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Effects of exposure to L1 translation in vocabulary acquisition in English as a Foreign Language with college students

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ABSTRACT

Vocabulary acquisition is one of the major challenges for language learners and the lack of proper vocabulary is the first impediment to successful communication. A literature review of vocabulary teaching and learning identified an important gap; most research is conducted under controlled conditions. There is a necessity to understand the influence of vocabulary instruction in real classroom settings. This study specifically examines the influence of vocabulary teaching methodologies in the classroom.

This study was conducted in a private university with 37 participants in a pilot study and 166 in the main study, both divided into control and experimental groups using a pretest-posttest design in order to analyse the influence of explicit vocabulary instruction in classes. Vocabulary knowledge was assessed before and after interventions with an adapted version of the Vocabulary Knowledge Scale (VKS) (Paribakht & Wesche, 1993).

This research consisted of two phases. First, explicit vocabulary instruction through visual exposure to target vocabulary with Spanish translation and aural input was assessed in a pilot study. This stage focused on the first step for vocabulary learning mentioned by Nation (2013): Noticing. Results obtained from the pilot study presented no significant difference between the control and the experimental group. Therefore, it was decided to include an additional activity to enhance vocabulary learning.

In the second phase, which included 166 students, employed a web-based vocabulary activity as well as the visual exposure. This was introduced to evoke the second step of vocabulary learning: Retrieval. This methodology provided opportunities for participants to explore vocabulary with a new learning tool; allowing students to not only notice target vocabulary, but also to retrieve it. The results from the main study were encouraging, the experimental group outperformed the control group in the posttest (p<0.001) showing significant improvement in most words in the experimental group. We may assume that the additional methodology included in the main study could be responsible for the vocabulary enhancement. After the intervention, a semi-structured interview with participants from the experimental group elicited information about their ideas toward their own learning and the methodology used. Participants gave a positive opinion of web-based activities and acknowledged the importance of vocabulary development in their language-learning process.

This study highlights the positive influence of explicit vocabulary instruction in English Learning classroom settings. Technology provides opportunities to replicate this methodology with little time investment; a beneficial tool for teachers and students. In this sense, pedagogic implications are discussed.

RESUM

L'adquisició de vocabulari és un dels principals desafiaments per als estudiants d'idiomes i la falta d'un vocabulari adequat és el primer impediment per a una comunicació amb èxit. A través d'una revisió de la literatura sobre l'ensenyança i l'aprenentatge de vocabulari es va identificar una bretxa important; la major part de la investigació es du a terme en condicions controlades. Hi ha la necessitat de comprendre la influència de l'ensenyança del vocabulari en l'entorn real de l'aula. Aquest estudi examina específicament la influència de metodologies d'ensenyança de vocabulari en l'aula. Este estudi es va realitzar en una universitat privada amb 37 participants en un estudi pilot i 166 en l'estudi principal, ambdós dividits en grups de control i experimentals utilitzant un disseny de pretest-postest per a analitzar la influència de la instrucció de vocabulari explícit en les classes. El coneixement del vocabulari es va avaluar abans i després de les intervencions amb una versió adaptada de l'Escala de coneixement del vocabulari (VKS per les seues sigles en anglès) (Paribakht i Wesche, 1993) . Aquesta investigació va constar de dos fases. En primer lloc, es va avaluar en un estudi pilot la instrucció de vocabulari explícit a través de l'exposició visual al vocabulari objectiu amb traducció a l'espanyol i entrada auditiva, esta etapa es va centrar en el primer pas per a l'aprenentatge de vocabulari mencionat per Nation (2013) : Parar atenció a les paraules. Els resultats obtinguts de l'estudi pilot no van presentar diferències significatives entre el grup control i l'experimental. Per tant, es va decidir incloure una activitat addicional per a millorar l'aprenentatge de vocabulari. En la segona fase, que va incloure a 166 estudiants, va emprar una activitat de vocabulari basada en la web, així com l'exposició visual. Açò es va introduir per a evocar el segon pas de l'aprenentatge de vocabulari: Recuperació. Esta metodologia va brindar oportunitats perquè els participants exploraren el vocabulari amb una nova ferramenta d'aprenentatge; permetent als estudiants no sols notar el vocabulari clau, sinó també recuperar-lo. Els resultats de l'estudi principal van ser encoratjadors, el grup experimental va superar al grup de control en la prova posterior (p<0,001) mostrant una millora significativa en la majoria de les paraules. Podem suposar que la metodologia addicional inclosa en l'estudi principal podria ser responsable de la millora del vocabulari. Després de la intervenció, una entrevista semiestructurada amb els participants del grup experimental va obtindre informació sobre les seues idees sobre el seu propi aprenentatge i la metodologia utilitzada. Els participants van donar una opinió positiva de les activitats basades en la web i van reconèixer la importància del desenvolupament del vocabulari en el seu procés d'aprenentatge d'idiomes. Este estudi destaca la influència positiva de la instrucció de vocabulari explícit en l'entorn de l'aula d'aprenentatge d'anglès. La tecnologia brinda

oportunitats per a replicar esta metodologia amb poca inversió de temps; esta pot ser una ferramenta beneficiosa per a professors i estudiants. En este sentit, al final, es discutixen les implicacions pedagògiques.

RESUMEN

La adquisición de vocabulario es uno de los principales desafíos para los estudiantes de idiomas y la falta de un vocabulario adecuado es el primer impedimento para una comunicación exitosa. A través de una revisión de la literatura sobre la enseñanza y el aprendizaje de vocabulario se identificó una brecha importante; la mayor parte de la investigación se lleva a cabo en condiciones controladas. Existe la necesidad de comprender la influencia de la enseñanza del vocabulario en el entorno real del aula. Este estudio examina específicamente la influencia de metodologías de enseñanza de vocabulario en el aula.

Este estudio se realizó en una universidad privada con 37 participantes en un estudio piloto y 166 en el estudio principal, ambos divididos en grupos de control y experimentales utilizando un diseño de pretest-postest para analizar la influencia de la instrucción de vocabulario explícito en las clases. El conocimiento del vocabulario se evaluó antes y después de las intervenciones con una versión adaptada de la Escala de conocimiento del vocabulario (VKS por sus siglas en inglés) (Paribakht y Wesche, 1993).

Esta investigación constó de dos fases. En primer lugar, se evaluó en un estudio piloto la instrucción de vocabulario explícito a través de la exposición visual al vocabulario objetivo con traducción al español y entrada auditiva, esta etapa se centró en el primer paso para el aprendizaje de vocabulario mencionado por Nation (2013): Prestar atención a las palabras. Los resultados obtenidos del estudio piloto no presentaron diferencias significativas entre el grupo control y el experimental. Por lo tanto, se decidió incluir una actividad adicional para mejorar el aprendizaje de vocabulario.

En la segunda fase, que incluyó a 166 estudiantes, empleó una actividad de vocabulario basada en la web, así como la exposición visual. Esto se introdujo para evocar el segundo paso del aprendizaje de vocabulario: Recuperación. Esta metodología brindó oportunidades para que los participantes exploraran el vocabulario con una nueva herramienta de aprendizaje; permitiendo a los estudiantes no solo notar el vocabulario clave, sino también recuperarlo. Los resultados del estudio principal fueron alentadores, el grupo experimental superó al grupo de control en la prueba posterior (p<0,001) mostrando una mejora significativa en la mayoría de las palabras. Podemos suponer que la metodología adicional incluida en el estudio principal podría ser responsable de la mejora del vocabulario. Después de la intervención, una entrevista semiestructurada con los participantes del grupo experimental obtuvo información sobre sus ideas sobre su propio aprendizaje y la metodología utilizada. Los participantes dieron una opinión positiva de las actividades basadas en la web y reconocieron la importancia del desarrollo del vocabulario en su proceso de aprendizaje de idiomas.

Este estudio destaca la influencia positiva de la instrucción de vocabulario explícito en el entorno del aula de aprendizaje de inglés. La tecnología brinda oportunidades para replicar esta metodología con poca inversión de tiempo; esta puede ser una herramienta beneficiosa para profesores y estudiantes. En este sentido, al final, se discuten las implicaciones pedagógicas

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Chapter 1
Introduction

1.1 Introduction

Communication is an innate human skill, and while through gestures it is plausible to communicate some information, verbal utterances, and written texts are, still the main tools, used by humans for interaction. Verbal or written communication may be stymied if inaccurate words are selected. On the contrary, the same problem can arise from the receptive end. If one word is misused and holds a completely different meaning than intended, the message will not be understood. Vocabulary is a mainstay of communication and paramount to language learning; and language learners may encounter an impediment if they cannot retrieve enough lexical knowledge to employ an accurate word to convey a message.

Despite the significant role vocabulary has in communication and language, it is not common for Foreign Language (FL) curricula to focus on vocabulary through a designated section and explicitly guide teachers toward vocabulary instruction. Moreover, vocabulary practice has been located within skills such as listening, speaking, reading, and writing. These four skills have been embraced with different approaches through time, all of them focusing on developing the language. Thus, not every classroom aiming to learn a foreign language, like English, considers vocabulary a separate skill to be acquired despite the significance acknowledged in

research. Some proof of this aspect is easy to evince in textbooks, which give more attention to grammar than vocabulary. In the context where this study took place, little or no time was devoted to explicit vocabulary instruction. It is reasonable to suggest that teachers could be targeting vocabulary through implicit instruction or may be ignoring it altogether

While there are many studies that support the importance of vocabulary development, most of the research has been conducted in controlled environments. The intent of this study, however, has been to focus on vocabulary teaching in real classroom settings. This dissertation withholds two studies, which were not carried out simultaneously, a pilot phase and the main phase.

1.2 Objectives

This dissertation presents three main objectives:

First, we wanted to analyze the vocabulary level of our participants who were in A1.2 of the CEFR level. This would confirm that the groups are homogenous in vocabulary knowledge at the beginning of this course.

Second, we aim to introduce explicit vocabulary instruction and assess its influence on vocabulary learning. By comparing control with experimental group it is aim to verify if there existed any improvements in vocabulary that could be attributed to the intervention provided to the experimental group.

Third, it was important to know what were the perceptions students had on the intervention and their own vocabulary learning process. This was conducted through a semi-structured interview.

1.3 Research questions and hypotheses

Two research questions were presented for the pilot study with two hypotheses. By the results obtained in the pilot study it was necessary to adapt the research questions and the hypotheses. Therefore, this dissertation presents answers for four different hypotheses. Through this study, the objective was to *Determine the effect of explicit vocabulary exposure with L1 translation, aural input and web-based vocabulary activities in vocabulary learning through a pretest - posttest research design*.

1. Is translation exposure to vocabulary an effective strategy for learning for English as a Foreign Language college students?
2. What perceptions do students have regarding explicit vocabulary instruction through visual translation and aural input?
3. Does exposure to visual translation with aural input and web-based vocabulary activities affect the participants' vocabulary learning?

4. What perception do students have regarding explicit vocabulary instruction through rote visual translation of vocabulary with aural input and web-based vocabulary activities?

The answers to the previous questions will determine if the following hypotheses will be accepted or rejected. The first two hypotheses are responded by results from the pilot study and hypotheses number three and four are responded by results from the main study.

Research question I focuses on vocabulary learning only by providing visual translation to students before the beginning of class. It is hypothesized that the exposure of words with its translation would be beneficial for all participants. The results from a pretest and a posttest are investigated to determine where there are significant differences between groups.

Research question II addresses the perception students present regarding the vocabulary learning strategies provided during the study period. It is hypothesized students would express a positive perception toward the strategy.

Research question III targets the effect of an exposure and web-based vocabulary activities may have on vocabulary acquisition. In the present study, a variety of vocabulary activities were created and provided to students to practice the exposed vocabulary. It is hypothesized the combination of the vocabulary learning strategies would improve learners' vocabulary level.

Research question IV addresses the perception students present regarding the vocabulary learning strategies provided during the study period. It is hypothesized students would express a positive perception toward the combination of both strategies.

1.4 Methodology

This study was conducted in two main consecutive sections. First, a pilot study was carried out to assess the design of the study, the materials and the methodology. As presented above, its research questions and hypotheses were adapted due to the results obtained. Second, the main study was conducted with some variations from the pilot study; it presented different research questions and hypotheses. Results from the pilot study gave way to methodological improvements. This research aim is to analyze the effects of the exposure of vocabulary on strategies focused on form and meaning and its effects on vocabulary acquisition. As it will be explained in the literature review, the acquisition of meaning and form has been the most appropriated in the lower level (Schmitt, 2010) and a great strategy at the beginning of learning a foreign language (Clipperton, 1994). Although meaning and form do not always have a one-to-one correspondence, in this study one part of speech was chosen: adjectives and nouns. This decision was taken based on the context in

which the word was presented in the English textbook used by the participants during the semester.

The participants of this study, in both the pilot and the main study, were first year college students taking English I as a compulsory subject for a semester. Two separate groups were involved in both studies. The groups were balanced in terms of number and previous vocabulary knowledge. For statistical purposes, students were randomly assigned to either the control group or the experimental group. Both studies began with a sociodemographic questionnaire.

The pilot study and the main study were conducted following very similar steps. The pilot study was developed in six stages. First, in a diagnostic stage a group of words, specifically adjectives and nouns, were assessed to verify students' familiarity with the vocabulary. Second, the target vocabulary was identified, 87 target words were selected from a total bank of 253 words for the intervention. The target words were obtained from a diagnostic test given to students at the beginning of the semester. We selected the vocabulary unknown by 50% of the students or more. Third, it was evidenced that data was normally distributed and therefore the parametric Student T-Test was run to evidence that the groups were homogeneous. Fourth the 87 target words were included in a PowerPoint presentation to be exposed to the experimental group. Each slide showed the English word, and its translation in Spanish as well as aural input with the pronunciation in English. The slides were presented to students at the beginning of every class, and the presentations were divided into units, there were seven units considered. Since each unit lasted two weeks, words from each unit were presented for four consecutive days during a two-weeks period from Monday to Friday. In total, each word was presented eight times for five seconds each. The entire intervention lasted for fourteen weeks. Fifth, through a posttest, the efficacy of the intervention was tested. A posttest assessed the students' knowledge of the 87 target words. Finally as a sixth step a semi-structured interview was given to students.

The main study presented one more stage than the pilot study. First, a diagnostic test was presented to students to assess their familiarity to the vocabulary. Second, the target vocabulary was identified. Third, because the data was normally distributed, so the Student t-test was run to compare the participants knowledge at the before the intervention period. Fourth, the intervention activity was presented to students the same way as the pilot study. Nevertheless, based on the results from the diagnostic test 76 words were identified and unknown by 50% of the students or more, instead of 87 identified in the pilot study. Fifth, students from the experimental group had to work on web-based vocabulary activities with the vocabulary presented. Sixth, students took a posttest to assess the state of the target vocabulary. Finally, the seventh step consisted of a semi-structured interview with the ob-

jective of analyzing students' opinions regarding the intervention and the vocabulary learning strategies employed during the course.

The pilot study and the main study were conducted using the same vocabulary assessment tools. For the diagnostic test, which was considered the pretest for the target vocabulary, and for the posttest, an adapted version of the Vocabulary Knowledge Scale (VKS) (Paribakht & Wesche, 1993) was used. The adapted version of the VKS presented four different answers for each word: A. I don't remember having seen this word before; B. I have seen this word before, but I don't know what it means; C. I know this word. It means (synonym or translation); D. I can use this word in a sentence (write a sentence).

1.5 Structure of the Dissertation

The present dissertation is divided into five chapters. As there has been a need to find evidence in the literature about vocabulary teaching, in chapter two, general and specific aspects regarding this matter are covered. In this chapter we pay attention to the state of the art, where the process of Language Teaching and Learning is presented through the historical path of learning theories. From behaviorism to social interaction, theories are described in detail as well as their connection to language learning. Next, more specifically, some language teaching methods with their individual features, objectives, and teaching techniques are addressed. The third section focuses on vocabulary. This part of the chapter analyzes what vocabulary knowledge is and what is considered a word. Then it also presents what is involved in a learner's mind and its characteristics regarding language learning. The features included in each individual word influence its learnability and so these particular characteristics are presented in this section as well. Finally, some common conceptions of vocabulary learning strategies are discussed, presenting at last strategies focused on vocabulary learning and teaching.

Chapter three presents the pilot study. It includes the context where the study took place; it is explained along with the motivation that led to presenting the research questions and hypotheses which is to improve the teaching of vocabulary in classrooms. Next, the methodology is presented with specifications regarding the participants, instruments and procedures. Then, the results of the statistics and the responses from the semi-structured interview are presented. Finally, the last section discusses and reflects the results evoked. Chapter three ends by sharing interesting findings form the data and providing guidelines that aided to improve the main study.

Chapter four shares information regarding the main study. This research was conducted based on results presented in chapter three. It included improvements and necessary modifications in order to present stronger and more precise results. It presents the same structure as Chapter three. The objectives and hypothesis pre-

sented provided a different scenario since the methodology was adapted in search of better results. The details about the improvements and additions in the methodology are presented in this chapter as well. It includes information about the participants, the textbook, the instruments and the procedures. The final section presents the statistical results from the test given before and after the intervention period as well as the responses obtained from the semi-structure interview conducted with the participants from the experimental group. The last section includes interesting findings from the results and presents a word-by-word analysis and the conclusion drawn from this study.

