.2016.10.106

Hebb, D. O. (1961). *"Distinctive features of learning in the higher animal". In Delafresnaye, Jean Francisque. Brain mechanisms and learning. Oxford: Blackwell. pp. 37–46.*

Hyde, T.S., & Jenkins, J.J. (1969). Differential effects of incidental tasks on the organization of recall of a list of highly associated words. *Journal of Experimental Psychology*, 82, 472-481

Hyde, T. S., & Jenkins, J. J. (1973). Recall for words as a function of semantic, graphic, and syntactic orienting tasks. *Journal of Verbal Learning and Verbal Behavior, 12*(5), 471–480.

Hunt, A., & Beglar, D. (2002). Current Research and Practice in Teaching Vocabulary. *Methodology in Language Teaching,*258-266. doi:10.1017/cbo9780511667190.036

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). *Toward a Definition of Mixed Methods Research. Journal of Mixed Methods Research,1(2), 112-133. doi:10.1177/1558689806298224*

Ketabi, S., & Shahraki, S. H. (2011). Vocabulary in the Approaches to Language Teaching: From the Twentieth Century to the Twenty-first. *Journal of Language Teaching and Research,2*(3). doi:10.4304/jltr.2.3.726-731

Lawson, M. J., & Hogben, D. (1996). The vocabulary-learning strategies of foreign-

language students. *Language Learning, 46*(1), 101-135.

Lee, C. K. (2010). An overview of language learning strategies. *ARECLS,7*, 132-152. Retrieved on January 15, 20118, from https://research.ncl.ac.uk/ARECLS/volume7/lee_vol7.pdf.

Lee, K. R., & Oxford, R. (2008). Understanding EFL learners' strategy use and strategy awareness. *Asian EFL Journal*, *10*(1). Article 1.

Little, D. (1991). Learner autonomy 1: Definitions, issues, and problems. Dublin: Authentik.

Lockhart, R. S., & Craik, F. I. M. (1990). Levels of processing: A retrospective commentary on a framework for memory research. *Canadian Journal of Psychology*, *44*(1), 87-112.

Kirsner, K. (1973). An analysis of the visual component in recognition memory for verbal stimuli. *Memory & Cognition*, *1*(4), 449-453.

Mackey, A., Gass, S.M. (2012). Research methods in second language acquisition. Malden, MA: Blackwell Publishing.

Matlin, M. W. (2005). *Cognition*. Crawfordsville: John Wiley & Sons, Inc.

McLeod, S. A. (2007). Multi store model of memory. Retrieved from www.simplypsychology.org/multi-store.html

McLeod, S. A. (2013). Stages of memory - encoding storage and retrieval. Retrieved from www.simplypsychology.org/memory.html

Mediha, N, & Enisa, M. (2014). A comparative study on the effectiveness of using traditional and contextualized methods for enhancing learners' vocabulary knowledge in an EFL classroom. *5th World Conference on Educational Sciences,* (*116*), 3443-3448. doi:10.1016/j.sbspro.2014.01.780

Melton, A. W. (1963). Implications of short-term memory for a general theory of

memory. *Journal of Verbal Learning and Verbal Behavior* 2(1): 1-21. doi: http://dx.doi.org/10.1016/S0022-5371(63)80063-8

Meyer, L. (2015). Final report of the Evaluation of the English Language Program Universidad de Cuenca, Ecuador. Unpublished report.

Miller, G. A. (1956). "The magical number seven, plus or minus two: Some limits on our capacity for processing information". *Psychological Review*. 63 (2): 81–97. doi:10.1037/h0043158. PMID 13310704.

Ministry of Education (2016). Currículo fortalecimiento del inglés. Retrieved from http://educacion.gob.ec/curriculo-fortalecimiento-del-ingles/

Morris, C. D., Bransford, J. D., & Franks, J. J. (1977). Levels of processing versus transfer-appropriate processing. *Journal of Verbal Learning and Verbal Behavior, 16*, 519-533.

Mutalib, A. H., Abdul Kadir, R. A., & Robani, R. B. (2014). Vocabulary learning strategies among Malaysian TEVT students in German-Malaysian institute (GMI). Procedia- social and behavioral sciences, 123, 361-368. https://doi.org/10.1016/j.sbspro.2014.01.1434

Nation, I. S. P. (1990). Teaching and learning vocabulary. New York, NY: Newbury House.

Nation, I. S. P. (2011). Research into Practice: Vocabulary. *Language Teaching, 44*(4), 529-539.

Neisser, U. (1967). *Cognitive Psychology*. New York: Appleton-Century-Crofts.

Nemati, A. (2009). Memory vocabulary learning strategies and long-term retention. *International Journal of Vocational and Technical Education,* 1(2), 014-024.

Nemati, A. (2013). Vocabulary learning strategies: A Short way to long term retention. Linguistics and Literature Studies, 1(1), 814.

Norris, D. (2017). Short-term memory and long-term memory are still different. *Psychological Bulletin, 143*(9), 992-1009. http://dx.doi.org/10.1037/bul0000108

Nyikos, M., & Oxford, R.L. (1993). A factor-analytic study of language learning strategy use: Interpretations from information processing theory and social psychology. *Modern Language Journal*, 77 (1), 11-23.

Nyberg, L. (2002). Levels of processing: A view from functional brain imaging. *Memory*, *10*(5/6), 345-348.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition.* Cambridge: Cambridge University Press.

Oxford, R. L. (1990). *Language Learning Strategies: What Every Teacher Should Know*. Boston, Mass.: Heinle & Heinle Publishers.

Oxford, R. (2001). Language learning strategies. In R. Carter & D. Nunan (Eds.), T*he Cambridge guide to teaching English to speakers of other languages* (pps. 166-172). Cambridge: Cambridge University Press.

Oxford, R. L. (2003). Language learning styles and strategies: an overview. GALA. Retrieved from http://web.ntpu.edu.tw/Elanguage/workshop/read2.pdf

Paribakht, T. S., & Wesche, M. B. (1993). Reading comprehension and second language development in a comprehension-based ESL programme. *TESL Canada Journal*, *11,* 9-27.

Pérez, L. & Alvira, R. (2017). The Acquisition of Vocabulary Through Three Memory Strategies. *Colombian Applied Linguistics Journal*, 19(1), pp. 103-116. doi: http://dx.doi.org/10.14483/calj.v19n1.10032

Peterson L. and Peterson M. J. (1959). "Short-term retention of individual verbal

items". *Journal of Experimental Psychology*. 58 (3): 193–198. doi:10.1037/h0049234. PMID 14432252.

Pineda, J. (2010). Identifying language learning strategies: An exploratory study. *Gist Education and Learning Research Journal, 4*(1), 94-106. Retrieved from http:// www.unica.edu.co/archivo/GIST/2010/07_2010.pdf

Posner, M. I. (1966). "Components of skilled performance". *Science*. 152 (3730): 1712–1718. doi:10.1126/science.152.3730.1712

Preliminary (PET). (n.d.). Retrieved on January 20, 2017, from http://www.cambridgeenglish.org/exams-and-tests/preliminary/

Raaijmakers, J.G.W. & Shiffrin, R.M. (2003). Models versus descriptions: Real differences and langiage differences. *Behavioral and Brain Sciences*, 26, 753.

Rababah, G. (2002). Communication Problems Facing Arab Learners of English. *Arabs; Communiction Strategies*, 1-26.

Ramezanali, N., (2017). "Short and long-term vocabulary learning and retention through multimedia glossing: A mixed method research". Electronic Thesis and Dissertation Repository. 4588.☒https://ir.lib.uwo.ca/etd/4588

Rassaei, E. (2017). Computer-mediated Textual and Audio Glosses, Perceptual Style and L2 Vocabulary Learning. *Language Teaching Research*, 1-19. Retrieved on August10, 2017 from http://journals.sagepub.com/doi/abs/10.1177/1362168817690183.

Rieder, A. (2002). A cognitive view of incidental vocabulary acquisition: From text meaning to word meaning. *VIEWS*, *11*(1 & 2), 53-71.

Rieder, A. (2003). Implicit and explicit learning in incidental vocabulary acquisition.

VIEWS, *12*(2), 24-39.

Roediger, H. L., III, & Gallo, D. A. (2002). Levels of processing: Some unanswered questions. In: M. Naveh-Benjamin, M. Moscovitch, & H. L. Roediger (Eds). *Perspectives on human memory and cognitive aging: Essays in honour of Fergus Craik* (pp. 28-47). New York: Psychology Press.

Rodriguez, M., & Sadowki, M. (2000). Effects of rote, context, keyword, and context / keyword methods on retention of vocabulary in EFL classrooms. *Language Learning, 50*(2), 385-412. htttp://dx.doi.org/10.1111/0023-8333.00121

Ryan, H. (2013). "The Effect of Classroom Environment on Student Learning". Honors Theses. Paper 2375. Retrieved on June 01, 2018 from https://scholarworks.wmich.edu

Sadoski, M., & Paivio, A. (2001). *Imagery and text: A dual coding theory of reading and writing.* Mahwah, NJ: Lawrence Erlbaum Associates.

Sadoski, M., & Paivio, A. (2004). A dual coding theoretical model of reading. In R. B. Ruddell & N.J. Unrau (Eds.), *Theoretical models and processes of reading* (5 ed., pp. 1329-1362). Newark, DE: International Reading Association.

Scafidi-Iannone, R. (2012). A Classroom Research Study on Strategies to Promote Vocabulary Retention in the LOTE Classroom. *Doctoral Dissertation*. University of Stony Brook. Retrieved on November 02, 2017 from https://dspace.sunyconnect.suny.edu/handle/1951/59854**.**

Schacter, D.L. (2001). The seven sins of memory: How the mind forgets and remembers. New York: Houghton Mifflin.

Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.

Schmitt, N. (2008). Instructed Second Language Vocabulary Learning. *Language*

Teaching Research, 12, 329-363.doi: 10.1177/1362168808089921

Schwarz, R. (2003). *LD and the English language learner*. Retrieved June 1, 2017, from http://ldlink.coe.utk.edu/pdf_files/esl_ld.pdf

Shank, C. (2001). English language learners with learning disabilities. *Center for Applied Linguistics National Center for ESL Literacy Education: Adult ESL practice in the new millennium.* Retrieved July 15, 2017, from http://www.cal.org/areas-of-impact/english-learners

Stahl, S., Fairbanks, M.M. (1986). The effects of vocabulary instruction: a model-based meta-analysis. *Review of Educational Research,* 56(1), 72-110

Stewart, R. A., & Cross, T. L. (1991). The Effect of Marginal Glosses on Reading Comprehension and Retention. *Journal of Reading, 35*(1), 4-12.

Tan, D.A.L., Pandian, A., & Jaganathan, P. (2015). Reading for lexical development: Depth of processing and the systematic selection of comprehensible input. *International Journal of Educational Research*, *3*(7), 109-120.

Tigner, R. B. (1999). Putting Memory Research to Good Use: Hints from Cognitive Psychology. *College Teaching,47*(4), 149-152. doi:10.1080/87567559909595807

Treisman, A. (1964). Monitoring and storage of irrelevant messages in selective attention. *Journal of Verbal Learning and Verbal Behavior*, *3*, 449-459.

Tulving, E. (2001). Episodic memory and common sense: How far apart? *Philosophical Transaction of Royal Society London B*, *356*, 1505-1515.

Waring, R. (2002). Scales of Vocabulary Knowledge in Second Language Vocabulary Assessment. Retrieved January 15, 2017, from http://harenet.ne.jp/~waring/papers/scales.htm

Wharton, G. (2000). Language learning strategy use of bilingual foreign language learners in Singapore. *Language Learning*, *50*(2), 203-244.

Widdowson, H.G. (1978). *Teaching language as communication*. Oxford, UK: Oxford University Press.

Wilkins, D. A. (1972). *Linguistics in language teaching*. Cambridge: MIT Press.

Yates, F. A. (1966). *The art of memory*. Chicago: University of Chicago Press.

Yagoub, Z., & Mortaza, A. (2012). The impact of imagery strategy on EFL learners' vocabulary learning. *Procedia - Social and Behavioral Sciences,69*, 2264-2272.

Yongqi Gu, Peter (2003). Vocabulary learning in a second language: person, task, context and strategies. *TESL-E J.* 7(2), 1-28.

Yusuf, M. A., Sim, T. S., & Su'ad, A. (2014). Students' Proficiency and Textual Computer Goss Use in Facilitating Vocabulary Knowledge. *English Language Teaching*. *7*(11), 99-107.

Zarei, A., & Mahmoodzadeh, P. (2014). The Effect of multimedia glosses on L2 reading comprehension and vocabulary production. *Journal of English Language and Literature, 1*(1), 1-7.

Ziglar, Z., & Akram, O. (2008). *Inspiration: 365 days a year.* Naperville, IL: Simple Truths.

Appendices

Appendix A

University Languages Institute Reform

UNIVERSIDAD DE CUENCA

DEPARTAMENTO DE IDIOMAS

REFORMA CURRICULAR

En el marco de la Reforma Curricular emprendida por la Universidad de Cuenca, el Departamento de Idiomas plantea el siguiente programa para la enseñanza de inglés a los estudiantes de las diferentes carreras de esta Universidad.

Los logros académicos que los estudiantes alcancen en cada uno de los ciclos tienen como referentes:

1. los descriptores del Marco de Referencia Europeo (MRE) para la evaluación de lenguas extranjeras a nivel internacional y
2. los objetivos, contenidos, funciones y destrezas de los libros de texto que se utilizan para la enseñanza del inglés.

Esta programación tiene como base una orientación metodológica comunicativa a la que se enfocan los profesores de lenguas en el proceso de enseñanza – aprendizaje.

SISTEMA DE CRÉDITOS

1. Abrir tres ciclos obligatorios para todos los estudiantes de la universidad, orientados a:
   a. Cursos generales de desarrollo de las cuatro destrezas en forma integrada.
   b. Cursos de lectura comprensiva y escritura, si las facultades lo requieren.

2. Mantener una carga horaria de seis horas semanales distribuidas en cuatro sesiones de hora y media para todos los ciclos.de acuerdo a la siguiente tabla:

	Horas semanales	Semanas X ciclo	Total de horas	Número de créditos	Alcance
3 niveles	6	16	288	18	A2+ (MRE)

Objetivo general

Utilizar la lengua meta como un medio de comunicación en forma fluida en situaciones reales a nivel pre-intermedio.

Objetivos específicos

- Desarrollar las destrezas de la lengua en forma integrada.
- Manejar estrategias para la comunicación.
- Relacionar la lengua meta con el contexto socio-cultural en la que ella se desenvuelve.
- Utilizar adecuadamente la competencia discursiva de la lengua.
- Manejar las estructuras y el léxico de su nivel en forma apropiada.

Competencias por cada nivel

Primer nivel A1

Al concluir este nivel, dentro del contexto personal, familiar y del entorno inmediato, el estudiante será competente para:

COM-PRENDER	Comprensión auditiva	Reconocer palabras y expresiones que se usan habitualmente, relativas a si mismo, a la familia, y al entorno inmediato cuando se habla con claridad. Seguir instrucciones en el aula. Comprender la idea general en una conversación familiar, habitual y del entorno.
	Comprensión lectora	Comprender palabras y frases claves en un texto. Obtener información específica de textos y formatos, por ejemplo, en letreros, carteles, catálogos, etc. Leer y entender la idea principal de párrafos cortos sobre temas generales. Relacionar referentes en un párrafo.
HABLAR	Interacción oral	Participar en una conversación de forma sencilla. Manejar expresiones para negociar la comunicación en una conversación. Plantear y contestar preguntas sencillas sobre temas de necesidad inmediata o asuntos muy habituales. Usar la lengua de acuerdo a la audiencia y al contexto. Utilizar expresiones coloquiales.
	Expresión oral	Utilizar expresiones y frases sencillas para describir el lugar donde vivo y las personas que conozco. Hablar sobre posesiones.
ESCRIBIR	Expresión escrita	Escribir postales cortas y sencillas. Redactar textos cortos, tales como, invitaciones, mensajes de correo electrónico, anuncios, etc. Escribir párrafos cortos con ideas principales, oraciones de apoyo y conclusión. Elaborar encuestas sobre asuntos personales. Utilizar puntuación básica en la escritura de párrafos. Conectar ideas con coordinadores básicos.