Chapter five summarizes the research process and the results. It aims is to further discuss the results found in the pilot study as well and the main study. It provides an analysis and interpretation of the different methodologies used in the study. It presents the responses for each of the research questions contemplated at the beginning of the study. Then, the limitations of the study and suggestions for future related research are presented. Furthermore, pedagogic recommendations regarding vocabulary teaching in University setting are shared.

Figure 1represents each section of this dissertation and it illustrates the work outlined above.

Introduction

Review of the literature

Pilot Study

Main Study

Discussion and conclusions
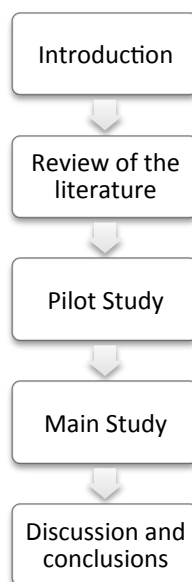
Figure 1: Organization of the study

Chapter 2
Review of the literature

2.1 Review of the literature

Words knowledge is the keystone for the essential and privileged skill humans have: communication. Through language, it is possible to communicate thoughts, desires, and beliefs; nevertheless, communication may be hindered in the absence of proper vocabulary. Vocabulary can develop differently depending on various aspects. There are significant differences between native language vocabulary acquisition, to second language vocabulary acquisition, to foreign language vocabulary acquisition, such as: context, age, strategies, approaches, environment, etc.

The aim of this chapter is to provide information regarding vocabulary acquisition and an overview of different approaches and methods employed to teach and learn vocabulary, that have been used by researchers and teachers.

The development of vocabulary in the native language is a process that has been studied thoroughly and has provided understanding and guidance to understand various theories on how the human mind works (Chomsky, 1968; Clark, 2003; Kirby, Dowman, & Griffiths, 2007). Since the beginning of life, babies' brains are exposed to verbal input, and so their language starts developing. It is believed that there is a strong relationship between the input the infant receives and the output he or she produces (Whitehose, Bishop, Ang, Pennell, & Fisher, 2011; Newman,

Rowe, & Berstein, 2016). This becomes evident once babies start producing sounds, babbling and reacting to familiar words such as their names and the word *no*. After a couple of months, babies are capable, without much effort, of communicating with real words. These perceptive sounds and eventually actual words are the result of an innate sensitivity to oral cues (Swingley, 2009) and the perceptual knowledge acquired about things around them (Clark, 2003).

First language (L1) development has been studied since the early 1960s, and although technology has allowed for research to become more precise and accurate, the relationship between stimuli and verbal output is still being tested (Sydorenko, 2010; Zhang, 2016; Rowe, Leech, & Cabrera, 2017). It has been broadly acknowledged that language occurs spontaneously, and it is context dependent as it presents itself instinctive because of imitation (Lampouras & Vlachos, 2016).

This apparently easy, yet very complex, process of reaching fluency in the mother tongue uncannily occurs without conscious effort. Human brains are designed to receive input and intertwine it with previous knowledge. As a result, oral communication emerges. An infant's environment is an asset for language progress because it is filled with oral and visual stimuli and feedback. Communication can improve until reaching a high level of fluency and accuracy. It is believed that language modifies and adapts to a continuously changing culture (Kirby, Dowman, & Griffiths, 2007; Chater & Christiansen, 2010); therefore, language development may be a never-ending process of learning.

As language learning is a main topic of this work, so far, the previous paragraphs have referred to the mother tongue, also known as native language or first language. It has been mentioned that the study of native language development in children has been significant to understand how other languages besides the native can be acquired.

In the context of this research it is important to present two different concepts that have commonly been used synonymously. These concepts are: *second language learning* and *foreign language learning.* In this document we will use L2 to refer to either one of these concepts. The difference between them was first mentioned in the early 1960s (Marckwardt, 1963). The distinction is mainly focused on the setting in which the learning takes place (Pecorari, 2018). On one hand, second language learning occurs within a country that may present this language as an official language or as one of the two recognized languages. People learn it because it is needed and required to fully participate in that particular society (Paulston, 1974). The learner can interact with this language - if he/she wishes - on the street, in the market and encounters with acquaintances or friends. On the other hand, foreign language learning takes place outside the national territory of the language. The reasons to learn a foreign language may vary greatly. For example, it could be to travel abroad, to study in this language, to do academic work, etc. In addition, for-

eign language learning usually requires formal instruction and the language is met primarily in a classroom setting (Pecorari, 2018).

Based on the previous concepts, foreign language learners, in contrast to native language learners, may not experience the same context-related advantages (Stern, 1983). Learners are probably not exposed to ongoing language stimuli in the community in which they are involved; nor they receive feedback in the foreign language with the same intensity (Littlewood, 1984; Pecorari, 2018). This would indicate that foreign language learning should not be left to chance, and although understanding the process of L1 acquisition can be a good first step, it should not be expected to develop in the exact same manner. A foreign language learner, in contrast to a second language learner, may lack environmental support, thus more structured and formal instruction may be needed (Long, 2009). This difference has been mostly overlooked and more longitudinal studies may be required to affirm what has been mentioned. Nevertheless, the distinction between concepts is presented to justify the selection of the term foreign language in this work.

In this chapter the process of learning a foreign language, particularly English is considered. To do so, theories that have emerged to explain this phenomenon are presented, as well as the learning methods that have developed because of theory. In the following section, vocabulary is presented as an essential aspect of language learning. Furthermore, the learner's mind is also considered since understanding how it works can give insight into how vocabulary learning occurs and what can be done to improve the process of learning. Finally, this chapter explains how aspects such as noticing, repetition, and strategy influence the process of vocabulary teaching and learning.

2.1.1 The Process of Language Teaching and Learning

Language Learning

The process of learning draws attention to many different areas. Nevertheless, the concept as it is understood today has been influenced mainly by psychological studies and presents a multi-faceted landscape of theories and definitions (Qvortrup, Wiberg, Christensen, & Hansbøl, 2016). Despite this reality, it is important to recognize that learning is involved in multiple events happening throughout life, not only in the process of acquiring a language. Learning occurs as an innate reaction for survival and it is constantly influenced by physiological, biological, and social conditions. Based on the previous statement, Illeris (2009) presents a system to explain how learning can be influenced by three different dimensions: a content dimension, presenting what the individual has learned; an incentive dimension to provide the

mental energy that is needed for this process; and an interaction dimension, which is accurate since it considers every experience the individual might encounter and therefore learn.

Referring to types of learning, language learning is not an easy concept to tackle. It is developed within endless scenarios and individual influences, which may cause a great difficulty to study and extrapolate scientific findings. Language is influenced by aspects such as context, age, motivation, learning styles, and attitudes, which have been and are continuing to be studied (Lichtman, 2016; You, Dörnyei, & Csizér, 2016; Roquet, Llopis, & Pérez-Vidal, 2016; Hsu, 2017). On the other hand, research has also focused on studying language learning through the lenses of neurolinguistic (Kennedy, 2006; Klein, Mok, Chen, & Watkins, 2014; Lupyan & Bergen, 2015). It is proposed that understanding how the mind and the brain connects in regards to language learning is essential. Language learning might therefore be presented as a very complex area of inquiry and despite this, research has not yet ceased (Beretta, 2009).

In response to the need of acquiring a language other than the L1, in this case English, formal instruction could be imperative (Pecorari, 2018). Regarding the difference mentioned in a previous section between foreign and second language, as a second/foreign language, English is the most attractive language in the world to learn since it is presented as a global communicative tool (Lee, 2003; Seidlhofer, 2005; Ur, 2010; Crystal, 2012; Northrup, 2013; Mackenzie, 2014). As a second language, the requirement of learning English is continuously growing all over the world, and it may be indispensable if one were living in an English-speaking country. In this case, society may propel English language teaching through public policies, government funding, and even volunteering. On the other hand, learning English in a non-English speaking country might be quite different. Since it is not a requirement for the general population for their day-to-day activities, the local government would most likely not invest in promoting this language outside the school system, especially in some countries in Latin America such as Argentina, Colombia, Peru, and Uruguay. In other countries like Brazil and Costa Rica, learning English in school is mandatory by law in education, but there are no clear policies or a national plan to accomplish this objective (Cronquist & Fiszbein, 2017).

English has been taught for different reasons around the world. Learning this language has become alluring because of its impact in a globalized world. There can be many different purposes for learning English. The reasons may be related to traveling abroad, pursuing a job promotion, obtaining required credits to graduate at a higher education level, to reading English literature, reading for scientific work, among others. The incentives or reasons to learn English are countless. Other people may be learning the language as a compulsory subject. Many schools across the world introduce English learning from an early stage, some cases even in daycare or

kindergarten. This type of learning usually occurs in a structured learning environment through different levels of education. Despite the different learning situations mentioned above, all students have external and internal factors influencing English language learning (Dörnyei & Ushioda, 2011).

The process of language teaching and learning has been studied through methodological approaches. In some cases it has been studied based on the current trend adopted during a period of time; so, a methodological pendulum has been identified by the historians of language teaching (Long, 2009). In this sense, a teacher-centered approach and a student-centered approach can be presented as opposites on a continuum.

The teacher-centered approach is characterized by methodologies like grammatical syllabi, grammar translations, and audiolingualism. This approach has gathered criticism attributable to its strict and synthetic nature. Students are taught pieces of language, and without much instruction, they have to unite them to communicate. Furthermore, its lack of consideration to psychological aspects and students' differences such as learning styles, learning environment, and motivation encouraged researchers and teachers to search and study alternatives (Hutchinson & Waters, 1987; Kumaravadivelu, 2006; Ammar & Spada, 2006; Malmkjaer, 2010).

The student-centered approach, on the contrary, gives greater consideration to students as individuals. The teacher's role is to be a facilitator and guide them through the learning material. The students have a greater responsibility over their own learning. It also views learning as a result of the analysis students execute of gestalt samples of L2 and specific input. In this case, communication is the final goal (Hymes, 1972; Taylor, 1983; Brandes & Ginnis, 1986; Long, 2009).

Despite the incorporation of these methods, research has shown that what happens inside a classroom has not affected learning as much as would be expected (Long, 2009). When teachers work with their students, their approach could not seem too evident. It may be difficult to notice how close to the theory they are enacting or if they are blending them together. It would appear as regardless of the difference between methods, they still encompass similar activities and procedures (Folse, 2004). As teachers, we need to be conscious when planning our curriculum and each activity in order to avoid sliding without much notice to a teacher-centered performance.

What happens inside the classroom may agree with the phrase "the persistence of the recitation" presented by Hoetker and Ahlbrand (1969), which refers to the similarity between pupil-teacher interactions in numerous classrooms. In this study, they elaborated a description of the verbal behavior of teachers and students from different classes and found no significant difference between them. It was based on teacher questioning, followed by students' response. Following their conclusion, it can be implied that learning results are not greatly influenced by the method labels

the teacher may present. This is not surprising since most educational environments
follow certain structure and strict curricula to be accomplished throughout the se-
mester or academic year. It is still unknown whether individual private tutoring can
be conducted following a different and notorious approach to obtain a better and
more accurate learning.

Notwithstanding, language-learning research should not cease, every contribu-
tion helps the understanding of how language is constructed and what learners,
teachers, and educational establishments can do to improve this process. In the
following section, we will first introduce some of the main learning theories that
have influenced how language learning is perceived nowadays. Next, some leading
theories of language teaching are presented, and finally, we will focus on the pro-
cess of vocabulary teaching and learning.

Learning theories and their connection to language

The concept of language learning has been targeted by different theories in the
field of linguistics and psycholinguistics (Michelle, Myles, & Marsden, 1998) and it
has also been studied through neurolinguistics (Beretta, 2009). Each field has at-
tempted to explain this complex and multidimensional process. Furthermore, new
theories have emerged as a response to dissatisfaction or contradictory opinions
about previous ones. In the next paragraphs some influential theories will be de-
scribed briefly and the transition from one theory to the next will be explained.

- Behaviorism

Very influential during the 1940s and 1950s (Pienemann, van Patten, & Williams,
2007), Behaviorism describes learning as a response to activities that could be re-
peated and replicated. Pavlov and Thompson (1902), Watson (1924) and Skinner
(1938) were some of the main contributors to this theory, defending the dynamic
between stimulus and response. This theory leads to an instructional design based
on punctual learning steps that could provoke expected results (Harasim, 2012).
Language learning is seen as behavior to acquire (Reber, 2011); furthermore, it is
expected that a second language should be learned the same way as a native lan-
guage, through impetus and positive feedback.

Despite all the popular and well-known experiments, there is a lack of evidence
to fully connect Behaviorism to language learning. Learning under the eyes of Be-
haviorism is summarized to only those observable and measured evidences
(Reimann, 2018). Chomsky (1959) criticized the Behaviorism model, establishing that
it may explain some of the general aspects of how languages are learned, but it did
not consider that individuals could also create new language they have not previ-
ously heard. Therefore Chomsky is known as one of the main opponents of this the-
ory.

- ▪ Structural Linguistics

This theory of Structural Linguistics originated in the early 1900s from the work of de Saussure (1972), a Swiss linguist. Structural Linguistics presents language as an organized set of elements based on signs. According to its proponent the only way to successfully analyze linguistics was to use segmentation and classification. Ferdinand de Saussure presents the terms "signifier" and "signified" to explain the word and the concept; nevertheless, this received some criticism since concepts change all the time and direct translation to L1 is not always feasible (Jessop, 2017).

Learning a language is associated in this theory with learning a sequence of grammatical structures, in contrast to behaviorists, who viewed it as the acquisition of a set of measurable behaviors (Eide, 2010). This theory had a big influence on language during the 1950s and 1970s (Simensen, 2007). Phonemes, morphemes, syntax, and their sequence were the main elements of study (Savignon, 1991). Chomsky (1968) presented serious doubts regarding this theory because it overlooks syntax, an area that Chomsky was studying at the time.

- ▪ Universal Grammar

The innate principle of a Universal Grammar emerged from the critique Chomsky made of Behaviorism (Chomsky, 1959). It focuses on how learning depends more on internal factors rather than external activities, and how what happens inside the mind can be deduced by analyzing input and output (Newson, 2007). It also studies mental structures as the only accountable aspects for the development of language.

Chomsky (1986) believes that children not only repeat what they hear, but also construct new language. Therefore, he states that children are born with their own internal ability to acquire grammatical rules. However, some believe this capacity may diminish with age, considering that the mental organ changes and matures over time (Lenneberg, 1967; Curtiss, 1977). The theorists that defend this approach and its successors pay more attention to the learners' linguistic structure. Because of this reason implications for materials and classroom activities for a better learning are currently limited (Chapelle, 2009).

- ▪ The Monitor Theory

The Monitor Theory subsumes five hypotheses presented by Dr. Stephen Krashen (1981) and became strong in the early 80s. It supports and develops upon the idea presented by Chomsky (1959) that humans have an innate faculty of acquiring language.

In the first hypothesis, Krashen introduces a difference between learning and acquisition. In this hypothesis he establishes that gaining knowledge may transform into one of these two actions. In learning, the individual is consciously working towards improving the language, most likely through grammatical rules and memorization. In contrast, acquisition happens in a more natural way, not focused on cor-

rect grammar but on meaning. Krashen (1982) compared acquisition to the ability to develop a native language; the learner is not aware of the internal process that occurs when he is part of an interaction in a L2 and trusts on the "feel" of correctness. This process happens thanks to the Language Acquisition Device that people possess internally (Krashen & Terrell, 1983).

Krashen (1982) defended that the processes of learning and acquiring functions are in different systems in our mind; consequently, they do not interact with each other. According to him, knowledge that is learned cannot transform to acquired knowledge, and vice versa. Some authors disagree with this notion by claiming that it is impossible to know if the learner is working on a conscious or unconscious process when producing the language (McLaughlin, 1987; Michelle, Myles, & Marsden, 1998; Zafar, 2009). For this reason, the author of this theory considers that second language teachers should shift focus toward a heavy input load and meaningful interactions. There have been various critiques of this theory based on the ambiguity of concepts such as learning/acquisition and subconscious/conscious (Zafar, 2009) and the belief that learning cannot shift to acquisition has also been analyzed and judged (Gass, Behney, & Plonsky, 1994).

The second hypothesis, the Monitor Hypothesis, states that when people use one of the productive skills such as writing or speaking they use nothing but the language they have acquired. They do not use the language they have learned. Nevertheless, the students use what they have learned only to monitor what they want to express (Krashen, 1981). The term *monitor* refers to the ability of the student to self-correct or mend what he or she has said (Krashen, 1985). The monitor needs time to think to properly review what rules to apply and to improve their outcome. Many times, there can be an overuse of the monitor leading to poor or no communication (Stafford & Covitt, 1978).

The third hypothesis, also known as the Natural Order Hypothesis, defends that there is a predictable natural progression to acquire a language. This order is the same despite the type or frequency of instruction. The theory was based on the results of the Morpheme Order Studies, studied in the early 70s in studies regarding first language learning (Brown, 1973; de Villiers & de Villiers, 1973) and second language learning (Dulay & Burt, 1973a; Dulay & Burt, 1974b). These studies argued against behaviorism by stating that learning needed further more than a learned response and they presented the idea that learning included a process reaching certain established steps. One of the main critiques of the third hypothesis was that this hypothesis overlooked diversity among students.