Segundo nivel A2

Al concluir este nivel, dentro del contexto de intereses personales y del entorno más amplio que el personal (clima, deportes, viajes, etc.) tanto actual como pasado, el estudiante será competente para:

COM-PRENDER	Comprensión auditiva	Comprender ideas sobre temas de interés personal (familia, compras, empleo, deportes, clima, viajes, etc. Comprender la idea general de avisos, publicidad, etc. Comprender información específica de conversiones sobre tópicos de interés personal y actividades de la vida diaria. Reconocer el lenguaje espontáneo, producto de jergas o frases comunes y habilidades
	Comprensión lectora	Comprender textos breves y artículos didactizados. Comprender un texto a través de algunas estrategias, tales como.

2

		predecir, inferir, oponer información, ubicar información específica entender vocabulario por contexto.. Entender descripciones, historietas cortas.
HABLAR	Interacción oral	Pedir y dar información sobre situaciones actuales y pasadas. Responder espontáneamente a situaciones reales sencillas. Mantener una conversación sobre temas habituales.
	Expresión oral	Describir situaciones personales y del entorno. Narrar experiencia y actividades pasadas.
ESCRIBIR	Expresión escrita	Escribir libremente sus propias reflexiones en un diario. Redactar párrafos sobre tópicos de acuerdo a sus intereses y necesidades. Organizar textos. Escribir artículos breves utilizando la estructura de párrafos y puntuación adecuados.

Tercer nivel B1		
Al concluir este nivel, dentro de una perspectiva de intereses personales pasa de procesos mentales de lo concreto a lo abstracto, como: opinar, sugerir, comparar, expresar sentimientos, etc., el estudiante será competente para:		
COM-PRENDER	Comprensión auditiva	Comprender las ideas principales sobre asuntos cotidianos en el trabajo, tiempo libre, estudio, etc. cuando el habla es clara y sencilla. Usar la información escuchada para identificar descripciones, llenar cuadros y opinar.
	Comprensión lectora	Comprendo textos redactados con una lengua de uso habitual y cotidiano relacionados con diferentes tópicos, tales como, biografías, experiencias, turismo, tradiciones, entretenimiento, etc. Comprender artículos simples de revistas, periódicos, y el internet
HABLAR	Interacción oral	Relacionarse socialmente en forma más amplia y espontánea sobre experiencias y acciones concretas. Pedir y dar instrucciones Intercambiar experiencias pasadas. Discutir sobre planes y proyectos futuros.
	Expresión oral	Enlazar ideas de forma sencilla con el fin de escribir experiencias y hechos, planes y proyectos. Narrar historietas sencillas. Explicar y justificar brevemente las propias opiniones y proyectos.
ESCRIBIR	Expresión escrita	Narrar historietas cortas sobre la base de alguna guía Dar consejos, advertencias, sugerencias. Escribir notas y cartas formales e informales. Describir hechos, lugares y personas. Escribir textos contrastando, sugiriendo y opinando.

Mst. Susana Calle A.
x Directora del Departamento de Idiomas

Appendix B

University Languages Institute Academic Performance Report

UNIVERSIDAD DE CUENCA								
DEPARTAMENTO DE IDIOMAS								
PROGRAMA INGLES CREDITOS								
ESTADISTICAS ESTUDIANTES APROBADOS (PROMEDIOS Y EQUIVALENCIAS)/ REPROBADOS								
INGLES III								
SEMESTRE	PROMEDIO (100)	REPROBADOS	APROBADOS	SOBRESALIENTE	MUY BUENA	BUENA	REGULAR	TOTAL
Sept.2010/Feb.2011	76,06	22	181	16	55	54	56	203
Marzo-Agosto 2011	74,85	25	188	7	51	73	57	213
Sept.2011/Feb.2012	73,96	44	155	18	35	50	52	199
Marzo-Agosto 2012	75,71	35	196	27	43	58	68	231
Sept.2012/Feb.2013	74,64	38	227	20	51	71	85	265
Marzo-Agosto 2013	71,77	69	261	23	46	87	105	330
Sept.2013/Feb.2014	70,91	102	486	20	81	143	242	588
Marzo-Agosto 2014	72,03	95	580	31	108	184	257	675
Sept.2014/Feb.2015	70,54	126	619	21	91	198	309	745
TOTAL	**660,47**	**556**	**2893**	**183**	**561**	**918**	**1231**	**3449**
PROMEDIO/PORCENTAJE	**73,39**	**16,12**	**83,88**	**6,33**	**19,39**	**31,73**	**42,55**	**100,00**

Source: Files from Credit Courses Coordination and ULI secretary's office.

Appendix C

University Language Institute's permission to conduct the study.

Cuenca, 22 de junio de 2018.
Oficio. 010-SIUL-2018

Licenciada.
Ma. Fernanda Pacurucu
ESTUDIANTE DE LA UNIVERSIDAD DE CUENCA
Ciudad

Con un cordial saludo y por medio del presente me permito poner en su conocimiento la resolución adoptada por el Consejo Académico del IUL, en su sesión de 13 de enero de 2017, que textualmente señala:

"4.- Solicitudes.

4.1.- Por secretaría se da lectura a la petición enviada por la Lcda. María Fernanda Pacurucu Pacurucu, en donde solicita, se le asigne uno de los cursos intensivos que tendrán lugar en el mes de febrero 2017 para poder aplicar a cabalidad la intervención correspondiente a su tesis, ya que por algunos inconvenientes no lo ha podido realizar.

Resolución: El Consejo Académico del Instituto, luego del análisis correspondiente resolvió: 1) Acoger favorablemente la solicitud presentada y autorizar a la Lcda. María Fernanda Pacurucu Pacurucu realizar la propuesta de investigación de su diseño de tesis en uno de los cursos intensivos que tendrán lugar en el mes de febrero 2017."

Particular que comunico para los fines legales pertinentes.

Atentamente,

Dra. Tania Iglesias Vázquez
SECRETARIA-ABOGADA
INSTITUTO UNIVERSITARIO DE LENGUAS.

c.c. Archivo

Appendix D

Informed consent form.

FORMULARIO DE CONSENTIMIENTO INFORMADO

Estimado participante,

Soy estudiante egresada del Programa de Maestría en Lingüística Aplicada a la Enseñanza del Ingles como Lengua Extranjera de la Universidad de Cuenca. Como parte de los requsitos de este Programa, previa la obtención del título de Magíster, se llevará a cabo una investistigación que trata sobre "*Estratégias de aprendizaje para mejorar la memoria a largo plazo de vocabulario en Inglés*", El objetivo es conocer el impacto que las estratégias cognitivas y de memoria tienen en el mejoramiento de la memoria a largo plazo, la retención y recuperación del vocabulario en Inglés.

Usted ha sido seleccionado para participar en esta investigación, la cual consiste en recibir instrucciones y utilizar técnicas cognitivas y de memoria aplicadas en el aprendizaje de vocabulario correspondiente a su nivel actual. Este proceso tendrá lugar duarante este curso intensivo.

La información obtenida a través de este estudio se mantendrá bajo estricta confidencialidad y su nombre no será utilizado. Usted tiene el derecho de retirar el consentimento para la participación en cualquier momento. El estudio no conlleva ningún riesgo, ni recibirá remuneración por participar. Si tiene alguna pregunta sobre esta investigación, se puede comunicar conmigo al 0987220985 o con mi directora de tesis, Mgt. Maria Isabel Espinosa, al (07) 405-1000.

Investigadora prinicipal,

María Fernanda Pacurucu P.

Yo, _____, he leído el procedimiento arriba descrito. La investigadora me ha explicado el estudio y me ha contestado mis preguntas. Voluntariamente doy mi consentimiento para participar en el estudio denominado: "*Estratégias de aprendizaje para mejorar la memoria a largo plazo de vocabulario en Inglés*". He recibido copia de este documento.

_____ _____

Firma del participante Fecha

Appendix E

Strategy Inventory Language Learning (SILL).

Strategy Inventory for Language Learning (SILL)

1

Version for Speakers of Other Languages Learning English
Version 7.0 (ESL/EFL) © R.L.Oxford, 1990

Background Questionnaire

1. Name		2. Date			
3. Age	4. Sex.	5. Mother tongue			
6. Language you speak at home.					
7. Language you are now learning.					
8. How long have you been learning the language in #7?					
9. How do you rate your proficiency in the language in #7, compared with other students in your class? (Circle one of these options):		Excellent	Good	Fair	Poor
10. How do you rate your proficiency in the language in #7, compared with native speakers? (Circle one of these options):		Excellent	Good	Fair	Poor
11. How important is it for you to become proficient in the language in #7? (Circle one of these options):		Very important	Important	Not important	
12. Why do you want to learn the language in #7?: …….. interested in the language. …….. interested in the culture. …….. have friends who speak the language …….. required to take a language course to graduate. …….. need it for my future career. …….. need it for travel. …….. other (explain) …… ……					
13. Do you enjoy language learning? (Circle one of these options):		Yes	No		
14. What other languages have you studied?					
15. What has been your favorite experience in language learning? …… …… ……					

Strategy Inventory for Language Learning
Version for Speakers of Other Languages Learning English
Version 7.0 (ESL/EFL) © R.L.Oxford, 1990

2

Directions

This form of the STRATEGY INVENTORY FOR LANGUAGE LEARNING (SILL) is for students of English as a second or foreign language. You will find statements about learning English. Please read each statement. On the worksheet, write the response (1,2,3,4, or 5) that tells HOW TRUE OF YOU THE STATEMENT IS.

1. Never or almost never true of me.
2. Usually not true of me.
3. Somewhat true of me.
4. Usually true of me.
5. Always or almost always true of me.

NEVER OR ALMOST NEVER TRUE OF ME
means that the statement is very rarely true of you.
USUALLY NOT TRUE OF ME.
means that the statement is true less than half the time.
SOMEWHAT TRUE OF ME.
means that the statement is true about half the time.
USUALLY TRUE OF ME
means that the statement is true more than half the time
ALWAYS OR ALMOST ALWAYS TRUE OF ME
means that the statement is true of you almost always.

Answer in terms of how well the statement describes you. Do not answer how you think you should be, or what other people do. There are no right or wrong answers to these statements. Put your answers on the Worksheet. Please make no marks on the items. Work as quickly as you can without being careless. This usually takes 20 – 30 minutes to complete. If you have any questions, let the teacher know immediately.

EXAMPLE:

1. Never or almost never true of me.
2. Usually not true of me.
3. Somewhat true of me.
4. Usually true of me.
5. Always or almost always true of me.

Read the item, and choose a response (1 through 5, as above). And write it in the space after the item.

I actively seek out opportunities to talk with native speakers of English. …….

You have just completed the example item. Answer the rest of the items on the Worksheet.

3

Strategy Inventory for Language Learning

Version for Speakers of Other Languages Learning English
Version 7.0 (ESL/EFL) © R.L.Oxford, 1990

1. Never or almost never true of me.
2. Usually not true of me.
3. Somewhat true of me.
4. Usually true of me.
5. Always or almost always true of me.

Part A

1. I think of relationships between what I already know and new things I learn in English.
2. I use new English words in a sentence so I can remember them.
3. I connect the sound of a new English word and an image or picture of the word to help me remember the word.
4. I remember a new English word by making a mental picture of a situation in which the word might be used.
5. I use rhymes to remember new English words.
6. I use flashcards to remember new English words.
7. I physically act out new English words.
8. I review English lessons often.
9. I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign.

Part B

10. I say or write new English words several times.
11. I try to talk like native English speakers.
12. I practice the sounds of English.
13. I use the English words I know in different ways.
14. I start conversations in English.
15. I watch English language TV shows or go to movies spoken in English.
16. I read for pleasure in English.
17. I write notes, messages, letters, or reports in English.
18. I first skim an English passage (read it quickly) then go back and read carefully.
19. I look for words in my own language that are similar to new words in English.
20. I try to find patterns in English.
21. I find the meaning of an English word by dividing it into parts that I understand.
22. I try not to translate word-for-word.
23. I make summaries of information that I hear or read in English.

4

1. Never or almost never true of me.
2. Usually not true of me.
3. Somewhat true of me.
4. Usually true of me.
5. Always or almost always true of me.

Part C

24. To understand unfamiliar English words, I make guesses.
25. When I can't think of a word during a conversation in English, I use gestures.
26. I make up new words if I do not know the right ones in English.
27. I read English without looking up every new word.
28. I try to guess what the other person will say next in English.
29. If I can't think of an English word, I use a word or phrase that means the same thing.

Part D

30. I try to find as many ways as I can to use my English.
31. I notice my English mistakes and use that information to help me do better.
32. I pay attention when someone is speaking English.
33. I try to find out how to be a better learner of English.
34. I plan my schedule so I will have enough time to study English.
35. I look for people I can talk to in English.
36. I look for opportunities to read as much as possible in English.
37. I have clear goals for improving my English skills.
38. I think about my progress in learning English.

Part E

39. I try to relax whenever I feel afraid of using English.
40. I encourage myself to speak English even when I am afraid of making a mistake.
41. I give myself a reward or treat when I do well in English.
42. I notice if I am tense or nervous when I am studying or using English.
43. I write down my feelings in a language learning diary.
44. I talk to someone else about how I feel when I am learning English.

Part F

45. If I do not understand something in English, I ask the other person to slow down or to say it again.
46. I ask English speakers to correct me when I talk.
47. I practice English with other students.
48. I ask for help from English speakers.
49. I ask questions in English.
50. I try to learn about the culture of English speakers.

5

Worksheet for Answering and Scoring the SILL

Part A		Part B		Part C		Part D		Part E		Part F		
Q1		Q10		Q24		Q30		Q39		Q45		
Q2		Q11		Q25		Q31		Q40		Q46		
Q3		Q12		Q26		Q32		Q41		Q47		
Q4		Q13		Q27		Q33		Q42		Q48		
Q5		Q14		Q28		Q34		Q43		Q49		
Q6		Q15		Q29		Q35		Q44		Q50		
Q7		Q16				Q36						
Q8		Q17				Q37						
Q9		Q18				Q38						
		Q19										
		Q20										
		Q21										
		Q22										
		Q23										
SUM Part A:		SUM Part B:		SUM Part C:		SUM Part D:		SUM Part E:		SUM Part F:		A+B+C+D +E+F =
SUM ÷ 9 (Average)		SUM ÷ 14 (Average)		SUM ÷ 6 (Average)		SUM ÷ 9 (Average)		SUM ÷ 6 (Average)		SUM ÷ 6 (Average)		A+B+C+D +E+F ÷ 50 =

6

Profile of Results

This Profile shows your SILL results. These results will tell you the kinds of strategies you use in learning English. There are no right or wrong answers. To complete this profile, transfer your averages for each part of the SILL, and your overall average for the whole SILL. These averages are found on the Worksheet, at the bottom.

Part	Which strategies are covered	Your Average on this part
A	Remembering more effectively.	
B	Using all your mental processes.	
C	Compensating for missing knowledge.	
D	Organizing and evaluating your learning.	
E	Managing your emotions.	
F	Learning with others.	

Key to understanding your averages:

High	Always or almost always used.	4.5 to 5.0
	Usually used.	3.5 to 4.4
Medium	Sometimes used.	2.5 to 3.4
	Generally not used.	1.5 to 2.4
Low	Never or almost never used.	1.0 to 1.4

5.0							
4.5							
4.0							
3.5							
3.0							
2.5							
2.0							
1.5							
1.0							
	A Remembering more effectively	B Using all your mental processes	C Compensating for missing knowledge	D Organising and evaluating your learning	E Managing your emotions	F Learning with others.	A – F Your overall average.

The overall average tells you how often you use strategies for learning English. Each part of the SILL represents a group of learning strategies. The averages for each part of the SILL show which groups of strategies you use most for learning English.

Appendix F

Vocabulary Knowledge Scale (VKS).

Vocabulary Knowledge Scale (VKS)

A = I don't know what this word means.

B = I know this word. It means ..... (synonym or translation).