The fourth hypothesis, the Input Hypothesis, explains how a person acquiring a language can move from one point to the next following a natural order. It establishes the significance of a comprehensible input. When new information is to be presented, it must be slightly above a learner's current knowledge (+1) (Krashen,

1983). Krashen presents the knowledge of a learner as *i,* and *i+1* is the information beyond the student's current level. New information must be presented under the mentioned conditions for the new language to be acquired. This information should not be too advanced; otherwise the learner will not be able to do anything with the new information. Additionally, an important aspect in this theory is that production is a result of acquisition and not a cause; therefore, it cannot be taught. Despite the formula given by Krashen, inside a classroom it is not an easy task to define, nor is it to suggest a comprehensible input to present.

The last hypothesis is the Affective Filter Hypothesis, which targets the learner's wellbeing. To develop knowledge, aspects such as motivation, attitude, self-confidence, and anxiety must be considered. These affective aspects may potentially influence the learner's success or failure. Therefore, it can be said that if learners are in a stressful environment language acquisition may not happen. Krashen (1982) talks about an Affective Filter. When the Affective Filter is up, input cannot get to the learner successfully. On the other hand, when the Affective Filter is down and if the input follows the aforesaid hypothesis of *i+1,* acquisition will take place.

- The Social Interaction Theory

The theory of Social Interaction establishes that learning is the result of interactions between two or more people and the constant exposure to communication. Learning occurs in the midst of the social context and cultural environment in which humans live. Vygotsky (1980), the main contributor, defends that consciousness and cognition are the result of interactions; therefore, he transitions from an individual view of learning to a sociocultural perspective. He defends that culture, in fact, is the result of humans' social life and social activities that one performs (Vygotsky, 1997). This author not only analyzes the development of language, but also thoughts and the formation of concepts through social situations.

One of the most important concepts presented by Vygotsky (1980) and one which has greatly influenced how theorists deem and think of the process of learning, is the concept of *Zone of Proximal Development.* Established as "The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1980, p. 86). This concept considers the learner's current level of development and the potential level he or she could reach. Therefore, learning a language under this concept is the result of collaborative achievement, sometimes assisted and mediated (Turuk, 2008). Some critiques to this concept revolved around the lack of precision regarding the type and specifications of collaboration needed to reach learning (Wertsch, 1984).

- The Generative Learning Theory

The relation new knowledge has with previous knowledge is highly considered in this theory, but there are extra factors taken into account than the similarity to the Social Interaction Theory alone. It reflects on what a learner does with the new information. This aspect is crucial to incorporate new information to prior knowledge. It sees learners as active sense-makers (Fiorella & Mayer, 2016). Around the same time that the Social Interaction Theory emerged, Wittrock (1974) grounded the generative model of comprehension and explained how active learning can take place. This theory is in line with the well-known theory of cognitive development: constructivism.

Jean Piaget, a recognized epistemologist, presented the term constructivism in 1926. Both theories, in a simple explanation, consider how external information can influence internal structures and that information can be used in new situations evidencing that learning has taken place. Nevertheless, the Generative Learning Theory focuses on how learners can transform the new information received into meaningful output to reinforce learning, which is referred to as meaningful learning (Wittrock, 1974).

This model presents four main components: generation, motivation, attention, and memory. The first one, generation, refers to how the learner connects the new information with existing knowledge and how it is organized as usable knowledge. Motivation considers how driven the learner is with the new material or the new input. The third component is attention, which means directing generative processes towards the input presented, and later stored. Finally, memory includes the learner's prior knowledge, beliefs and experiences. Generative Learning Theory and Constructivism have influenced teaching activity around the world. Most teachers are encouraged to plan their lessons and always consider what the previous state of the learners is. Only knowing what the students already know will enable an appropriate election of materials and content.

These theories have helped instructors to improve their learning practice, or at least they have evoked a reflection about teaching. Nevertheless, understanding how the process of learning occurs inside a mind is far from being complete. Research in this area will always be welcomed as it constructs little by little a representation of what happens inside a learner's mind and how teaching can adapt and mold to improve the final goal being under study: language development.

Language Teaching Methods

The concept of *methods* has been referred to as "established methods conceptualized and constructed by experts in the field" (Kumaravadivelu, 2006, p. 84). Another concept is presented by Hilgendorf (2012), he refers to methods as a set of teaching practices by instructors to reach a learning goal. In other words, it is based on theories, follows a specific approach, and is procedural (Richards & Rodgers,

2001). The term methodologies, on the other hand, tends to refer to what teachers do inside a classroom to reach their objectives. In this sense, it is well known that teachers have applied different strategies and methodologies inside classrooms. Sometimes teachers have acted according to one method or another, and sometimes they only believe they have; nevertheless, methods tend to overlap without much consciousness (Wilbur, 2007; Long, 2009).

Stern (1983) considered that methods subsume more than one strategy (methodology), and that the theories of language teaching are the results of discussions of theorists and researchers. Every method may include individual features, objectives, teaching techniques, theoretical assumptions, and specific types of assessments. It is also important to mention that new methods emerge due to the weaknesses or a flaw of a current method, thus often it is easy to see how they overlap in some features (Kumaravadivelu, 2006). Some of the most significant methods will be mentioned and described below chronologically. The objective of the following descriptions is to present a general view of the evolution of language teaching methods and what is applied nowadays.

- The Grammar Translation Method (GT)

This method, also known as the Classical Method, entails the use of the L1 to explain grammar rules of a target language. Teachers employed the translation of texts from and to the target language (Krashen, 1987). The Grammar-Translation Method centers attention on activities focused on reading and writing of the language. It was used specially to teach classical languages such as Greek and Latin with the objective of enhancing reading proficiency or approving standardized exams. It does not include oral or communicative work, since it is not the main learning outcome for the goal of language acquisition. Although there is evidence that grammar translation has existed through the ages, it became popular in the late eighteenth century. Schools started teaching modern languages through this method. It was considered a significant mental discipline of detailed analysis and believed that learners would benefit from this mental exercise (Zimmerman, 1997).

Instruction through GT involved activities mainly based on books and, as mentioned above, cared little about speaking and listening. Teachers presented pieces of information containing a specific grammatical feature, which was targeted and explained. Then students received a small text in L1, and with the aid of a bilingual vocabulary list or dictionary, they had to translate it to L2. They became adept in dictation and translation (Rivers, 1981). It was the learner's responsibility in this case to memorize the rule and some examples.

In the Grammar Translation Method, Vocabulary was presented in long lists at the beginning of the lessons. Students were expected to learn the new words presented in text that sometimes were used in archaic structures and considered obsolete. The main activity was to translate them from and to the target language. Vo-

cabulary was not commonly recycled in other lessons and it was presented without repetition. Because of this it was difficult for students to understand its use thoroughly (Zimmerman, 1997). At the end of various years students learn a great amount of vocabulary, but they do not have opportunities to use it freely, even in written activities (Rivers, 1981).

This well-received method soon was the victim of severe critiques due to its failure in foreign language learning. Although it guides learners through the target language it does not encourage students to use it (Benati, 2018); communicative skills were overlooked and this gave a passive sense of learning, moreover pronunciation was also neglected (Brown, 2007). Students could not relate to the social nature of the language. Richards and Rodgers (2001) presented a strong critique by stating that translating requires learners to get involved in a tedious experience of memorization with the final goal of producing perfectly accurate but futile scripts.

Even though this practice is common in classical languages intruction and certainly presents itself as a challenging activity for the mind, it might not be the best method for modern languages. It was believed that its detachment from context made it hard for students to focus on the message (Krashen, 1987). It was difficult for students to perceive the new language as an interactive and socialization tool. Consequently, it could be assumed that GT would be far from an easy and appealing method of language teaching. Alternatives contrary to the GTM quickly emerged.

Despite the strong rejection movement and the fact that it deals with a great amount of memorization, grammar translation is still practiced and studied (Khan & Mansoor, 2016; Colina & Lafford, 2017; Göpferich, 2017). Teachers in classrooms have developed innovative strategies and activities to include grammar translation in classes, hoping they will not be associated with the depreciated Grammar Translation Method.

- ▪ The Direct Method (DM)

The Direct Method (DM), also known as the Natural Approach was proposed as a response to the Grammar Translation Method in the early years of the twentieth century and it was popular until World War II (Byram & Hu, 2013). The DM's greatest proponent was the German Maximilian Berlitz (1887). Berlitz believed the best way to learn a language was to replicate the context where a toddler learned his or her first language (L1). Defending that the process of language learning is intuitive and natural, learning a L2 was greatly dependent on oral input in the specific language.

In classes, teachers would provide opportunities for students to participate and engage by answering questions. As opposed to the Grammar Translation Method, the DM views translation not only as unnecessary, but also as harmful to learning. The first language needed to be abandoned as a frame of reference to give space to the development of the target language. In this sense, L1 use was avoided, and the use of the target language was highly encouraged (Howatt & Smith, 2014).

The goal of the DM is production and a proper pronunciation. Despite this method mainly entails oral skills, reading was taught throughout the course (Zimmerman, 1997). To achieve a successful utterance, it requires vast amounts of extensive listening, imitation and speaking activities; the learner would repeat the sentences and imitate the physical action of what was being said (Omaggio, 2001). This method defends that learners should acquire grammar implicitly, and that instead of translation learners need to associate the target language with objects and people of the immediate environment.

The Direct Method deeply influenced theory and practice for many decades. Nonetheless, difficulties emerged with the avoidance of translations and teaching exclusively in the target language. Condemning the use of the first language may provoke rejection towards learning and hinder the process. Furthermore it overlooked reading and writing skills (Benati, 2018). Besides the challenges it presented inside classes, this method led to various changes in language learning. Larsen-Freeman (2000) presented some implications that show evidence of these changes: teachers started to use pictures and gestures to explain and clarify concepts and vocabulary, dictation, self-correction and students had the opportunity to engage in answering questions.

- The Reading Method (RM)

The Reading Method (RM) was present in the United States as well as in Great Britain as the Situational Language Teaching. The tenet of this method is the progress of reading skills (Coleman, 1929). West (1926) thought RM would facilitate vocabulary acquisition and he believed it would be the easiest and most usable skill students could develop in the early stages of language learning. It was believed reading should be the main skill students should develop and improve especially when students had only a short time to learn the language (Rivers, 1981). Following this belief, West (1926) encouraged the use of his well-known General Service List of English Words, which contains high-frequency words.

Grammar rules are taught through reading passages and identifying structures. Moreover, comprehension is assessed through questions about the material, and although speaking and writing were not completely overlooked, they seldom were the focus of a lesson (Bond, 1953). Also, it is important to mention that the first language was not neglected for instruction as it was in the Direct Method.

Vocabulary in the Reading Method is tackled with frequency word counts; the teacher provides controlled vocabulary input in the form of written lists. Students then have to study and learn the vocabulary; words are usually grouped under themes or categories of interest. Written activities are provided with the objective opportunities to retrieve the target vocabulary (Rivers, 1981). Language learning through RM conveys the importance of reading comprehension, further it reinforces other aspects as fluency and vocabulary acquisition. As it is a technique that can be

easily self-guided, it would have gained a prolonged acceptance and popularity. Nonetheless, the urge to ease communication during World War II forced the next method to arise (Mitchell, 2002).

- The Audio-Lingual Method (ALM)

The Audio-Lingual Method (ALM) first appeared in the 1940s, it was the main language teaching method in most of the United States. Its popularity grew exponential, and as a result, by the 1960s it even became commercial and was used by universities (Rilling, 2018). The ALM presented a strict form regarding steps and procedures to follow (Celce-Murcia, 2001). The creation of this method, points to Charles Fries (1945), a professor from the University of Michigan. The difficulty regarding pronunciation and the confusion of the concept first called aural-oral method, resulted in a change of its name. For this reason, Brooks (1964) proposed the name Audio-Lingual Method.

ALM emerged as a response to the traditional methods known at that time. It is noticeable that ALM followed the trends of behaviorism in which three elements were involved in learning: stimulus, response, and feedback. Carroll (1965) presented three main ideas of the method. First, oral utterances were highly important to communicate at the time; therefore, writing became secondary. Second, the goal was to produce responses and speech without conscious attention, so fluency was highly valuable. Third, practice and repetition were the main strategies.

Learning a language is compared to acquiring a habit; therefore, it encourages listening and repeating in choral format with the objective of native-like dialogues and pronunciation (Rilling, 2018). Some ALM's learning techniques are mimicry and repetition; also, new equipment for language learning was introduced, such as magnetic tapes to listen to native speakers of the target language. Despite the learning objectives, students' interests were mostly overlooked. To develop the speaking skill, students practiced until the utterance became automatic and natural, which as mentioned was one of the main objectives. To acquire a natural speech, idiomatic expressions and colloquial forms were introduced early. Then drills were employed with a foremost focus on sentence pattern practice (Celce-Murcia, 2001).

This method presents a clear separation and order of skills. First, it focuses on listening and speaking, as it tries to resemble first language learning. Based on the focus on oral production, good pronunciation and intonation are essential skills to achieve. The skills reading and writing are suggested to be introduced after certain knowledge of the spoken form. Introducing reading or writing activities before is considered a threat to learning the language. This order was based on the belief that language was first considered spoken, hence its focus was mainly on this skill. As the regarded sequence, written activities were most encouraged for advanced levels (Brooks, 1964; Rivers, 1981).

The ALM views language as a set of structural patterns to be learned. In comparison to the Direct Method, this method does not reject explicit grammar teaching although it does not emphasize it either. It could be said that grammar is meant to be acquired inductively rather than deductively (Richards & Rodgers, 2001). Teaching through this method could be perceived as a hurdle. Specially understanding that pronunciation needs to be precise but also fluency is praised. Most times, only one of these areas can be reinforced at a time. When encouraging pronunciation, fluency may be delayed and with a great initial fluency, pronunciation may be overlooked. This can be a challenge for teachers as well as for students.

Based on the time this method arose, English was not the main target language to acquire, there were multiple languages in need to be learned and their unique differences were considered. It is important to mention that in ALM the use of the first language was limited but not restricted. The development of technology created opportunities to enrich language-learning tools as it will be perceived in the next method.

- The Audio-Visual Method (AVM)

As technology started to emerge and it became more accessible and opened to the public, schools made use of audio visualization tools. Language teachers, seeing value in these tools, did not doubt to deploy them in the classroom setting. The Audio-Visual Method (AVM) combined the visual aids with aural input to present semantic units; therefore, the Audio-Lingual Method ground is evident. These units were followed by explanations and interaction strategies like questions and answers, demonstrating, pointing, etc. Memorization was encouraged through repetition and recall. The AVM cared for grammar and phonetics rather than reading or writing. It became strong in the 1950s; hence research can be found regarding language learning and audio-visual tools during this time (Mueller, 1955; Marty, 1956; Birkmaier, 1958; Mathieu, 1962).

Mueller (1955) defended the application of this method in classrooms. He explains the benefits of incorporating visual aids in teaching, and describes this type of strategy as helpful for establishing "an association between mental image and the speech muscles". According to this author, students would gain a deeper impression of words accompanied by images. As part of this method, vocabulary was presented with an image and sentences were taken out of context to analyze them and to practice with the assistance of choral repetition. After this methodology emerged, language laboratories became popular. The use of technology inside classrooms may have seemed appealing after this proposal. Recordings would be understood as an ease of workload for teachers. What could be perceived as a possibly homogenic proposal, could in a far end, shade the significance of students' diversity? At this time, diversity and students' differences toward learning were not emphasized.

- The Cognitive Theory (CT)

The Cognitive Theory (CT) proposed in the 1960s was based on the developments of cognitive psychology. The relation between this theory and L2 learning started to emerge strongly in the 80s. Various important studies analysing this theory shed light to this relation (Anderson & Crawford, 1980; Rubin, 1981; O'Malky, Chamot, & Walker, 1987). Anderson (1984) explains that language development is a complex skill since it involves the cognitive processes of memory and learning and it is thought to have its own distinct architecture.

A clear distinction between two processes is presented in this theory. First, what is known about a given topic and second, what is known how to execute. Both areas will be explained in relation to language: The former is called Declarative Knowledge, which would consider aspects such as word definition, grammar rules, pronunciation and vocabulary. The latter would involve aspects such as the communicative competence, fluency and functional proficiency, which is called Procedural Knowledge (Chamot, 1987). Anderson and Crawford (1980) referred to them as static information in memory and dynamic information in memory, furthermore, they state that Declarative Knowledge can be acquired more easily, whereas Procedural Knowledge requires much practice and is gradually acquired. The Cognitive Theory entails a significant consideration on memory structures and its relation to learning.

The CT reoriented language teaching towards the linguistics and psycholinguistics current, initiated by Chomsky (1986) (Richards & Rodgers, 2001). It gave significant importance to grammar; consequently, it has been referred to as an enhancement of the Grammar-Translation Theory (Carroll, 1965). In addition, the CT also studied some internal structures of language learning in learners, hence there was a clear connection to the Direct Method (Hester & Diller, 1970). Richards and Rodgers (2001) noted that the CT emphasized and studied the conscious acquisition of language as a meaningful system and it searched for a mainstay in cognitive psychology and transformational grammar.

The CT approach led to the Cognitive-Code Approach. This subdivision advocated the importance of cognitive structures, and the need of meaningful practice, a holistic teaching, and its goal was to have conscious control of auditory patterns. Furthermore, content in this approach outweighs form, and grammar is supposed to be understood through inductive reasoning (Demirezen, 2014). Despite its novelty, the Cognitive-Code Approach did not welcome innovative practices.