C = I can use this word in a sentence. e.g.: .....(If you do C. please also do B)

	WORD	A (I dont know	B (synonym or translation)	C sentence (If you do C. please also do B)
1	TECHIE			
2	DOWNLOAD			
3	UPLOAD			
4	SOCIAL MEDIA			
5	GADGET			
6	BROWSING			
7	ATTACHMENT			
8	UPGRADE			
9	BACKUP			
10	WIRELESS			
11	WEB SURFING			
12	GO ONLINE			
13	TABLET			
14	DEVICE			
15	MALWARE			
16	BATTERY			
17	NETWORK			
18	DATA			
19	DRAG			

	WORD	A (I dont know	B (synonym or translation)	C sentence (If you do C. please also do B)
20	KEEP TRACK			
21	LAYOUT			
22	LINK			
23	OUTPUT			
24	INPUT			
25	RANDOM			
26	REPAIR			
27	RETRIEVE			
28	SCANNER			
29	SOURCE			
30	PRINTER			
31	TOOL			
32	TASTIEST			
33	SWEETEST			
34	MOST			
35	LEAST			
36	EXCEPTIONAL			
37	WISER			
38	WORSE			
39	BEST			
40	PROGRESSING			
41	AMAZING			
42	EXCITING			

	WORD	A (I dont know	B (synonym or translation)	C sentence (If you do C. please also do B)
43	DANGEROUS			
44	PUSH YOURSELF			
45	RISK TAKER			
46	GIVE UP			
47	VOLUNTEERING			
48	EXTREME			
49	ARTISTIC			
50	WOULD			
51	COULD			
52	MIGHT			
53	MAY			
54	PERHAPS			
55	POSSIBLE			
56	IMAGINE			
57	DARESAY			
58	SUPPOSE			
59	EXPECT			
60	LIKELY			
61	UNLIKELY			
62	NO WAY			
63	PROBABLY			
64	CHANCE			
65	DEPARTURE			

	WORD	A (I dont know	B (synonym or translation)	C sentence (If you do C. please also do B)
66	PASSPORT			
67	BOARDING			
68	TRIP			
69	LUGGAGE			
70	BAGGAGE			
71	SUITCASE			
72	BACKPACK			
73	CARRY ON			
74	CHECK IN			
75	BAGGAGE CLAIM			
76	JOURNEY			
77	TOUR			
78	TAKE OFF			
79	LANDING			
80	CUSTOMS			
81	HOLYDAYS			
82	VACATION			
83	BUSINESS			
84	TICKET			
85	RESERVATION			
86	LOST			
87	DEVELOP			
88	BRAINSTORM			

	WORD	A (I dont know	B (synonym or translation)	C sentence (If you do C. please also do B)
89	CREATIVITY			
90	FOCUS			
91	GENERATE			
92	INNOVATION			
93	RESEARCH			
94	BREAKTHROUGH			
95	CUTTING EDGE			
96	CREATION			
97	CONCEIVE			
98	ROUGHDRAFT			
99	PATENT			
100	COLLABORATION			

Appendix G

Questionnaire

Cuestionario de Opinión

Question 1: ¿Habías usado antes estas técnicas para aprender y recordar información?

SI _____ NO _____ A VECES _____

Question 2: ¿Qué técnica crees que te ayudó más a aprender el vocabulario?

A) VER IMAGENES CON CADA PALABRA
B) RELACIONAR CADA PALABRA CON ALGO SIGNIFICATIVO PARA C/U.
C) USAR LAS PALABRAS EN CONTEXTO
D) LAS TRES ANTERIORES CONJUNTAMENTE

Question 3: ¿Qué piensas que pudiste hacer para que las técnicas fueran más efectivas?

Question 4: ¿Qué factores crees que afectaron al desempeño de esta intervención?

Question 5: ¿Crees que puedes aplicar estas técnicas en otras áreas de tu vida?

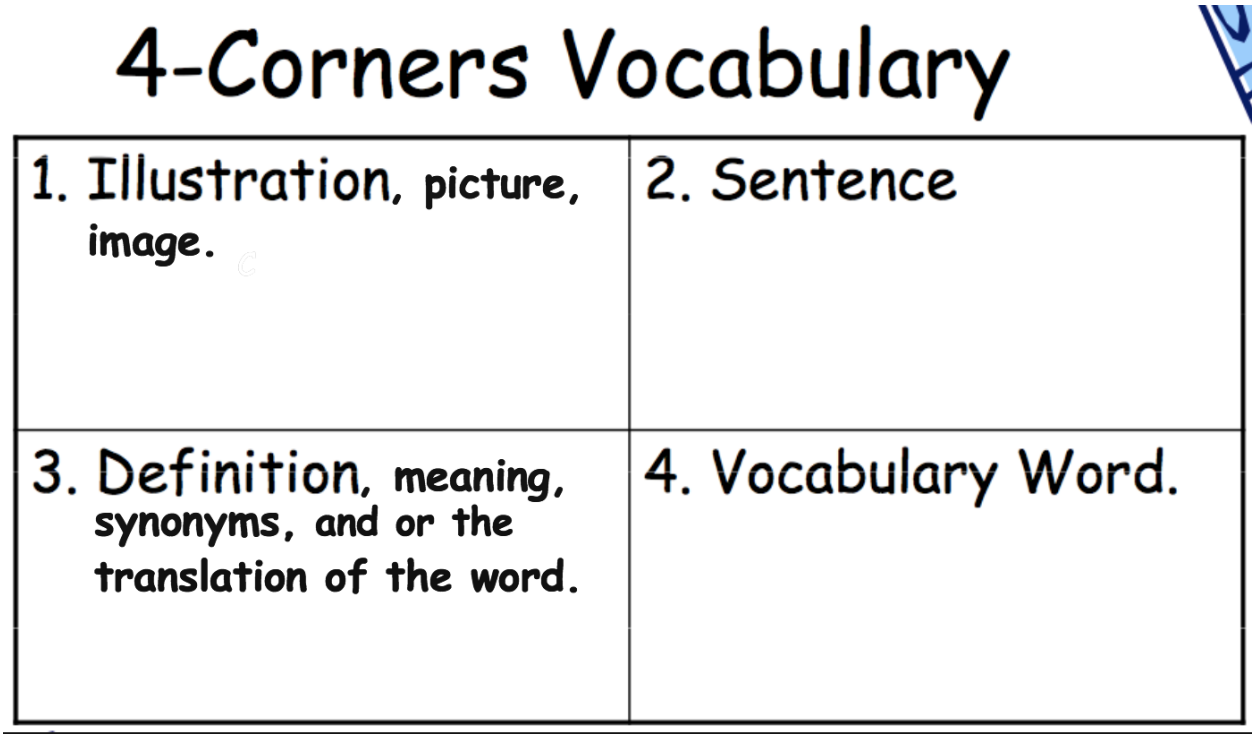
SI _____ NO _____

Question 6: ¿Después de recibir la enseñanza de las estratégias, las has utilizado en otras situaciones, fuera de la intervención, en cuáles?

Question 7: ¿Escribe tu sugerencias, opiniones o comentarios sobre las estratégias de aprendizaje usadas en esta intervención?