The greatest influence of the CT approach was, perhaps, that it repaired the negative reputation of both, the Grammar-Translation Method and the Direct Method. In spite of the fact that the general objectives of the CT are very similar to the Audiolingual-Method, it gives less importance to audio-lingual skills, however. Moreover, it reinforces reading, writing, listening, and speaking. Activities in class are meant to trigger a competence in students so they can use language in mean-

ingful real-life situations. In this sense, students may develop an intellectual under-standing of their learning process and consciously noted context. Students need to focus their efforts on honing three main areas: phonetics, grammar, and vocabulary; furthermore, teachers are meant to lead students to an understanding of the target language structure (Carroll, 1965).

Diller (1978) presented four language-related principles of the CT, which are a clear contrast to the audiolingualism methodology:

- A living language is characterized by rule-governed creativity.
- The rules of grammar are psychologically real.
- Humans are especially equipped to learn languages.
- A living language is a language in which we can think.

The CT principles reinforce what has been stated above. First, language must be taught as a consciously structured system, with room to evolve. Second, automatic correct responses do not always mean they were learned by repetition only. Third, language learning is founded on biological principles; therefore, it can occur in any real situation. Finally, language can be perceived as meaningful when individuals are capable of adapting and communicating their thoughts based in real life situations. This theory drives attention to the importance of learning grammar structures, but also of the need for continuous practice to enhance Procedural Knowledge to achieve communicative competence and fluency.

- The Communicative Language Teaching Method (CLTM)

The Communicative Language Teaching Method (CLTM) arises as a reaction to language-centered theories. The previous theories have failed to address the func-tional and communicative potential of language as the main objective (Richards & Rodgers, 2001). Hymes (1972) introduced the concept Communicative Competence, highlighting the importance of the pragmatic use of a language besides its precise-ness and lack of grammatical errors.

The Communicative Competence did not reject or undervalued grammar, this competence was considered within a grammatical competence and a pragmatic competence. These two areas would imply a synergy between the correct use of language in regards to a specific context. Furthermore, aspects such as culture, gen-der, and social context were also considered (Savignon, 1991). Dell Hymes (1972) one of the most popular defenders of the *Communicative Competence* analyzed the flaws of Chomsky's (1965) vision of language. First, Hymes (1972) presented a con-trary standpoint to the vision of language learning as an internal developmental process, which was one of Chomsky's beliefs. Hymes suggested that language was continuously and overtly affected by sociocultural factors; therefore, environment and interaction could not be overlooked. Second, he defended that language learn-ers adopted more than just grammatical knowledge through interaction.

The CLTM, considered as a learner-centered, views learners' needs and proficiency as a basis for curriculum design (Kumaravadivelu, 2006). Furthermore, none of the previously mentioned theories paid enough attention to the importance of language use in real life situations and how the use of meaningful activities could enhance language learning. This theory advocates the importance of practice, since it defends that communicative skills are developed as a result of it.

Communication is not only viewed as a constituent of language learning but as a mainstay of its development. As Hymes (1972, p. 281) stated "A person who acquires communicative competence acquires both knowledge, and ability for language use". In the 1970s, linguists began to analyze and study how communication could in fact develop language learning and not the other way around (Spada, 2007). This belief is considered as the beginning of its theoretical foundation.

The focus on "communicative competence" grew strong as many authors started to view it avowedly as an undeniable aspect of language learning (Habermas, 1970; Littlewood, 1981; Savignon, 1991; Bagarić & Mihaljević, 2007). The CLTM has had important contributions. Widdowson (1983), for example, stated that communication in language teaching should not be underemphasized. On the contrary, it should be highlighted, and enhanced not as a separate aspect, but as a competence used for various purposes. Therefore, language learning would have to be linked to real communication, meaningful tasks, and interaction. Canale and Swain (1980) identified three types of knowledge involved in a communicative competence: grammar, sociolinguistics, and discourse. This appreciation was significant because it clarifies that communication does not disregard aspects such as grammar and context. At last, the advantage of this method lies in its wide range of options to adapt to a context and the individual needs of students and teachers can then adapt their activities to target a specific communicative goal (Richards & Rodgers, 2001).

The activities under the Communicative Learning Teaching Method considered those where students could negotiate the meaning and could be able to develop functional language ability through communicative events. As part of the preparation of teaching materials, vocabulary lists from word counts were included (Zimmerman, 1997). Furthermore, this Method opened an opportunity for interactive activities such as games, role-play, and small group workshops (Savignon, 1991). This approach has gained popularity in most language-teaching contexts, nevertheless it can also present some challenges. Activities which focus on interaction, can be hindered and disrupted more easily, and so, it is the teachers responsibility to be alert to each exchange of information and provide proper and accurate feedback.

Inside classrooms most teachers would claim to use the CLTM, the closeness to this approach has been constant, yet it is unknown if a communicative approach will endure for decades or just a few more years. For now, research on language learning

should continue and perhaps other methods should be studied and reviewed, given that context and technology have significantly influenced classroom dynamics.

Every theory and methodology share the notion that content is significant in language learning. Although each methodology has tried to enhance language learning this section has not centered its attention towards lexis. Therefore after this first review on how learning has been considered and how the process of teaching has changed due to research, the next section will focus on a specific aspect of language acquisition: vocabulary.

2.1.2 Vocabulary

Language learning cannot be accomplished without a proper vocabulary command. For a long time, vocabulary was relatively ignored by teachers, editors, and researchers (Meara, 1980; Allen, 1983; Zimmerman, 1997; Rupley, Logan, & Nichols, 1998; Segler, Pain, & Sorace, 2002). As a result, it was common for vocabulary to receive less attention than other aspects such as grammar, pragmatics or phonology. Nevertheless, vocabulary has been presented passively to language learners from the Grammar Translation Method with bilingual lists; to the Communicative Language Method with the proposal of word count vocabulary lists. Although vocabulary has not always received the attention it deserves, as the methods described evidenced, vocabulary is undeniably a central task for language learners.

Although students have acknowledged that vocabulary is a core component to develop and improve all skills in a L2 (Carter, 1987; Laufer, 1997) it has commonly been surpassed by other aspects of language learning (Reynolds, 2018). Various authors highlight its importance; the following are the most mentioned. Wilkins (1972, p. 111) states, "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed". In other words, language cannot be understood without an accurate use of vocabulary. Second, Brown Dale (2011) confirms this by noting that dictionaries are essential tools in language learning, and their use are more common than grammar books. Which is true, even in the digital era it is more probable that students will have an phone application with a dictionary than an application with a grammar guide. Last, Widdowson (1978) considers that native speakers can better understand a foreign language learner with grammar mistakes than vocabulary mistakes. If the vocabulary is accurate, despite grammatical errors the message will probably transmit.

Based on vocabulary significance in language learning and the focus of the present study, this section considers the main aspects regarding vocabulary. First, the concept of vocabulary and how the learner's mind acquires vocabulary will be presented. Word learnability will also be tackled to understand how specific features of

a word may influence its learning burden. Finally, teaching and learning strategies that can be used to enhance vocabulary length and breath will be explained.

What is vocabulary?

To present the concept of vocabulary, it is important to consider that the term "vocabulary" involves more than a single word; set phrases, variable phrases, phrasal verbs, and idioms are also considered vocabulary (Folse, 2004). Knowing a word, as mentioned by Nation (2001), is much more than just identifying its meaning in L1, and so, following this first step learning vocabulary should always be incremental (Schmitt & Zimmerman, 2002). It has been commonly mentioned how the amount of words known by a learner could suggest the level on which he or she is (CEFR). Nevertheless, Schmitt (2014) goes beyond how many words a learner has in his repertoire (vocabulary breadth), to analyzing how well a word is known (vocabulary depth). He explains the depth of a word in four different aspects: collocations, derivative forms, parts of speech, and polysemous meanings, which will be explained next.

First, collocations refer to words that combine or go together (Tsai, 2020). Collocations are the second most important aspect for a learner to acquire, after the obvious knowledge of the meaning of the word (Folse, 2004). Particularly verb collocations are the hardest for foreign language learners since they tend to decode and produce an utterance by a word-by-word process (Laufer & Waldman, 2011). Furthermore, verbs tend to have a myriad collocations with very distinct meanings and this can confuse the learner.

Second, derivative forms of words can have a small change in spelling and therefore mean a different part of speech. The most common change is the addition of -ly, which can turn an adjective to an adverb (E.g. Sad-Sadly), this aspect is related to morphology and is closely linked to word families (Schmitt & Zimmerman, 2002).

A third aspect to mention is parts of speech. This is also known as word classes or categories. Parts of speech explains how a word is used in a sentence, or, what is a word's role in a sentence; thus, a word by itself usually does not give enough information to infer which part of speech it is (noun, pronoun, verb, etc.) (Haslam, 2019).

At last, the polysemic meaning which entails that some words have multiple meanings, especially many of the high frequency words. It is important to be aware of the meanings a word can have since its meaning aids to develop lexical networks (Wesche & Paribakht, 1996). This can be challenging not only for beginner students but also for advanced (Lennon, 1996).

Other aspects regarding word knowledge considered important by various authors such as Nation (2001), Kucan (2012), and Folse (2004) are presented below:

- Spelling: is in clear relation to orthography and how the word is written. Since English is a language with a low letter-to-sound correlation, this may be one of the most challenging aspects of vocabulary learning for foreign language students.

- Connotation: every word has a connotation and a denotation. The term denotation refers to the meaning of the word, while the term connotation is related to an associated meaning or idea that comes to mind when perceiving the word, it can be a social or subjective feeling linked to the word; ergo, this may vary.

- Frequency of occurrence of a word: although it may seem irrelevant, it is an important aspect to acquire. Foreign language learners should know which words are better used in certain contexts. There are words that although have the same meaning as another, because they are low frequency words, can sound forced or unnatural when used.

- Usage: a language learner needs to distinguish when should a word be used instead of another one. For example, there are words that can be more appropriate to use in speaking or in an informal conversation. On the other hand, some words are better suited for formal utterance such as academic writing, interviews, etc.

Furthermore, it has been considered that vocabulary learning follows a learning path. This hierarchy of difficulty mentioned by Laufer and Goldstein (2004) defended that vocabulary acquisition begins with passive recognition, which is the easiest step. In passive recognition students need to be able to identify the meaning in L1 of the target word. Then, students can engage with active recognition, where a description of the word is given and the learner needs to find the word that fits with the concept. Four, in passive recall the learner is able to demonstrate this understanding of the word when it is embedded in an incomplete phrase, which the learner needs to complete with the correct word. Finally, in active recall the learner needs to complete an incomplete sentence with the target word, which is missing.

What is a Word?

Łyda and Drożdż (2014) probably present the simplest concept of the term *word*. They considered a word to be a unit, which carries a meaning. A similar concept is shared by Bogaards (2001), who determined words to be lexical units with no spaces within them and separated from other words. Meara (1992), on the other hand, considers these concepts may be too simplistic. He stated that a word is not a broken and fixed unit; it should rather be seen in a network of associations with other words since sometimes one word is even formed by two words (compounds). This is further elaborated by Delahunty and Garvey (2003). They considered the relation that words can have in two different directions. First, an upward direction with larger

units forming phrases and a downward direction that considers their constituent morphemes.

Many authors have considered that words bear dimensional features (Richards, 1976; McCarthy, 1990; Suh, 1991; Meara, 1996). Acquiring a word may, therefore, be recognized as a dynamic process (McCarthy, 1990). Nation (2013) in addition, has shared the idea that a word comprises multiple systems: the affixation system, the sound system, the spelling system, collocation, the grammatical system, and lexical sets. This compelling process takes place in the learner's mind and it can be assumed that it is not an easy and automatic skill to develop.

Learners store words in their mind; they use their mental lexicon to recognize, store, recycle, or even ignore words (Marslen-Wilson, Tyler, Waksler, & Older, 1994). What is unknown is if the duality of words, each of them containing *forms* and *meanings*, are stored as a unit or are separated in the mental lexicon. Despite this, it is important to consider and acknowledge the presence of these two aspects and their subsequent dimensions. The first one, *forms,* includes grammar, spelling, and pronunciation of a word. The *meaning,* on the contrary, encompasses connotation, denotation, semantic value, and cultural uses (Shen, 2001). Based on this duality, a word should not be perceived as a simplistic and individual unit. It deems various dimensions and systems that construct a complex and intertwined cognitive network.

The work of Jack Richards (1976) regarding word knowledge has been highly cited. He presented eight assumptions of vocabulary knowledge. The first assumption mentions that vocabulary knowledge expands throughout life. The next seven assumptions, defend that word knowledge should meet the following criteria:

1. To know its frequency of appearance. The context on which it appears and the connection to other words.
2. To know its limitations regarding variations and usability.
3. To know its syntax.
4. To know its underlying forms and its derivatives.
5. To know its semantic value.
6. To know its word association.
7. To know its many different meanings.

Many studies have referenced this conception of word knowledge in foreign language learning. It confirms that knowing a word goes beyond knowing its meaning. Each of the criteria above presents its own challenges and opens opportunities to adopt into the process of vocabulary development.

Nation in 2001, building on Richards (1976) work, presented nine aspects that are organized in three different areas: form, meaning, and use. This work provided a more complete view of the aspects included in knowing a word.

Figure 2. Areas of vocabulary knowledge (Nation, 2001)

As Figure 2 visually summarizes, vocabulary knowledge can be described in three main areas according to Nation (2001). These areas encompass nine aspects of vocabulary learning, three in each area. Each one could be classified in (1) productive or (2) receptive language; therefore, the total of aspects to study are 18. The learning burden of a word can be related to this proposal and its nine features. Nevertheless, other factors such as how close the word relates to its L1 translation, previous knowledge of other languages, etc., are also involved. Therefore, Łyda and Drożdż' (2014) concept perhaps is not the most appropriate; a word may no longer be considered a unit with a meaning. Another side to consider is related to the levels of the meaning of a word, this will be mentioned in the following paragraphs.

Beheydt (1987) presented that the meanings of a word are studied in three general levels. His classification refers to how words can be analyzed by the way a learner perceives them in different contexts. These are: in a decontextualized manner, semi contextual or considering the context in which it is presented. The three levels are detailed next:

- First, words in isolation. This refers to when a word is presented by itself, its form, spelling, and pronunciation can represent different meanings. In this level it is imperative that the learner knows the word by its correct spelling, form, pronunciation and at least one meaning.

- Second, the word is seen syntagmatically, as it relates to other words. This second level considers grammar through collocations with other words, including idioms and phrases that present a fixed structure. It also includes semantics, regarding the relation a word can have to other words, for example synonym, antonymy, hyponymy, or polysemy. In this sense, when a word is presented with other words it can vary and change its original meaning.

- Third, when a word is in a sentence. Its meaning in this case can be interpreted flexibly. In this level, aspects of connotation are evaluated to give a meaning to the word.

Language learners may think that learning a word is rather a simple memorization task; nevertheless, while words are mostly found in context there tends to be a wide range of aspects that ought to be considered. Hence, words should not only be considered isolated units of language, but it is necessary to contemplate its pragmatics, syntax, semantics and phonology (Nation, 2013). Words have also been studied through their parts (Wei, 2014; Sasao & Webb, 2015; Laufer, 2017). Moreover, words' inquiry is conducted from two different perspectives. On one hand, linguistics and semanticists pay attention to the nature of a word, analyzing the features of a word more than considering context and relation to other words (Lyon, 1977). Psycholinguistics, on the other hand, are interested in learning how words are organized inside the learners' mind and how their dynamics occur in relation to other words (Channell, 1988). Therefore, literature is influenced depending on the scope. The next section will focus on the psycholinguistic perspective. It will explain what research has presented regarding the relation between vocabulary acquisition and the learners' mind.

The learner's mind

Learners may not be fully conscious of how their mind works when acquiring a new language. Nevertheless, this process has been studied to understand how learning occurs. This area of research is commonly studied in the fields of psycholinguistics and neurolinguistics. These two fields can sometimes be difficult to differentiate. The term psycholinguistics contemplates the study of how language is acquired and used supported by cognitive processes (Schmitt, 2010). On the other hand, the term neurolinguistics considers the integration of biological and neurophysiological foundations of language with the role it plays within a cultural and psychological context (Thatcher & MacQueen, 1980). In other words, psycholinguistics studies the function of language in the brain and neurolinguistics studies what happens in the brain when language is being learned and used, and how language is stored. The storage of language is commonly linked to the term "mental lexicon".

The term *mental lexicon* started a debate about what it was and how it processed and stored language. This initial discussion considered mainly language learning in native speakers. Nevertheless, the information collected throughout inquiry can provide insight on how vocabulary, besides in the L1, is acquired. There have been different considerations regarding how language-learning acquisition is perceived as a cognitive activity. The theories regarding mental lexicon vary from the existence of multiple lexicons, to only one lexicon, to the non-lexicon view.

The evidence for multiple lexicons is strongly supported by studies related to cognitive communication disorder presented in people with aphasia, semantic dementia, Alzheimer, Parkinson and Huntington's disease, etc. (Lent, 2004; Ullman, 2004). In the studies, researchers have been able to identify that when one of the brain areas is injured, another area seems to work independently. Teichmann et al., (2012) studied patients with semantic dementia, which evidenced a distinction between semantic and lexical lexicon. They were not able to recall the definition of common words; nevertheless they had no impediment in completing anagrams. Research criteria of multiple lexicons vary between authors, some of the most common proposals are: semantic vs. lexical, orthographic vs. phonological, lexical vs. grammatical. Furthermore, there are other studies, which even defend the existence of different metal lexicons for each language, when referring to bilingualism (Lambert, Ignatow, & Krauthamer, 1968).