Appendix H

Four-Corners Vocabulary Chart

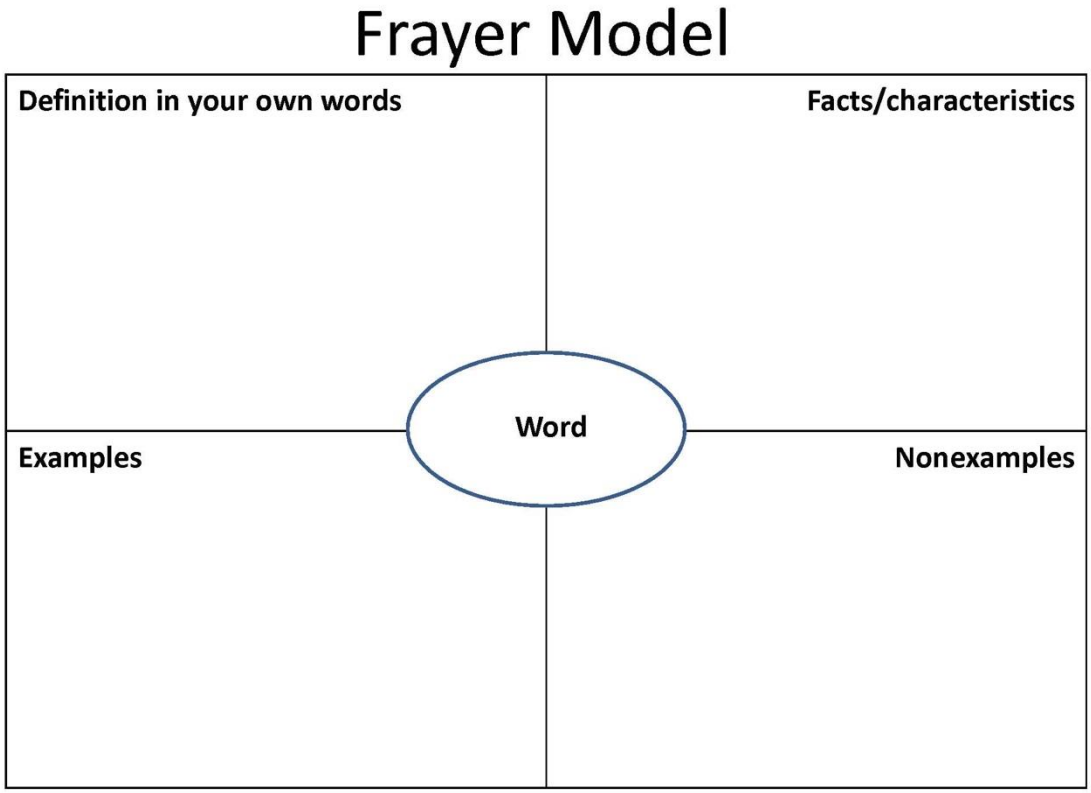


4-Corners Vocabulary

1. Illustration, picture, image.	2. Sentence
3. Definition, meaning, synonyms, and or the translation of the word.	4. Vocabulary Word.