On the other hand, the existence of only one mental lexicon with various levels within is also defended. The Interactive Activation Model proposes that the lexicon is organized in interactive levels, which trigger each other based on the stimuli (McClelland & Elman, 1986). This view is characterized by the connectionists' models, which defend unified processes and complementary operations in a single lexicon (de Sousa & Gabriel, 2015).

The third theory proposed a no-lexicon view. This trend initially bases its beliefs in the connectionism theory, but it takes this view further by establishing that all the information levels of language are interconnected in the same network. According to de Soussa and Gabriel (2015, p. 349) the no-lexicon view defends that "there is no lexical access, no lexical retrieval and no lexical integration. There is the activation of different levels of information in a network". Dilkina, McClelland and Plautc (2010), defend that the lexical information is not segmented but unified; it interacts and presents language in a common integrative representation network.

Despite the three different approaches to understanding vocabulary mental storage, there is still a lack of a conclusive perspective. What is easy to affirm is that vocabulary is somehow saved in the learners' mind and where vocabulary is stored is far from being a fixed structure. A learners' mental lexicon will never be static; since words are continuously being received and adapted to a preexistent lexical structure and others may be forgotten temporarily or get lost if they are no longer

retrieved and used (Schmitt, 1998). The mental lexicon is not the only subject studied in relation to the learners' mind, the classification of language skills and the effort each of them represent has also been analyzed by academics and their perception varies.

First, some authors believe that productive skills such as speaking and writing require an active mental performance by the learner, whereas receptive skills like listening or reading are viewed as passive (Palmer, 1921; West, 1953). Nevertheless, Nation (2001) criticizes this perception, since it is not clear why it is assumed that receptive skills do not require an active mental effort from the learner. In the same manner, this distinction between the terminology of passive and active alludes to a contrast between vocabulary knowledge, which according to (Kersten, 2010) does not exist.

Second, this dichotomy has been given a different meaning when referring to vocabulary knowledge. For instance, Corson (1995) states that vocabulary knowledge cannot be classified as passive or active. He explains that "passive vocabulary includes the active vocabulary and three other kinds of vocabulary: words that are only partly known, low frequency words not readily available for use and words that are avoided in active use" (1995, p. 179). Other classifications like Laufer (1997), consider vocabulary as passive, controlled active, and free active. Therefore it is evident that vocabulary knowledge can be considered as a continuum with different levels rather than a dichotomy of passive and active vocabulary. Laufer and Goldstein (2004), as described in a previous section, defend the distinction between passive and active. The different degrees in a hierarchy of difficulty are referred to as "strength of knowledge". The authors studied vocabulary knowledge through four different types of testing. They included four levels, which they analyzed, from the hardest to the easiest: passive recognition, active recognition, passive recall and at last, active recall. In their study they considered that when the form is requested, active knowledge is presented in the learner; but when the meaning is requested the knowledge presented is passive. Furthermore, the difference between recall and recognition is clearly stated. Vocabulary recall happens when the form or the meaning is being demanded, and vocabulary recognition is when the learner can identify the correct meaning or the correct form of the word among four options.

Additionally, this dichotomy has also been referred to as productive and receptive vocabulary, which has provided a straightforward distinction. Researchers have addressed the relation of what happens inside a learner's mind regarding the difference between productive *vs.* receptive vocabulary and the L1-L2 relation (Corson, 1995; Vagh, Pan, & Mancilla-Martinez, 2009; Schmitt, 2010). As mentioned, receptive vocabulary considers words that come as input to the student either through listening or reading, and the student's ability to recognize or comprehend words. Productive vocabulary considers how learners use the word through speaking or writing.

Both processes involve recognition and recall. Receptive vocabulary includes meaning recognition and meaning recall, and productive vocabulary includes form recognition and form recall (Schmitt, 2010). Hence, both processes can be active in the mental lexicon, just as Nation (2001) suggested.

Receptive and productive vocabulary learning can also be considered into steps where receptive precedes productive vocabulary (Channell, 1988). Nevertheless, it may happen that a learner uses a word that has been learned by oral repetition and does not quite understand its meaning. Therefore, it could be difficult to generalize an order, and the boundaries between receptive and productive may not be as clear as it was thought to be. At last, learning a word is a cumulative process; therefore trying to explain what it means to know a word can be complex. Both, the receptive or productive perspective are involved in acquiring a word within the three main components presented by Nation (2001). Figure 3 outlines the components and their connection to the receptive and productive phase (Nation, 2013)
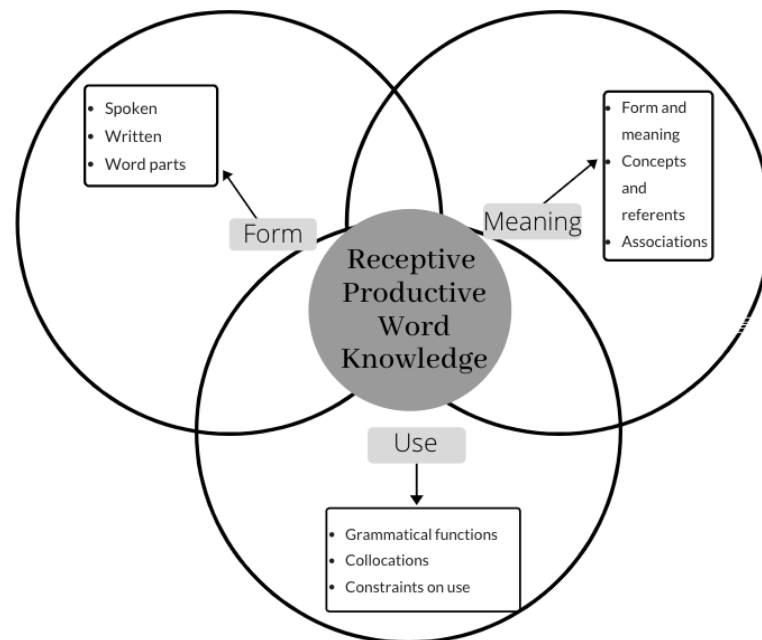
Figure 3 Word knowledge in receptive and productive vocabulary (Nation, 2013)

Another aspect that emerges when studying vocabulary development is the number of words needed to reach a certain plateau. The number of words a learner

should acquire for distinct activities has also drawn attention in Second Language Vocabulary research. For example, researchers have been able to study how many words a learner needs to have a conversation, to read authentic materials, and to study in higher education (Nation, 2013). From these studies vocabulary lists and frequency classifications have emerged. Although most language instructors might be familiar with this particular organized vocabulary tool, it should not be expected that the learner acquire the vocabulary size of a native speaker. The number of words a native speaker who is involved in an institute of higher education is 15,000 to 20,000. The large number of words can be overwhelming to any foreign language student (Nation, 2013). Nevertheless, word lists are important since they can provide a new insight to what vocabulary should be included in the curriculum.

Although there are various lists that classify words, it is necessary to know what do the authors consider as words. Word lists may be different depending on whether they are including tokens, types or lemmas (Nation, 2013). The most common list that could be used for foreign language learners would probably be a high frequency word list, since it is relatively small and it covers a large percentage (90%) of running words in productive language (Nation, 2013). This list usually covers around 3000 word families (Schmitt & Schmitt, 2014), the most widespread list is the one presented by Michael West's (1953).

Another way to classify words has been presented based on the Common European Framework of Reference, known as CERF. Milton (Milton, 2010), defends in his study that vocabulary learning development can be linked to the levels of the CEFR, in his study he explains that the amount of words that a learner should know by level is dependent to the target language and he explains that vocabulary measurement in learners could give a prediction of the CEFR level. This Framework has not developed a list of vocabulary a learner should know at each of its six levels. Nevertheless, this demand has been compensated by various proposals.

The English Profile (2015), sponsored by the Lifelong Learning Programme of the European Union, is an online tool that presents a word bank that learners should know according to the six levels of this Framework. The Oxford Advanced Learner's Dictionary website (OALD) (2020) also presents its version of vocabulary lists, it is divided into six levels and it is presented in two different word lists 3000 and 5000.

It can be challenging to understand how much a learner knows about each word (breadth *vs.* depth) and how words are organized in the learner's mental lexicon. Consequently, research on cognitive activity and language learning are still needed. Regarding vocabulary classification and its connection to the CEFR level, this could help teachers and students as guidance through the learning process; nevertheless, as it will be shown, this classification is not supported by the CEFR. Their suggestion is that vocabulary should be based on the purposes of the learner, and so it has been evidenced in the vocabulary lists presented on language text-

books, which recycle and mix vocabulary from different levels. Despite the information given about the mental lexicon, vocabulary learning also depends on intralexical factors. Each word possesses specific and unique features, which, as will be presented, can affect its learning burden.

Word learnability

The complexity of vocabulary suggests that multiple aspects should be considered when analysing how lexical items could be taught better. To understand how specific language features affect vocabulary learnability can lead to a better teaching process (Cvikic, 2007). The following section will explain how their own particular aspects resulting in an easier or more complex learning process affects words. These intralexical factors can help to explain why some words are more difficult or easier to acquire than others. The next paragraphs will suggest how phonological, grammatical, morphological, and semantic features of words can influence its learnability. Furthermore, aspects such as word length and synformy will also be taken into account.

- ▪ Phonological features

Phonology is an area of linguistics that studies how the sounds of a word are organized. Depending on the sound sequence and features a word present it can ease or difficult its acquisition. This will depend on a word's phonemes, combination of phonemes and suprasegmental features like stress and intonation. Hence, vocabulary learning from a foreign language will imply becoming familiarized with a novel phonological sequence (Kovács & Racsmány, 2008).

The resemblance and familiarity of a new word with the L1 phonological system will also play a role in learning a new word. Therefore, it could be stated that the learner's L1 linguistic system will influence his or her learning burden; assuming that the closest a foreign word sounds to its translation in the L1 the easiest this word will be acquired (Laufer & Shmueli, 1997). For example, between the word *tedious* and *dull*, a Spanish speaker learning English may choose to use the former due to its similarity to the word *Tedioso*, and hence evidence avoidance of phonologically difficult words (Levenston, 1979). Also, these learners may encounter some difficulty with similar pair words like *bit/beat*, *not/note* or *pull/pool* due to the phonological similarity effect (Coltheart, 1993). Furthermore, Rodgers (1969) discovered that English-speakers learning Russian reported that words that did not present familiar sound combinations were more difficult to learn. Similar results are presented in a more recent study (Kovács & Racsmány, 2008), 40 undergraduate students from Hungary participated in their study. They assessed how their learning of novel words would be affected by four word phonological conditions.

(a) High-probability L1 nonwords, which entirely conformed to the phonological constraints of Hungarian and utilized common phoneme sequences; (b) low-

probability L1 nonwords, which were legal in terms of the phonology of Hungarian but contained low-frequency consonant clusters; (c) nonwords containing illegal consonant clusters that violate obligatory assimilation rules of the Hungarian language; (d) nonwords containing foreign consonants that do not occur in the phoneme inventory of Hungarian (Kovács & Racsmány, 2008, p. 602).

Kovács and Racsmány (2008) found significant decrease in score with condition C. Concluding that the presence of non-L1 sound sequence caused the highest detrimental effect in word acquisition. Phonological regularity could therefore predict a facilitating factor for a positive vocabulary-learning outcome (Laufer, 1989).

Through research it is clear that a word is perceived by its sound and this influences its learnability. This explains why some learned can guess or assume the meaning of some words in another language. Although this may seem like a benefit for their learning, when words sound alike, but do not have the same or similar meaning can cause some hurdle in their learning process. It is important to expose students to these differences and similarities and provide proper scaffolding when possible.

- Grammatical influence

When vocabulary is studied and researched, it may not overtly present its connection with the grammatical aspect. Nevertheless, grammar plays an important role and it is commonly studied as part of vocabulary learning. When this skill is considered in regards to vocabulary, parts of speech are taken into account. There have been studies describing that nouns are easier to learn than verbs, adjectives and especially adverbs. For example, Morgan and Bonham (1994) studied the influence of parts of speech in vocabulary learning in 148 students. Through two different methods they assessed nouns, pronouns, verbs, adjectives, adverbs, prepositions, articles, conjunctions, and interjections. Over a sixteen-week period this vocabulary was exposed to students. Results presented that nouns were easier to learn than the rest of parts of speech; these results are in line with Phillip (1981). Although Phillip (1981) discovered that the effect of parts of speech lessened when proficiency increased. This could occur based on the ability of language learners to differentiate the role of each word and having a clear sense of how the inner rules of the target language.

Parts of speech also played an important aspect when learning a different part of speech of the same word. Students may get confused or recall only one part of speech of a word as reported by Odlin and Natalico (1982). It may be suggested that the part of speech students would remember the most would be the one that relates closer to their L1 language. This would explain for example, why Spanish speakers learning Italian might find reflexive verbs like *pettinare* (peinarse) easier to learn than English Speakers.

- Morphology features

The constituents of a word can directly impact the learning burden; therefore, understanding how word parts can affect learners' vocabulary development can be significant (Nation, 2013). For example, the number of morphemic features in a word can influence the learning burden of a learner. It would be helpful that students learn to identify parts of words (Bauer & Lauire, 1983; Delahunty & Garvey, 2003).

A morpheme is the smallest unit in a language and it can stand-alone and/or it can have affixes. There are three main affixes: prefixes, infixes and suffixes. Prefixes are morphemes that start a word. Indexes go in the middle of the word; nevertheless English does not have infixes. And third, suffixes which are added at the end of a word. There are free morphemes and bound morphemes. This classification depends on whether the unit of the word can stand alone or not. For example, the word *cats* is composed of two morphemes: *cat* which is a free morpheme and *s* which means that the word is plural, as a bound morpheme. Both types of morphemes present a meaning by themself, when a word does not present affixes it is also known as a root. Since affixes are not lexical categories, they cannot be roots. A root is a single morpheme that provides the basic meaning and cannot be further analyzable. There are two types of bound morphemes, depending on how they affect the root. Inflectional morphemes and derivational morphemes, both will be explained in the next paragraphs.

Inflectional morphemes do not create separate words but modify the word to which they appear. This indicates grammatical properties like tense, number, and degree. There are various types of English Inflectional Morphemes:

- Nouns: plural (s)
- Noun phrases: genitive/possessive ('s)
- Adjectives/Adverbs: comparative (er), superlative (est)
- Verbs: 3rd person singular (s), past tense (ed), progressive/present participle (ing), past participle (en)

The difference in inflexional morphemes between languages can produce learning difficulty. English has many irregular forms; therefore, not all words adopt these inflectional morphemes. The irregularity of an item, for example plural forms or gender differences causes a heavier learning load for foreign learners of the language (Laufer, 1997).

Derivational morphemes create separate words and alter the category and meaning of the original word or the root, but the words are still morphologically related. This can produce consonant changes or changes in the stress in a vowel, etc. It can also occur in the form of a prefix or a suffix. For example in the English word *Teach* - the suffix *er* is added to turn the verb to the noun *teacher.* If the learners have the ability to identify words' morphemes, they will be able to recognize the

new word and its subsequent production (Laufer, 1997). Nevertheless, there are also irregularities present in derivational morphemes, which may cause confusion among learners, for instance, the collocations of suffixes and affixes. Some words may present a word with two morphemes that can be familiar, but their combination is not the sum of its meanings. Laufer (1997, p. 11) calls this situation a deceptive transparency, she states that "a deceptively transparent word as a word which seems to provide clues to its meaning but does not"

Sometimes the concepts of stem and base can be confused or can be thought they mean the same, nevertheless they present a fundamental difference. A stem deals with inflectional affixes. It is the word that is left when the inflectional affixes are removed. A base is any form that can take on an affix; therefore, any root may be referred to as base, but not every base is a root.

- Synformy

Laufer (1989) stated the term synforms to include words that present similarity in sound (synphones), script (syngraphs), or morphology (synmorphs). She presents the concept of synformy as "the phenomenon of form similarity between words" (Laufer, 1989, p. 117). The resemblance of an L1 and a L2 word can cause confusion among learners. This can imply that learners can present acoustic encoding interferences (Laufer, 1997).