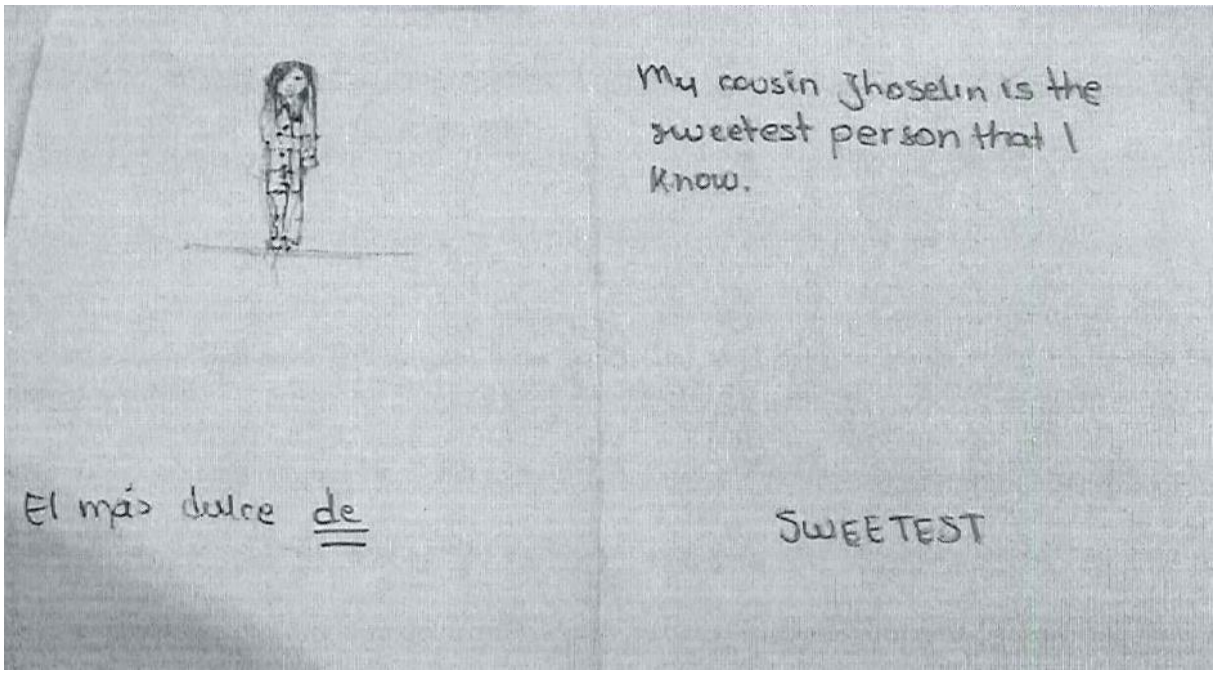
Appendix I

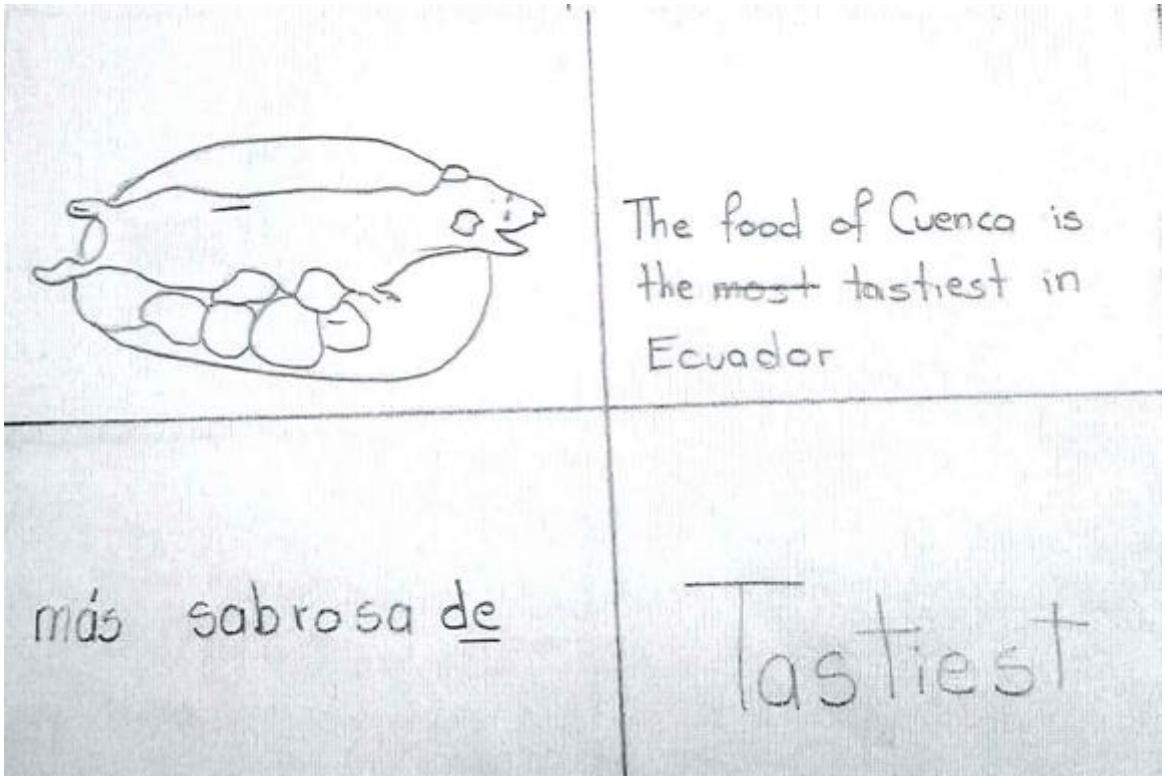
Frayer Model - graphic organizar



Appendix J

Students' Four-Corners Vocabulary Charts





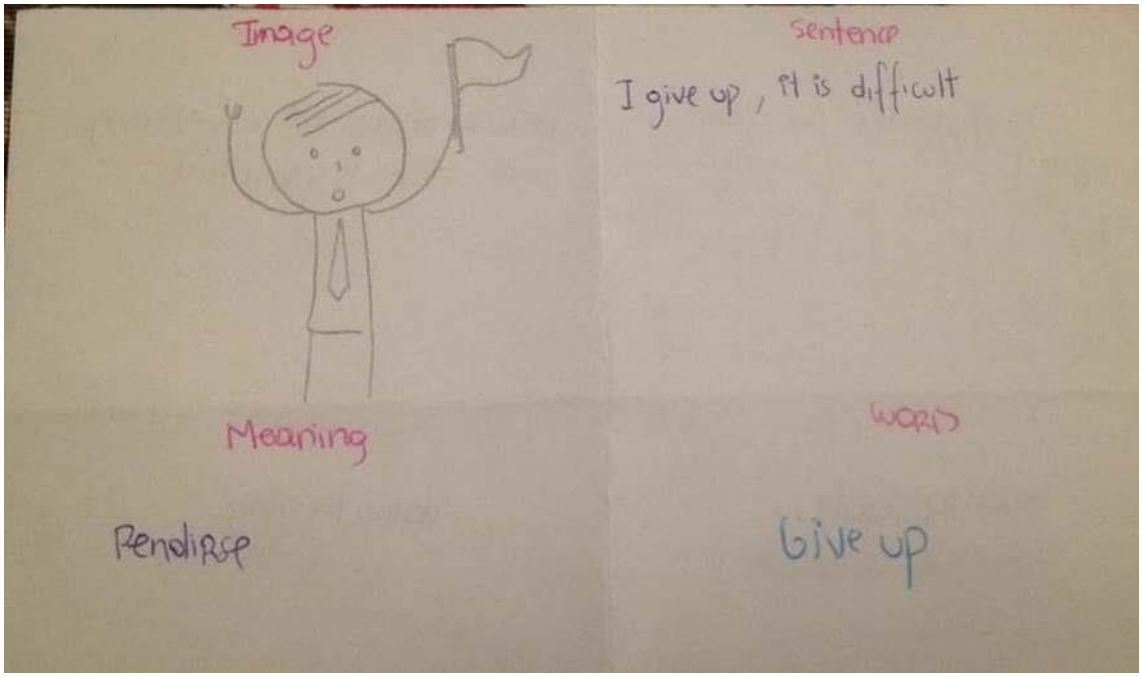
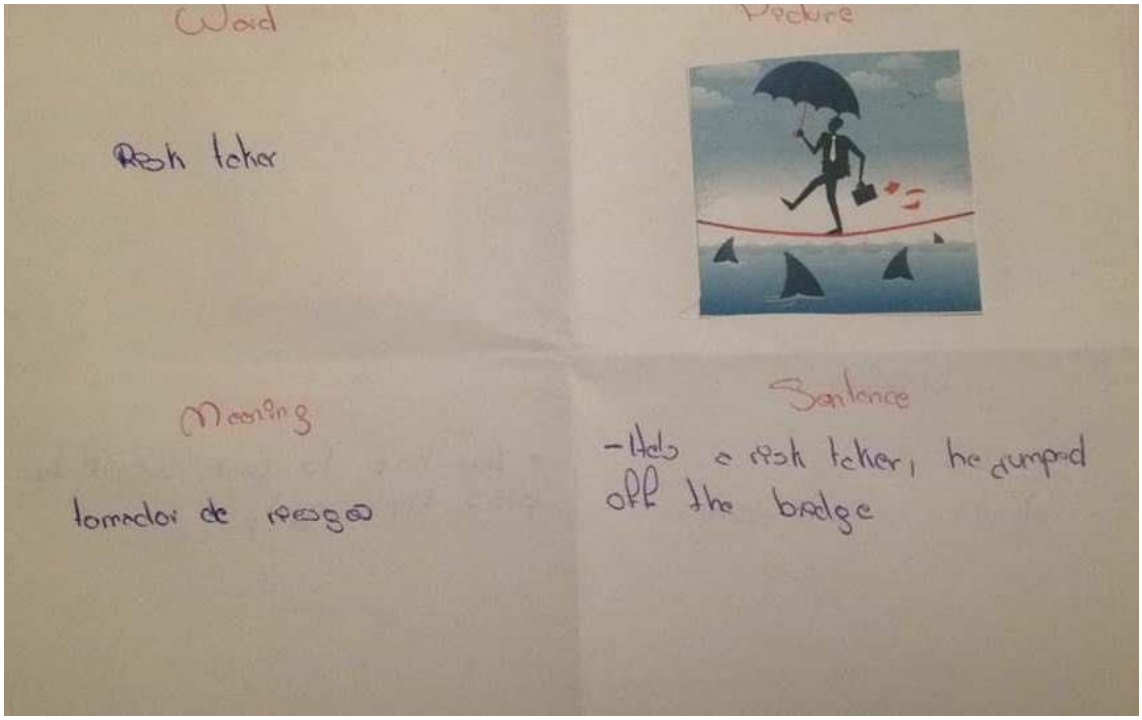
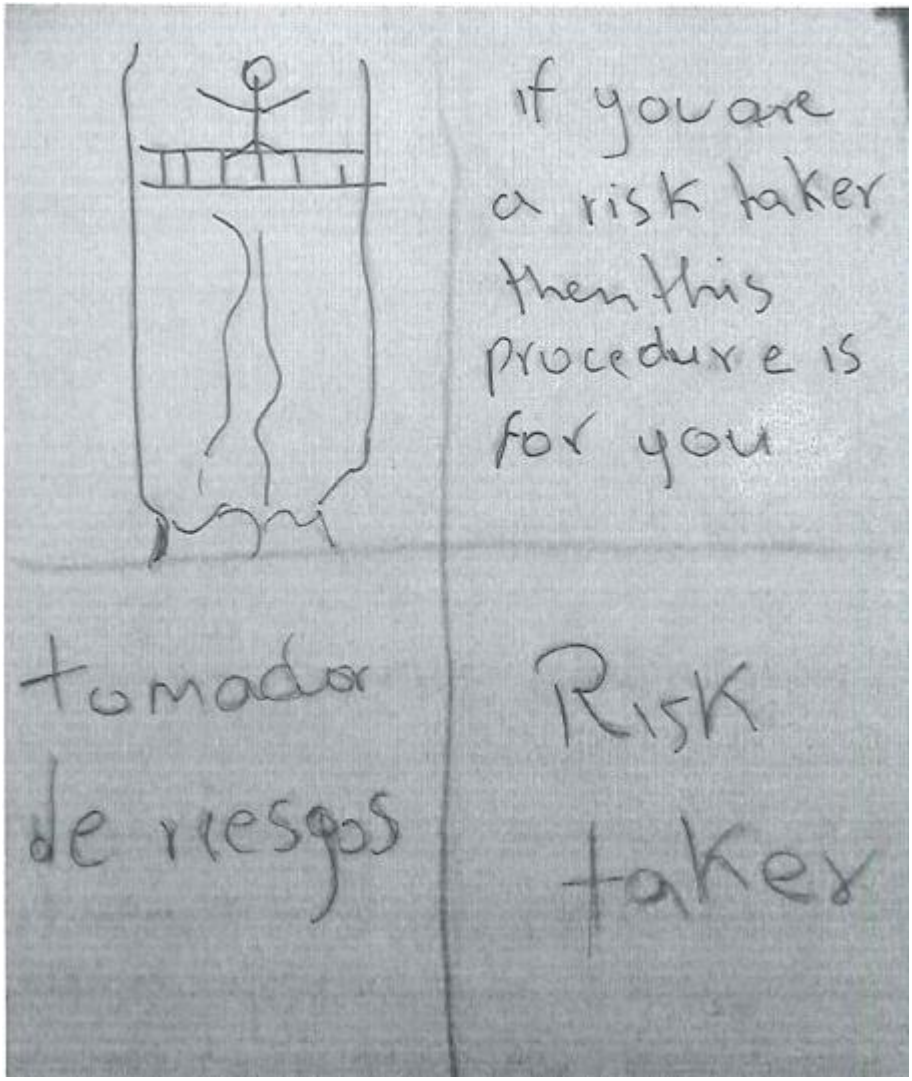
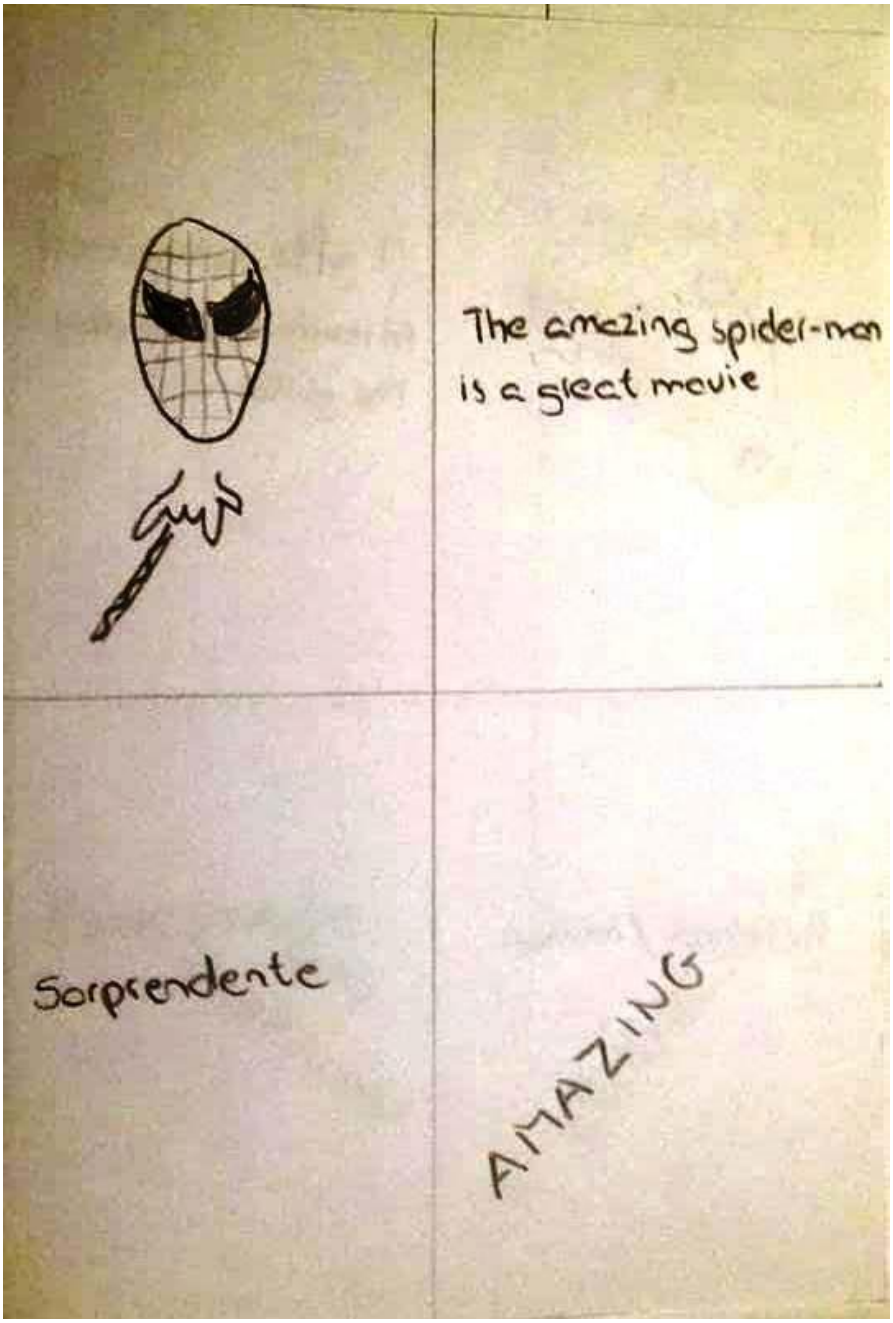