Laufer (1989, pp. 120-121), in her publication *The concept of synforms (similar lexical forms) in vocabulary acquisition,* presents ten different categories of synforms, which will be described in Figure 4
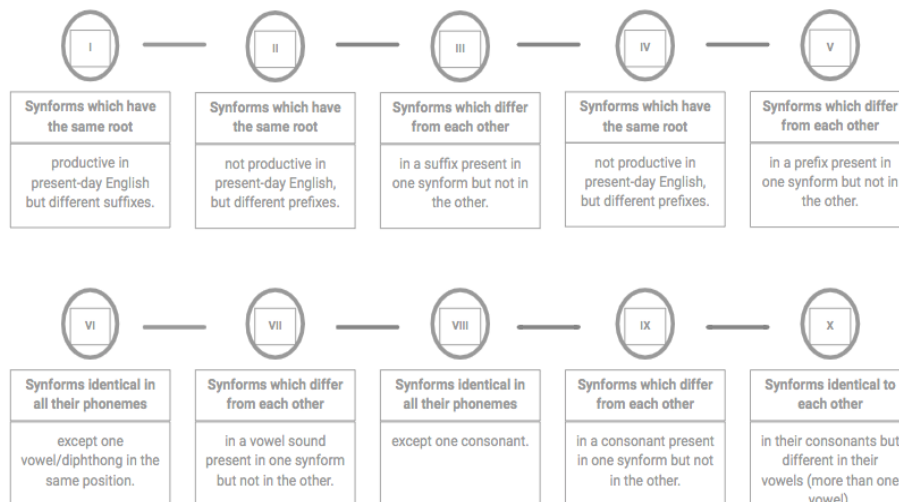
Figure 4 Synformy categories (Laufer, 1989)

Laufer's study (1989) evidenced among the results from 500 participants that the most problematic synforms were the ones that did not present similar suffixes and the synforms that had identical consonants but differed in vowels. This brings interesting data to assess and consider in vocabulary learning. Presenting synforms at the same time could produce confusion among learners. In this case, it would be best to follow what Folse (2004) mentions, and not introduce similar words in the same set of vocabulary to be learned.

- ▪ Semantics

The meaning of a word can be simpler to acquire if it is related with its mental picture, or with a phonetic correctness. For example, the word *apple* may be easier to recall because of a mental image that could be created of a red, round and juicy apple, or the Apple brand logo. Another example could be the word crack or snore, which are closely linked to the sound they represent. Words would be considered concrete if the mental picture of the word is represented in the learner's verbal system and are connected to the imaginal system (de Groot, Dannenburg, & van Hell, 1994). Abstract words, on the other hand, have a reputation of being harder to learn and they are perceived as more complex (Altarriba, 2003) due to their intangible attributes (Higa, 1965). This presents a clear logic for a L1 learner, nevertheless, according to Laufer (1997); there is not enough evidence to support this claim.

Other lexical items tend to be studied and recognized when learning a language such as compound words and multi-word units. Although, as it will be perceived, these concepts tend to overlap and it can be difficult to draw a line because they have a common function as lexical items (Bauer, 2019).

First, compound words are a combination of two words that together function as a single unit of meaning. For example star and fish, their meanings form the word starfish, this compound, as separate words are very different from the meaning they form by being together. Other common examples can be: *cupcake, playground,* and *hotdog*. Compounds can be formed with different combinations, some of them are: two nouns (n+n), an adjective and a noun (a+n), other word classes and a noun (o+n), two adjectives (a+a), etc.

Second, multi-word units, as defined by Grant and Bauer (2004, p. 38) are "a fixed and recurrent pattern of lexical material sanctioned by usage". Multi-word unit is a broad term that can include idioms, formulae, etc. (Moon, 2015). Phrasal lexeme is another term commonly used to refer to the same concept. Since there seems to be a blurry delimitation regarding multi-words units, Moon (2015) proposed multi-words items in a continuum. Based on the frequency of appearance, idioms may be one of the most common multi-word units that language learners are introduced to. This follows the Communicative Method, since it searches to introduce real life situations and commonly used expressions in their lessons.

If the meaning of the words clearly constructs the meaning of the whole phrase, then the phrase can be considered compositional, otherwise, it will not. When a phrase is not compositional, it can be either figurative or a core idiom. It is figurative when despite the parts not giving a clear meaning the receptor can reinterpret and make sense of the phrase, ex: two birds with one stone. Additionally, if it is not figurative, then it is classified as a core idiom. This would imply that the meaning of its parts does not resemble the meaning of the whole, therefore its interpretation must be taught since it is not easily assumed. An example of this could be to kick the bucket. Since the nature of figuratives, core idioms and literals is very different, the learning approach may also have to differ.

A semantic study of a word can be developed from the basic idea that lexical idioms can be divided into different components, features or markers (Lehrer, 1974). Despite the predicament multi-word units may cause, Nation (2013) defends that for language learners it is important to learn these, as well as compound words since for many words there is a typical pattern in which they appear. The benefit of considering multi-word units could result in an improvement in grammar, native like utterances, fluency and it will motivate students to start communicating early (Palmer, 1925). Nevertheless, idioms are much more difficult to learn for a L2 or FL learner than single-words (Rukholm, 2011). The learner may not benefit at all from knowing the meanings of every word, since they might not provide any key to the meaning of the whole phrase and would wrongly try to guess the meaning from its parts (Bensoussan & Laufer, 1984). For example, learners may prefer to use the phrase *I am not longer in trouble* than the expression *off the hook*. Learners tend to use idiomatic expressions if they possess a metaphorical meaning (Hulstijn & Marchena, 1989).

Polysemy on words can also affect vocabulary-learning burden. A polysemic word is one that presents various meanings, while conserving its form. When the meanings are related to one another it is considered a homonym; on the other hand, if they are not related or present a clear connection this word is called a polyseme.

A clear example would be the word *down* in the following sentences: - Olivia came *down* the stairs. / - Olivia is covered with a *down* blanket. There is not a clear relation between the meanings of the word *down*. This is a case of a homonym. The second example refers to the polysemy word: *good*. Mark is a *good* man. He always helps people in need. / Joseph is a *good* teacher. He is very patient. The first *good* refers to a moral judgment, and the latter to a judgment of skill. The difference between these two concepts can elicit some confusion and sometimes it may be difficult even for lexicographers to decide if a word is a homonym or a polysemy (Laufer, 1990). Learners tend to avoid words that present meanings that do not relate. Bensoussan and Laufer (1984), in their study of lexical guessing in context, evidenced that learners presented more mistakes in words with multiple meanings. Those who

acquired one of the meanings of a polysemy previously, had difficulty abandoning the preconceived meaning even when it did not fit in the context.

- Length

The perception that word length influences vocabulary learning burden could be deemed to be only that, a perception. Evidence does not support this assumption, findings from various studies present that there is not a direct influence between word length and its learnability. For example, Rodgers (1969) studied if the number of syllables per word would affect word learnability among Russian students of English using word-pairs. His results suggested that word length is not a significant factor for its learning burden. It is not yet clear if the selected words for Rodgers (1969) study were equal in the rest of the influential features of words such as part of speech, semantics, orthography, etc. Also, Culligan (2015) in his study evidenced only a moderate correlation of the number of letters, phonemes and syllables a word presented and its learnability. Alsaif and Milton (2012), on the other hand, in their analysis of 3748 word families in English and its learnability among Arabic students, found significant correlation between word length and its learnability. Nevertheless, they suggested that other factors such as concreteness and repetition could have also played a great role in the results from the participants.

Perhaps, morphemes similarity may play a significant part in word length. For example, for a Spanish speaker the word *interesting,* which translates to *interesante*, even though it is a long word, may present less challenge for the learner than the word *hut*. Although the noun *hut* presents significantly less syllables than *interesting,* its translation *choza* presents no similarity and hence its learning burden may increase. Therefore, the influence of word length as an influential learning factor has yet to be established. Most studies have failed to assess the myriad of features included in vocabulary learnability simultaneously. Higa (1965) considers that besides the intrinsic difficulty a word presents, it should also be deemed the interaction between previously learned words: the interaction within groups of words to be learned at the same time; the interaction between groups of words to be learned in sequence; and, the effect of frequency of appearance of words.

Continuing with lexical learning and in regards to the scope of this study, the process of teaching vocabulary and how this process can be improved is of great importance. Thus, the next paragraphs will present some basic research findings that should be a mainstay in vocabulary teaching.

Teaching vocabulary

The process of vocabulary teaching should draw attention to language instructors. Although it might seem an intuitive practice, research has evidenced helpful strategies that would enhance learners' lexical repertoire. But before analyzing the

contribution made by science, it is necessary to contemplate the path they have gone through in order to promote their findings.

Some beliefs about vocabulary learning have come from studying first language development in infants. Nevertheless, there are clear distinctions between first language and foreign vocabulary development. Nation (2013) shares three distinctions: first, by the age of five, native language learners have reached a repertoire of 3000 to 4000 words. On the contrary, second language learners usually start later and with none or very few L2 words. Second, the stimuli and feedback from the milieu or learning environment differ greatly. Native learners have myriad opportunities to increase and develop a language, whereas foreign language learners are most likely to have a designated instruction time and very limited practice, especially if the learner is in a school setting taking English as part of the curricula. Third, foreign language learners will have limited time to learn and practice the language, since the time frame to progress into fluency or proficiency is usually fixed. Based on these differences, teachers have hitherto sought effective teaching techniques that can improve the students' learning process.

Vocabulary teaching tends to inextricably relate to the language-learning trend of the time. Many authors have defended the idea of relating vocabulary learning to memory processing such as Craik and Lockhart (1972). According to these authors, the deeper the information is processes, the longer this will last in memory and this can be studied within levels and the consideration of memory as a result of what happens when information is processed is their main notion of this theory. They present two different levels of processing.

- *Shallow Processing*:
  - Structural processing, which considers the appearance of a word, how it looks.
  - Phonemic processing, on the other hand, relates directly to the sound of the word.
- *Deep Processing:*
  - Semantic processing, which occurs when we can relate this new word with different words with similar meaning and we can encode the meaning.

Therefore, this implies that how information is encoded can influence how long we can remember the input. It will depend on how the information is processed in our mind.

Since Task-based learning has gained strength and become very popular since the late 80s (Ellis, 2009), it has recently been used to tackle vocabulary learning. Research has been conducted to analyze how different types of tasks result in distinct levels of learning. Hulstijn and Laufer (2001) explain this effect through the Involvement Load Hypothesis. They defend that the retention of words is related and influ-

enced by the amount and type of task-induced involvement. This would mean that the more students are involved with the activity and manipulating the words consciously, the easier students will be able to transfer knowledge to long-term memory. The three levels of processing included and assessed at this hypothesis are: *Need*, *Search*, and *Evaluation*. *Need* refers to the necessity to understand or use a word to accomplish a particular task. *Search* is the action conducted by the learner to find the meaning of the word. And *Evaluation* decides whether the chosen word/meaning fits in the context and collaborates to achieve the task. Their results defend the importance of the involvement load, since they evidenced that the higher the involvement the better the vocabulary development.

Nation and Webb (2011) present other areas, which influence vocabulary teaching and its development. They proposed a Technique Feature Analysis to analyse vocabulary-related tasks. This checklist considers five areas to assess, which includes: motivation, noticing, retrieval, generation and retention. Through this evaluation, instructors can analyse whether their task proposals will generate a vocabulary development. Each category has between three to four yes/no questions, for every positive response the task obtains one point, out of a total of 18. This tool has been used to corroborate vocabulary-learning proposals. Three of the five areas mentioned in their study were considered by Nation (2013) a few years later. He then defended that vocabulary teaching should focus on noticing, retrieval, and creative processing. These three steps are important to analyze since teachers could enhance learning just by being aware of them.

Noticing: Noticing refers to paying attention to a word by separating it from the context and treating it like a lexical unit. It can happen through four types of decontextualization. First, by negotiating the meaning with the teacher or peers. Second, by relating the word to a definition. Third, by highlighting the word for textual enhancement. And last, by creating word consciousness by focusing students' attention to word parts, word order, and word choice.

Retrieval: This is the second step towards remembering a word. The memory of a word that has been noticed can be strengthened if the word is retrieved. The word can be retrieved receptively, if the learner retrieves a meaning of a word that is met through listening or reading. Productively, if the form of a word is retrieved in order to communicate the meaning in speaking or writing. Another thing to consider in retrieval is time between the previous and the current encounter with the word. If the time is too long, it will be like noticing the word for the first time. Padilla and Sung (1990) consider that retrieval aids students to move information from short-term memory to long-term memory. The effectiveness of the retrieval will depend on the quality of the encounter with the word, the number of encounters, and the learning burden of the word. Furthermore retrieval can also be presented as a repetition strategy:

Repetition is essential for vocabulary learning because there is so much to know about each word that one meeting with it is not sufficient to gain this information and because vocabulary items must not only be known, they must also be known so well that they can be fluently accessed. Repetition, thus, adds to the quality of knowledge and also the quantity or strength of this knowledge (Nation, 2001, pp. 74-75).

There is a clear discussion of how many times a word should be presented before it is leaner (Chen & Truscott, 2010). There are a variety of factors to consider: learners' proficiency, the type of words, tasks, time, etc. Nation (1990) in the early 1990s after a review of empirical studies concluded that a word should be presented from 5 to 16 times to the learner. This will be discussed again in a further section.

Nation (1990) defends the need for recycling to guarantee its retention. This entails that vocabulary cannot be ignored throughout the period of instruction. Even if learners reach a certain level of proficiency it is imperative that vocabulary from previous levels is reinforced and reviewed periodically. It should not be perceived as useless or counterproductive to include vocabulary that the learner is supposed to know, since perhaps refreshment is just what the learner needs in order to fully remember and acquire the word.

Creative processing: The author in a previous document calls this step *generative use* (Nation, 2001). The third step to remember a word occurs when the word is met or used in ways that differ from the previous encounters. This meeting drives students to adjust their knowledge and overhaul their understanding. The creative process can be productive, when the learner uses the word differently from the first encounter or receptive when the learner meets a word in a distinct form from other times before. This last step should be encouraged in every proficiency level from the most basic vocabulary to even academic words.

Noticing, retrieval, and creative process are the main steps to follow which aid to remember a word (Nation, 2013). Nevertheless, another aspect to consider is to know what words should be learnt and what effective techniques teachers can use to enhance vocabulary learning. Nation and Chung (2009) mention that high frequency words should draw the attention of any English Language Learner foremost. This group of words encompasses around 3000 words that cover 80%-90% of words in a regular non-academic text. If a learner on the other hand, considers words as part of phrases or larger units, these could be studied as multi-word units with its collocations and grammar.

In the document Teaching and Testing Vocabulary, Nation and Chung (2009) describe three essential components for a well-planned vocabulary teaching in a language course. The teacher should first select the vocabulary according to the level of the students. Then, plan appropriate and recurrent opportunities for practice. And third, there should be appropriate assessment. Moreover, under the se-

cond component they propose four strands to be considered for an appropriate opportunity for vocabulary practice and learning: Meaning-focused input, meaning-focused output, language-focused learning and fluency development. Figure 5 presents some of the insights on how vocabulary can be included in these four strands, according to the authors.

- Learning through listening and reading
- Evokes incidental learning
- Best if glosses are used with short and clear definition or L1 translation

Meaning focused input

Language focused learning

- Learning through speaking and writing
- Memory gets stronger when words are used in creative ways
- Negotiation can enhance learning

- Involves intentional learning
- Teachers may focus on strategy training
- Computer-assisted vocabulary learning is strongly used

Meaning focused output

Fluency development

- Needs to occur in each of the four skills: listening, speaking, reading and writing
- Its developed through timed-activity

Figure 5. Vocabulary development through the four strands of language learning (Nation &Chung, 2009)

After the contribution of Nation and Chung (2009) where they defended three essential steps in teaching vocabulary, Nation (2013) expands on the proposal. According to him, first, he reestablishes the importance of choosing the appropriate words to teach, but also considering the aspects of the word that the session will focus on; then choosing the strategy and plan repetitions. After this, according to this author, when a word is met learners can search for more information about it by analyzing word parts, their context, consulting a reference source or using parallels with other languages. Third, teachers need to create opportunities so students can remember the word by noticing, retrieving and creative use. And finally, through timed-activity develop fluency in the four skills. This taxonomy of vocabulary-learning strategies presents similar ideas as the five-step model presented by Brown and Payne (1994). In their proposal they consider five important processes to learn a word: receiving, recognizing, retaining, retrieving, and recycling. Despite the focus a language instructor embraces, vocabulary teaching should follow at least three main steps involving planning, practicing and assessing continuously.

- Vocabulary in every skill

Vocabulary is considered extremely important when learning a language; McCarthy (1990, p. 50) states, "without words to express a wider range of meanings, communication in L2 just cannot happen in any meaningful way". As it can be expected, through research foreign language learners have expressed their desire to ameliorate the process of vocabulary acquisition in their language courses (Green & Meera, 1995; James, 1996; Flaitz, 1998). Despite this clear reality and the overtly acknowledged need to expand lexical repertoire, it is common to see how grammar ceaselessly appears in many language resources, allowing vocabulary to support language learning nothing but indirectly (Hunston, Francis, & Manning, 1997).

Since vocabulary is not considered as one of the four skills of language learning, it may seem that it has received less attention by educators, researchers and publishers than grammar development, reading, writing, or speaking (Richards, 1976). Furthermore, as it was mentioned in the previous section, language-learning theories have not focused their attention on vocabulary. In the most recent trend, the communicative language teaching, grammar is no longer the center of attention; nevertheless, vocabulary is still underemphasized (Folse, 2004).

Vocabulary has been the focus when reading development is studied, and various authors have mentioned the relation that exists between these two (Davis, 1944; Laufer, 1992; Beck, McKeown, & Kucan, 2002). This has been affirmed by learners, who have considered that lack of vocabulary is the primal hindrance to develop and improve their reading skill (Haynes & Baker, 1993). Nevertheless, its influence in all the skills has been acknowledged (Schmitt, 2010). Less amount of research has been conducted related to writing skills (Laufer & Nation, 1995; Laufer & Waldman, 2011), and other areas such as listening and speaking (Joe, 1995; Newton, 1995). For language learners, vocabulary acquisition is necessary for social competence, which may be one of the primal goals when learning a language (Gehsmann, 2018).

At last, research has encouraged language instructors to practice a more traditional teaching, and to consider explanations and explicit teaching inside classrooms. This may be precisely what is needed to target vocabulary. Notwithstanding, questions like what specific vocabulary do teachers need to focus on, and what are the best activities to employ when teaching vocabulary are increasing.

Although language has been considered to present a grammar-lexis dichotomy (Bogaards & Laufer, 2004) some recent studies have focused on the existing relation between these areas (McCarthy & O'Keeffe, 2004; Römer, 2009; Hoff, Quinn, & Giguere, 2017; Brinchmann, Braeken, & Halaas, 2019). Finally, it is not a matter of ignoring grammatical aspects altogether, but to understand that vocabulary learning should not be left to chance.

- Vocabulary lists: a waste of time?

Vocabulary lists have been neglected from various fronts, especially since the communicative approaches emerged. It has even been considered outdated and detri-

mental to language learning, opposite to learning vocabulary from context (Maiguashca, 1993). Nonetheless, research has proven otherwise. In a study of Laufer and Shmueli (1997), they compared four different types of vocabulary presentation: words in isolation, words in minimal context, words in text context and words in elaborated text context. The results showed that retention was higher when words were presented only with the translation. Prince (1996) found a similar result. Learners recalled more words when these were presented with the translation rather than in a context. In a more recent study, Hoshino (2010) concluded that vocabulary lists promoted vocabulary learning in classroom settings and their use should be encouraged.

Word lists can be supported by Clipperton (1994, p. 743) beliefs, as he states "it would appear that when new words are first presented, it may be best to do so out of context". Carter (1987) agrees by defending that beginning learners would possibly benefit more from words isolated with their translation as opposed to advanced learners who could develop vocabulary acquisition more easily through context. Furthermore, Carter (1987) mentioned that research defends the fact that translation pairs can be a highly effective methodology to learn vocabulary rapidly for beginning learners. Therefore, a *Vocabulary Flood* as Nation (1993) calls it, can be a solid first step for English Language Learners.

Finally, research has not been able to support that the use of a vocabulary list is detrimental; on the contrary it has shown that it can be a valid tool for language learners. Thus, the question that should arise must be which vocabulary words should go on the list. Many authors have developed word lists such as the General Service List (West, 1953), University Word List (Xue & Nation, 1984), Academic Word List (Coxhead, 2000), etc. These tools may aid teachers to elaborate lists according to their students' learning needs. Furthermore, other authors have developed vocabulary lists focused on single vocabulary items such as phrasal verbs (Garnier & Schmitt, 2014) source related lists, like the Newspaper Word List (Chung, 2009) or subject-focused list, like the Business Word List (Hsu, 2011). Numerous English-Teaching materials tend to include a vocabulary summary for the target level or even by unit. This section should be considered by the teacher and analysed for their class' planning. Moreover, it should be clear that the teacher's guide will always be a guide. It is the quality and the objective of the activities that will mark a difference.

- ▪ Semantic sets: a proven strategy to hinder vocabulary acquisition

Presenting vocabulary in semantic sets can be the easiest way to introduce new vocabulary for teachers, publishers, and curriculum designers. And although it may seem like a straightforward methodology to present and teach vocabulary, research has shown that arranging words based on a semantic component can hinder vocabulary learning and its retention. Some evidence will be shared next.

The study of Tinkham (1993) consisted of two experiments. He first wanted to know if the participants learned new semantically related words more slowly than the semantically unrelated words. He compared how two different groups learned a set of new vocabulary. Both groups were presented with a set consisting of three semantically related words and with a pair of artificial words and three semantically unrelated words also with a pair of artificial words. Word knowledge was assessed orally and individually. In the second experiment Tinkham wanted to know if the participants learned semantically related words with more difficulty than the semantically unrelated word. At the end of the experiments, Tinkham concluded that semantically related vocabulary was learned more slowly and with more difficulty than the semantically unrelated vocabulary. The study was replicated a couple of years later by Waring (1997), in which results supported the previous findings. Both, Tinkham (1993) and Waring (1997), presented unknown words and worked with L1 translations in their studies. This phenomenon has been known as the Interference Theory, which mentions that words that are presented in semantically clusters produce a heavier learning load for students (Waring, 1997).

Besides the studies mentioned in the previous paragraph, studies with some material related modifications have also been published. Finkbeiner and Nicol (2003) presented their study implementing pictures, besides an oral format of the target vocabulary. The methodology did not alter the expected results and the group to which the semantically unrelated set was presented outperformed the group that the semantically related words were presented. Bolger and Zapata (2011), on the other hand, introduced pictures in their study as well. Nevertheless, the authors included the new words with their picture in a reading activity. This study suggests that semantically related vocabulary can be easier to acquire when relating them to a context. The studies presented have been implemented in a monolingual environment.

Related studies have even been performed with children learning L2 and have mirrored the results of Tinkham (1993). In the study of Erten and Tekin (2008), teachers used flashcards that presented the L2 written form and the picture. It seems that despite the methodology and the instruments involved in these studies results reach the same conclusion, teaching words in semantic sets hinders vocabulary acquisition. Although it may seem counterintuitive, which words are presented and how they are clustered makes a difference.

- The use of translation to L1 as a learning aid

Translation was the mainstay of one of the earliest methods of second language learning mentioned in a previous section: The Grammar Translation Method. This technique has received a lot of criticism since it refers to translating all the material presented in the L1. Nevertheless, translation as a supportive technique can aid students to learn the target language by clarifying the meaning of a word rather

than translating every piece of information. In general there have been studies that support translation in foreign or second language learning (Grace, 1998; Levine, 2003). The concern that overcame teachers included the fear that students may be lowering their effort of acquiring new vocabulary due to a quick translation (Rivers & Temperley, 1978; Gefen, 1987; Hummel, 2010). Furthermore, another critique was that many words do not have a translation in L1, and that most words have more than one translation because of polysomy (Laufer & Shmueli, 1997); which in both cases translation would not be suitable for language learners.

As mentioned before, knowing a word is much more than just recalling its L1 meaning (Folse, 2004). But that does not mean that knowing only its translation will hinder learners' achievement of word knowledge; in fact, it can aid in the initial acquisition of the target language (Saz, Lin, & Eskenazi, 2015). Furthermore, there is no need for learners to know each and every one of the meanings of a word. A word can be presented according to the student's needs and the context in which it may appear. Nation (1982) stated that learning a word with L1 translation may be the faster way for many learners and O'Malley and Chamot (1990) corroborated by stating that it is a good cognitive strategy and that it is frequently used by learners.

Providing an L1 translation of a word to introduce new vocabulary may be one of the most controversial strategies used in classrooms; because of this, it has been the center of various studies (Knight, 1994; Prince, 1996; Grace, 1998). Moreover, students seem to agree on the fact that translation is an effective tool (Jacobs, Dufon, & Hong, 1994; Hulstijn, Hollander, & Greidanues, 1996; Laufer & Girsai, 2008; Saz, Lin, & Eskenazi, 2015). More recent studies have presented positive results in the influence of L2 to L1 translation with the aid of an e-dictionary in vocabulary acquisition (Wang, 2012). In the study, Wang (2012) identifies that the aid e-dictionaries can give to reading comprehension is dependent on the level of the student. He evidenced a greater use and appreciation in an intermediate level than in the advanced, similar findings are presented in Nikolova (2004).

In a foregin-language context, especially with a beginners' level group, it is truly helpful to use translation to clarify and give feedback to students. L1 can become an ally to lower anxiety in a L2 teaching environment and can allow a lesson to develop smoothly. The translation of new vocabulary may provide a handy and valuable strategy for vocabulary learning.

- Guessing words from context: not as efficient as expected

The belief that guessing words or word meaning from context is effective comes from the fact that L1 vocabulary can easily be learned like this. Nevertheless, this is far from being alike in L2 vocabulary learning. The differences in the process of foreign language learning and L1 learning are considerable, considering the scarce exposure of the target language a learner may get from the environment, and lim-

ited time students commit to the task. This is, when the learner is going through formal education to learn the target language.

As Pressley, Levin and Delaney (1982) stated, guessing a word meaning from context is not as effective as other types of instruction. Other authors, based on evidence, have also agreed to this statement (Schatz & Baldwin, 1986; Prince, 1996; Laufer & Shmueli, 1997). Research has shown that students tend to remember meanings they have guessed from context, but it is very common that the meaning, which has been guessed, may be an incorrect meaning (Fukkink, 2005). This could imply that teachers need to give feedback to students to correct their mistakes and most likely give a larger explanation about the error (Hulstij, 1992).

The well-accepted idea that learners acquire vocabulary through reading by guessing from context may come from the preference of a natural approach of teaching and a rejection to a structured and systematic instruction (Chall, 1987). This idea could present some constraints that have been underemphasized. For example, it has been shown that learners tend to overlook unknown words especially if they can understand the main idea of a sentence. Nation (2015) explains that words that are not consciously noted will be unlikely to be guessed from context. Although most of the research related to guessing from context have been conducted regarding reading, there are other studies that have focused on other types of input such as television programs (d'Ydewalle & Pavakanun, 1995; Koolstra & Beentjes, 1999; Webb, 2010), and other have investigated the influence of repetition with adaptive-computer assisted English as a Foreign Language (EFL) reading program (Wang, 2012).

Some of the studies conducted regarding guessing from the context for vocabulary acquisition have found positive study results (Horst, 2005; Webb, 2010). Nevertheless, the research has not compared this strategy to others but has based its conclusions on a pre-test - post-test design. Others have presented small but not significant gains in vocabulary acquisition (Nagy, Anderson, & Herman, 1987). Other authors defend that guessing from context can be valuable for students that have a larger repertoire than 1000 words, since they will be able to strengthen and enrich words that have been partially known or met before (Pigada & Schmitt, 2006). In this sense Liu and Nation (1985) have been more precise by suggesting that 95% coverage is needed to guess unknown words from context. Perhaps for this reason there are other studies (Elgort & Warren, 2014) whose participants are advanced or upper-intermediate L2 English learners.

Folse (2004, p. 79) explains, "Learners remember most easily what they notice the most easily". For example, if an unknown word is presented in a large paragraph and complicated sentence, or if the contextual clues are insufficient or confusing, the learner may not be able to guess the meaning form the context (Gu, 2015). Since editing or finding input that can present sufficient and accurate clues could be an

overwhelming process, guessing from the context may not occur. Hence it probably will not be considered the first viable option to guide students toward vocabulary learning. There are myriad strategies for vocabulary teaching and learning; the next section will cover some important considerations in this area.

■ Strategies to teach and learn vocabulary

Growing an L2 vocabulary repertoire is not an easy task. Researchers and teachers have tried different alternatives to teach this fundamental aspect of language learning, and so the basic process of vocabulary learning has been studied. Gu (2003) defends that successful vocabulary acquisition depends on four different aspects: the type of task, the learner, the learning context, and the strategy used. From these four aspects, only the type of task and strategy can be somewhat controlled and planned. The context and the learner are external aspects to be considered before, during and after teaching. Furthermore, knowing the difference between the terms implicit *vs.* explicit vocabulary learning, intentional *vs.* incidental vocabulary learning can shed light towards the onset of various proposals and trends. Considering these concepts it is important to analyze the teaching practice and the selection of proper strategies.

The process of how vocabulary is acquired and taught has been presented within these two opposite concepts: implicit and explicit learning. Implicit learning occurs intuitively, unaware and it does not involve a conscious mental process. The learner acquires a word by abstracting its meaning from repeated exposure in context (Ellis, 1994). Explicit vocabulary learning, on the other hand, involves conscious mental activity and awareness of the learning process. Explicit learning usually occurs in a decontextualized presentation with activities that focus attention primarily on vocabulary (Sökmen, 1997). Explicit and implicit learning should not be confused with the concepts: incidental and intentional learning.

Incidental vocabulary learning has been studied under the practice of extensive reading in students. It is called incidental since vocabulary learning happens without being the main cognitive activity, but it occurs as a result of extensive reading or listening (Hulstijn, 2001). This practice is directly linked to guessing from context. Although it has received criticism, it can be efficient especially with intermediate to advanced L2 learners (Hulstijn, Hollander, & Greidanues, 1996). Within some of its positive aspects are that words are presented in real context, and therefore the learner obtains rich and authentic information about words' use. Also, vocabulary gain can become personalized since the learner can first choose the reading material and second, focus on selected vocabulary regarding their needs (Huckin & Coady, 1999). Furthermore, according to Sternberg (1987) learners would take advantage of incidental vocabulary learning once they are aware of theory-based instruction concerning the role of the processes, cues and moderating variables involved. This type of learning could be linked to Krashen's (1985) input hypothesis, where he defends

that comprehension leads to acquisition through his *i+1*. Gu (2003) explains that incidental vocabulary has been popular since vocabulary learning in the first language is thought to be similar to vocabulary learning in a second language. Despite the constraints about this first belief, it is defended that incidental vocabulary can be more effective when it is combined with intentional learning (Paribakht & Wesche, 1993; Gu, 2003), which for some authors like Hulstijn (2001) this should not be considered incidental vocabulary learning.

Hulstijn (2001) suggests that the term incidental learning can array a misconception, since the term has been difficult to maintain. The author clarifies that before vocabulary is assessed is considerably important to determine if the learning is incidental or intentional. If students are told that unknown vocabulary will be evaluated and this vocabulary is somehow highlighted, students will try to learn the words and therefore it could never be considered incidental vocabulary learning.

Following Hulstijn (2001) it could be considered that intentional vocabulary learning can take place in activities when the learner is aware he or she will be assessed on certain vocabulary knowledge and therefore would pay more attention to these words. Activities related to intentional vocabulary teaching would include looking for synonyms, antonyms, word substitution, etc. (Ahmad, 2012). There has not yet been a consensus between which of these learning approaches is best, some authors defend incidental vocabulary learning, while other authors affirm that intentional vocabulary is far more effective (Folse, 2004; Hunt & Beglar, 2005). Despite this dichotomy, some researchers and teachers have focused their attention on vocabulary learning strategies without falling into one or the other extremes, but most times combining, without much consciousness, both.

Although more than 50 different vocabulary strategies have been mentioned by authors such as Stoffer (1995), Schmitt (1997), and Ellis (1994), this section will only mention those who are considered most popular. Within the strategies the reader will be able to find how teachers employ note taking, vocabulary notebooks, repetition, the keyword method. Furthermore, since English-Learning settings have enriched from technological devices, it has been considered to share how electronic dictionaries, hypertext glosses, Computer-Assisted Language Learning (CALL) and Mobile-Assisted Language Learning (MALL) are employed for vocabulary development.

Note-taking has been used and encouraged for vocabulary acquisition purposes. Although learners may have different opinions about what they do when they take notes, when they do it, and how they do it (McCarthy, 1990), this activity can aid the process of encoding and storage (DiVesta & Gray, 1972). Note-taking can be a challenging task for ESL students (Siegel, 2018), therefore scaffolding may be needed to guide students to develop good note-taking skills. Encouraging students to take notes may persuade them to be more attentive and focus for longer periods.

Furthermore, students can always turn back to their notes to clarify things or request clarification. There has not been a vast amount of research linking note-taking with deliberate vocabulary acquisition, thus further research could help to expand knowledge about it could benefit vocabulary learning.

Another vocabulary learning strategy applied inside classrooms is the use of vocabulary notebooks. Schmitt and Schmitt (1995) share practical suggestions based on memory and language research. According to these authors, a vocabulary notebook can be prepared in a binder or in cards, so students can add new words and leave out those that have been acquired. The information included in the vocabulary notebook can start by writing word pairs, then be enriched with other word knowledge like collocates or derivative information.

Schmitt and Schmitt (1995) from their study recommend that students should choose the words for their notebook. McCrostie (2007), on the other hand, found that students do need assistance to know which words to select for their notebooks. In his study students selected all unknown words even though they were advised to select only words that would seem important to understand the reading. Therefore, it could be presumed the criterion for importance may not be clear among students. The author concludes that teachers should aid students to know which words are essential to comprehend and guide them with different materials, such as word frequency lists. The study also evidenced that 80% of students would prefer learning vocabulary from word lists than by selecting them from a reading. Years later, Dubiner (2017) found positive results in her study. Her research with high school students, presented that vocabulary notebooks produced positive results in vocabulary acquisition and retention. Furthermore, her findings suggest that the use of vocabulary notebooks enhanced learners' motivation, noticing, and improved engagement with the material.

Although the outcomes of note taking and the use of notebooks are arguable in terms of vocabulary acquisition, they both have been considered and employed frequently. Perhaps technology has gained domain inside classrooms and this is something that also should be assessed. Students that are implementing new vocabulary learning strategies will always enhance their practice with some direction. With this in mind, clear instruction and close guidance could be a game changer for the use of these two options.

As presented in a previous section, repetition was a common strategy used and enforced in language learning in the Cognitive Theory, the Audio-Visual Method and the Audio-Lingual Method. This practice is directly linked to memory (Wittrock, 1988), and although rote rehearsal has been discredited for various decades (Khoii & Sharififar, 2013), it can be an appealing and well-recognized strategy. Findings in research regarding rote repetition in language learning have presented opposite results in relation to the influence of language level among students. va Hell and

Mahn (1997) evidence that this strategy was more effective with experienced foreign language learners. Nevertheless, another finding has shown the opposite and evidenced effectiveness with beginner learners (Rodríguez & Sadowki, 2000). Furthermore, despite the number of alternatives to learn new words presented in the last decades, students may feel comfortable with rote rehearsal due to familiarity and the short time they need to invest to accomplish this task (Gu, 2003). As it seems there could be common the tendency to think of known, familiar and easy strategies as somewhat the default option for learners. This could explain why repetition and memory have for some time been at the edge of language learning. Nevertheless, they are still common practices in individual or autonomous learning.