Image
Sentence
I give up, It is difficult
Meaning
Word
Rendirse
Give up


Word
Picture
Risk taker
Meaning
Sentence
tomador de riesgo
-He's a risk taker, he jumped off the bridge


if you are a risk taker then this procedure is for you
tomador de riesgos
Risk taker


The amazing spider-man is a great movie
Sorprendente
AMAZING

Appendix K

Appendix k: Lesson Plans
Lesson Plan – Vocabulary Topic 1: Technology

LESSON PLAN No. 2 – Week 1 **Vocabulary Topic 1: Technology** **Objectives:** - Students will practice and reinforce the 1st set of words from the vocabulary from the topic: Technology - Students will use the Four-Corners Vocabulary Chart, and will start applying it to learn the second set of words related to technology.	
ACTIVITY	**TIMING**
Greetings and call the roll.	5 minutes
· **Warm-up activity –** Review the learning strategies explained in the previous session.	10 minutes
· Respond questions from students, reinforce with examples.	5minutes
· **Vocabulary single word presentations:** Students selected randomly present a specific word. They will explain to the teacher and classmates the Four-Corners Vocabulary Chart for the chosen word.	10 minutes
· **Writing activity:** in groups of 3, students will write a short story. They must incorporate at least 10 words from the technology topic.	15 minutes
· Time for the students to work on their Four-Corners Vocabulary Charts to do the next set of technology words, change or improve the charts.	10 minutes
· **Game:** I groups of five, students complete a cross-word puzzle, using the clues projected on the board.	5 minutes
Homework given: use the list from the first topic "Technology and apply the Four-Corners Vocabulary Chart to the next 11 words. (Total of 31 words).	

Appendix K: Lesson Plans
Lesson Plan – Vocabulary Topic 2: Life Experiences

LESSON PLAN No. 1 Week 2 **Vocabulary Topic 2: Life Experiences** **Objectives:** - Familiarize students to the second vocabulary topic: Life Experiences, and the 1st set of words. - Students will reinforce the cognitive and memory strategies taught with a new set of words from a different topic. - Students will strengthen their knowledge of the vocabulary seen up to now, through different activities.	
ACTIVITY	**TIMING**
Greetings and call the roll.	5 minutes
· **Warm-up activity -** Introduce students to the topic of Life Experiences. Start a conversation by sharing a fun anecdote and ask what they would do in a similar situation.	10 minutes
· **Interactive Power Point presentation with 10 new vocabulary words:** Students will intervene in the presentation with their own examples.	20 minutes
· Respond questions from students, reinforce with examples.	5 minutes
· **Fill in the blank:** students will complete a story using selected vocabulary words from the topics of Technology and Life Experiences.	15 minutes
· Students turn in their fill in the blank sheet. Students and teacher proceed to revise the activity.	5 minutes
Homework given: - Do the corresponding activity in the Schoology platform. - Apply the Four-Corners Vocabulary Chart to the 10 first words of the list from the topic of Life experience. (Total of 18 words).	

Appendix K: Lesson Plans
Lesson Plan – Vocabulary Topic 3: Possibilities / Topic 4: Travelling

LESSON PLAN No.1 - Week 3
Vocabulary Topic 3: Possibilities / Topic 4: Travelling

Objectives:
- Familiarize students to the third and fourth vocabulary topics: Possibilities and Travelling, respectively.
- Students will reinforce the cognitive and memory strategies taught with the new vocabulary words from topic 3 and topic 4.
- Students will strengthen their knowledge of the vocabulary seen up to now, through different activities.

ACTIVITY	TIMING
Greetings and call the roll.	5 minutes
· **Warm-up activity -** Introduce students to the topic of Possibilities and Travelling. Students would do a reading activity and identify the words related to the topics of Travelling and Possibilities.	20 minutes
· **Interactive Power Point presentation with 10 new vocabulary words:** Students will intervene in the presentation with their own examples.	15 minutes
· Respond questions from students, reinforce with examples.	5 minutes
· **Mind map:** students will complete a mind map with the words from the topics of Technology and Life Experiences.	10 minutes
· **Strengthening previous knowledge:** in groups of 5**,** one student from each group choose words from a bag, he or she may draw the word, mimic it or give verbal clues, while the students guess it.	5 minutes

Homework given:
- Do the corresponding activity in the Schoology platform.
- Apply the Four-Corners Vocabulary Chart to the first 7 words from the topic of Possibilities (Total 15); and to the first 11 words Travelling (Total 22).

Appendix K: Lesson Plans
Lesson Plan – Vocabulary Topic 4: Traveling / Topic 5: Inventions

LESSON PLAN No.1 – week 4 **Vocabulary Topic 4: Traveling / Topic 5: Inventions** **Objectives:** - Introduce students to the fifth vocabulary topic: Inventions. - Revise all vocabulary taught from the different topics. - Revise the cognitive and memory strategies used in the intervention.	
ACTIVITY	**TIMING**
Greetings and call the roll.	5 minutes
· **Warm-up activity –** Randomly select Four-Corners Vocabulary Charts from students and the students will present them to the class.	5 minutes
· Introduce students to the topic of Inventions. Have them write 5 instances in which they have used or use inventions in their lives. Brainstorm about the best invention.	15 minutes
· **Listening activity –** students listen to a conversation regarding inventions and then discuss about it. They are also requires to write down any word from the previous topics that might encounter.	15 minutes
· **Game: BINGO**, each student gets a Bingo card with the words from the different topics. Students are called randomly to act, draw or perform the word. The students find out what word was selected and see if they have it in the Bingo charts. Students that call Bingo get candy.	20 minutes
Homework given: - Do the corresponding activity in the Schoology platform. - Apply the Four-Corners Vocabulary Chart to the remaining words from the topics of Travelling and Inventions (Total 14).	