The contradicting findings may allude that the effectiveness of repetition is not dependent on students' level but be subject to aspects such as number of repetitions, amount of words, the timing for repetition and type of repetition (Gu, 2003). In this sense, research has focused on how the number of times a word is presented to students influences learning. Webb (2007) studied the effect that the frequency of appearance of words in context had on Japanese students learning English. Web (2007) not only assesses gains in form and meaning, but he also considered the effect it could have on syntax, association, orthography, and grammatical function. Based on his results, he shares that 10 repetitions can produce significant gains in vocabulary knowledge, but he mentions that to get full knowledge of a word more than 10 encounters may be optimal. Nation (1990) presents a wider range of repetitions that could influence learning. He established that a word should be repeated from 5 to 16 times for a learner to grasp its meaning. Nevertheless, the exact number of times a word needs to be presented is still in debate since there is not a fixed magic number to guarantee vocabulary gains (Nation & Wang, 1999).

Following the same path of memory related strategies; the keyword method was also studied in relation to vocabulary acquisition. This mnemonic technique explained in the early 70s by Atkinson (1975) is still used by teachers and is still mentioned in recent research (Sagarra & Alba, 2006; Wei, 2014; Gross, Taylor, & Joudrey, 2015; Clarke, 2018). L2 unknown words in this method are related phonetically to L1 words, and then, in a second stage, students relate the word with the translation in L1 by associating it with a visual image (Pressley, Levin, & Delaney, 1982). Researchers have compared the keyword method to other vocabulary learning strategies and evidence has shown that the keyword method lessens the risk of forgetting the words (Atkinson & Raugh, 1975). However, Meara (1980) outlined four flaws that this method and studies such as Atkinson and Raugh's (1975) present. First, it focuses on relating the L1 only to its L2 equivalent and does not focus on any other aspect of vocabulary. Second, most of its research has been conducted in laboratory settings and therefore extrapolating the positive results to all learning settings could be a mistake. Third, this method may detract from the importance of pronunciation. Finally, learners are not free to choose any keyword but proceed with a given key-

word. Despite these critiques presented by Meara (1980), Pressley, Levin, and Delaney (1982), in the early 1980s showed great hopes for this method, and this prediction is reflected in the vast amount of research found regarding the keyword technique afterwards.

The use of dictionaries has also been studied as a vocabulary learning strategy. Although most studies on the effectiveness of dictionaries have been in relation to L1 vocabulary learning (Gu, 2003), others like Bruton (2007) studied the effects on L2 vocabulary acquisition from dictionary referencing. Bruton (2007) analyzed gains in vocabulary acquisition after students completed a translation task with the use of a dictionary, then the group received feedback and they had to rewrite the same translation with the use of a dictionary, and finally unexpectedly they had to translate one more time the same text without a dictionary. Findings were encouraging; students gained a mean of 13.6 words after the exercise. This is an interesting finding, since besides the use of a dictionary they employed the translation of a whole text, this could imply that words were taken from a context and therefore it could have been easier to analyse which meaning from the dictionary was the most appropriate.

Similar results as Bruton's were found in Luppescu and Day (1993). Their research compared two groups of Japanese students learning English; one of them could use a dictionary during a reading activity while the other could not. The experimental group outpaced the control group, although those students took longer to finish reading. Time is always a significant feature. Besides studying which strategy works best under each circumstance, how long it takes to be accomplished is also important. Most formal learning environments have a timeframe in which the instructor needs to manage each minute to initiate and conclude the lesson.

Dictionaries are not always used inside the classroom; however, many students now can have access to electronic dictionaries, also known as e-dictionaries. Jin and Deifell (2013) stated that 87.5% of foreign language learners have used e-dictionaries. There has been positive evidence about the use of e-dictionaries. For example the study of Grami and Hashemian (201) compared the use of paper dictionaries and e-dictionaries inside a classroom during a reading activity, and as the former examples, the experimental group outperformed the control group, which had no access to the electronic tool. Similar results were found in Rezaei and Davoudi (2016) and Toyoda (2016).

Technology has provided innovative tools for vocabulary learning. Besides online dictionaries, hypertext glosses have gained popularity within language learners (Chen, 2014). Some studies such as Ertürk (2016), present positive results from implementing hypertext glosses with college students. This author studied how two different types of vocabulary glosses (in L1 and L2) presented to students would influence their vocabulary learning. Ertürk (2016) compared these two groups with a

control group that did not have access to glosses. The study showed that students that had L1 glosses in their reading outperformed the other two groups significantly; the no-gloss group performed better in the vocabulary tests than the L2 gloss group. This study was conducted with the same research design as Ko (2012). Ko's (2012) study evidenced a significant difference of vocabulary gain in both types of glosses, compared to the no-gloss group. Other studies that support the benefits of hypertext glosses in vocabulary acquisition are Li and Xiao (2018) and Ahmad (2012).

Besides glosses and hypertext, vocabulary exposure through other multimedia tools has also been studied in the last decade. Research regarding this area has focused on comparing what is included in the multimedia and how it is presented. Kim and Gilman (2008) explain that vocabulary presentation through words only entails less effort that when vocabulary is presented both with text and audio. An example of this could be vocabulary exposure through subtitled movies (Kanellopoulou, Kermanidis, & Giannakoulopoulos, 2019). This added stimulus causes distraction, and therefore it may involve a heavier cognitive load. Other studies such as Kim and Kim (2012), analyzed the influence of the size of a screen when presenting new vocabulary to students. They compared the influence between three sizes of screen and two different types of instruction on vocabulary acquisition. They concluded in their results that the use of a larger screen gave a significantly higher score in the vocabulary posttest and retention than smaller screens. The authors considered that a smaller screen could increase the cognitive load among learners. Regarding the types of stimuli, they did not evidence a significant difference between the exposure to new vocabulary in text-only and text-with-pictorial visuals.

Computer-Assisted Language Learning (CALL) has enriched formal learning settings. It has provided appealing opportunities for students to practice various skills and areas of language learning. Son (2018), in his chapter Language Skill-Based Approach, suggests CALL options to practice each of the skills; as well as to enhance language areas such as pronunciation, vocabulary, grammar, and culture. In the area of vocabulary he considers that online testing could improve vocabulary. In detail he presents how teachers can use the webpage www.vocabtest.com to create personalized tests to assess and practice target vocabulary. Another advocate of the use of CALL for vocabulary learning is Allum (2004). The author considers that CALL can motivate students by giving opportunities for productive recall and feedback. At last, Folse's (2004) has demonstrated that implementing vocabulary exercise in a CALL setting can be a simple activity, in which students can meet in multiple encounters the target words and retrieve their meaning or their form by recognition or recall.

The wide acceptance of mobile phones in class has opened new opportunities for educators to search for innovative learning strategies. Mobile-assisted language

learning (MALL), considered a type of CALL, is characterized by "the use of handheld technologies such as smartphones, tablets or gaming devices in a language learning context" (Hsu, 2016, p. 2). Many studies have developed with the objective of understanding how MALL can affect language learning. An example of this is the study presented by Lin and Lin (2019). The authors analyzed and described research that has been conducted regarding MALL between 2015 and 2018. In their results, after considering more than 80 studies by inclusion and exclusion criteria, the authors conducted a thorough analysis of 33 studies about MALL. The main distinction in research with MALL has been between the use of Short Message Service (SMS), and Applications (Apps), evidencing SMS provided greater effects on vocabulary acquisition. These results could be highly dependent on the feedback that is provided through SMS and not through Apps.

Wireless and smartphones have evolved fast enough to allow education to take advantage of these technologies as well. The use of mobile phones in classroom settings and formal education has become a standard-reality. The availability of Internet connection through Wi-Fi is growing avowedly in education, especially at higher levels. Mobile-Assisted Language Learning has been in the loop in the last decade. There have been various studies relating the use of smartphones and vocabulary development. One of the most common topic found have been about online developed flashcards for vocabulary learning (Basoglu & Akdemir, 2010; Azabdaftari & Mozaheb, 2012; Sage, Piazzini, & Downey, 2020; Bueno-Alastuey & Nemeth, 2020), another recurrent trend relates vocabulary acquisition with smartphones games (Sandberg, Maris, & Hoogendoorn, 2014; Castañeda & Cho, 2016; Rachels & Rockinson-Szapkiw, 2018).

General use of mobile activities has also been investigated, for example Agca and Özdemir (2013) provided vocabulary activities to be completed on their smartphones through 2D barcodes. The vocabulary was directly related to activities from students' textbook. This intervention took place during a two-week period, involving 84 target words evidencing vocabulary gain through a pretest-posttest design. It can be mentioned that this research field is somewhat novel due to the incessant technological development, and therefore more studies about MALL and its connection to vocabulary learning are still needed.

2.2 Background and context analysis

In an English as a Foreign Language (EFL) context the exposure to English (L2), especially in Ecuador, where this study has taken place, is scarce. Given that Spanish (L1) is the official language of Ecuador, students outside their classroom are generally not exposed to other (any foreign) languages and cannot use English on a daily basis. Furthermore, the impact of Foreign Language instruction on students can be dependent on various aspects. Public and private schools (elementary, middle

school, and high school) have a different approach to English. There are specific regulations and minimum standards for both sectors. Public schools follow government policies, which designates a minimum of three hours a week to this language (Ministerio de Educación, 2016). Private schools usually are flexible to offer a stronger English program, nevertheless, not all of them do. It could also depend on the location of these schools. Urban schools located in large cities, may have larger opportunities to hire experienced professionals whereas in the rural area or small towns this might vary.

It is important to describe the English-Learning context in which the participants of this study have grown. Most students have surpassed 8 years of English Learning. This extended exposure to the language would lead anyone to assume that his or her level of command of English should at least be intermediate. The truth is far from this assumption. Ecuador has not excelled any of the countries from South America in its English level among students. According to the Index Proficiency Index for Schools (EPI EF, 2019), Ecuador has been categorized as having the worst level of English in the region, in 19th place out of 19 countries (See Figure 6)

Figure 6. Latin America English Level (EPI EF, 2019)

Regarding English teachers in Ecuador, in 2012 only 2% of school teachers reached a B2 level in the standardized test TOEFL iBT (Cumsille & Fiszbein, 2015). The

reality exposed with this data can be assumed as a result of the lack of investment in this particular area of education. Previously this was also evidenced through the results from the CRADLE project (Curriculum Reform Aimed at the Development of the Learning of English) of teachers' assessment. In 2009 it evidenced that more than 50% of the teaching staff reached only an A2 CEFR level (Bastida, 2013). This presents a challenging context for English education. It obliges to examine and consider the participants of this study, and probably every English learning study conducted in Ecuador, through particular lenses. Students are trying to learn a new language from instructors who, in a great majority, do not have enough command of it. The low level of students' vocabulary may be related to multiple factors, including and acknowledging the insufficient English knowledge of the teachers.

Once students reach college, they have the opportunity to take a foreign language proficiency exam or take a five-credit class for six semesters to reach the level required to graduate. According to the *Regulations of the Academic System of Higher Education* (2013) in Ecuador before students reach 60% of the credits required for their major they must pass a CEFR B1 level (Common European Framework of Reference) of a foreign language. Although most students invest their time in learning English, this is not the only language they can take in college. Students have the option to obtain a B1 level in other languages such as French, German, and Italian. Because of the familiarity of English and its recognition as a lingua franca most students enroll in English classes or are willing to take the proficiency test in this language at their university.

In English instruction most curricula are centered on improving the skills of language learning: listening, speaking, reading, and writing. These four skills have been embraced with different approaches through time. All of them focused on developing the language. Based on the literature review presented in the previous chapter, it is clear that one of the primary aspects needed to enrich and develop communication in a L2 is vocabulary. Vocabulary has been addressed as an essential element for learning a second or foreign language and students have acknowledged its importance. Nevertheless, not every classroom curriculum considers vocabulary as a separate skill or area to be acquired. Some evidence of this aspect is in textbooks, which most of them still give more attention to grammar than vocabulary. Therefore, regular EFL classrooms following textbooks' curricula do not separate time for vocabulary instruction *per se.*

There are many studies that support the belief of learning vocabulary explicitly. Most of this research, which was analyzed in this chapter, has been conducted in controlled environments. The aim of this study is to focus on vocabulary teaching in a real classroom. Due to the limited time students have to focus on learning a foreign language, in this case English, explicit instruction based on visual and aural exposure to L1 and its translation to L2 may be useful tools for students and teachers.

2.3 Conclusion

The lack of vocabulary knowledge can be easily perceived in every language skill. Teachers might blame limited comprehension on poor listening or reading skills, or poor productive skills, when in fact the real issue is vocabulary. The belief that vocabulary learning can just happen must be rejected. English language teaching curriculum in general may not be emphasizing the clear importance of this matter; therefore, resources might not provide enough attention to this area.

Interesting enough, it has been discovered that learners use more strategies for learning vocabulary than for other skills like writing, reading, listening or speaking (Chamot, 1987). Before smartphones and wireless connectivity, the strategies that were commonly used by learners are: bilingual dictionaries, verbal and written repetition, studying the spelling, guessing from context, and asking peers for meanings (Schimitt & McCarthy, 1997). Since technology emerged this has probably changed to Internet resources and smartphone Apps. Nevertheless, learners do not always choose only one strategy. Good language learners usually use a variety of tools (Gu & Johnson, 1996), and with the frequent access to technology teachers should present their students a wide range of possibilities to focus on vocabulary instruction inside and outside the classroom.

Vocabulary instruction has not been one of the main objectives in L2 acquisition, notwithstanding, research has made evident that it should. Vocabulary is a major component of language; hence without it no communication can occur. Word knowledge should not be a simplistic L1-L2 translation, nevertheless, it cannot be ignored that this is a basic and required first step. The other aspects of word knowledge can be presented gradually and always considering the level of the students.

Although neurolinguistics was not presented deeply in this chapter, it was acknowledged that a myriad of unknown aspects regarding the human mind and its relation to language learning prevail. Under this section the differences between productive and receptive vocabulary were presented, in this sense importance was given to both areas since receptive precedes productive. Even though the connection between mind and brain are yet to be analyzed, thanks to technology researchers can explain in some level how learning occurs and its implications on teaching.

This chapter has reviewed the literature regarding vocabulary acquisition. To understand this field the processes of language teaching and learning were also analyzed. Furthermore language-learning theories were shared in a chronological order, considering that each of them emerged due to dissatisfaction among researchers and contextual needs. Overall, the theories mentioned are not 'good' or 'bad' *per se*. They have all contributed to improve language learning and its under-

standing. While research is still carried on, new proposals will continue to emerge. It has been inevitable to mention these theories to explain how language-teaching methods have developed. Despite the differences presented between them, it can be conceived, thanks to research, that what happens inside a classroom does not vary significantly despite the method of choice.

The strategies presented in the last section were chosen based on their frequent appearance in research. Nonetheless, there are still several vocabulary learning strategies that have not been introduced in this work. The variety of strategies can reflect the amount of individual preferences regarding learning and teaching. Therefore, it is a difficult task to find one strategy that would fit and motivate all students to learn more vocabulary and one that every teacher feels comfortable implementing. Nevertheless, considering that technology plays a great role in education nowadays, CALL and MALL are gaining exponential popularity. The next chapter will focus on the methodology used in this research; it includes the background of the issue, the statement of the problem, and the significance of the study. Furthermore, it presents the participants and the materials involved.

This research aims to analyze a strategy focused on form and meaning and the effect it can produce on vocabulary acquisition. Although meaning and form do not always have a one-to-one correspondence (Schmitt, 2010, p. 49), this study has selected one meaning to present to students. This would allow us to evaluate the effectiveness of the strategy. Nevertheless, as it will be mentioned, synonyms recalled by students were also considered as correct answers in the pretest and posttest. Schmitt (2010) also states that the acquisition of meaning and form may be the most appropriated in the lower level. Clipperton (1994) agrees with Schmitt and suggests that the best strategy for vocabulary learning at beginning stages would be to present new words out of context. Since technology plays a great role in education nowadays and students have access to smartphones and Wi-Fi, CALL and MALL have also been introduced as part of this study.

Chapter 3
Pilot Study

3.1 Introduction

From the general view of learning to the specific strategies involved in vocabulary acquisition, the previous chapter covered the theoretical foundation essential for this study. The historical overview of vocabulary learning gave perspective of the different theories and tendencies occurring in foreign and second language settings. Finally, it described the context where this study took place: Ecuador. It mentions this scenario as the country with the lowest level of English in South America, and provides further information on the poor level of English that teachers have.

The present chapter details in detail how the pilot phase of this study was conducted. According to Dörney (2007, p. 75) the pilot section of a study could be compared to a "dress rehearsal" of the methodology. The reasons behind a pilot study can vary. Authors may want to analyse if the data collection obtains the desired information in terms of quality. Others may want to validate research instruments or try to identify predicaments. Based on the results the author may decide to adjust the research questions or modify the methodology (Ismail, Kinchin, & Edwards, 2018). The results of a pilot study could encourage the authors to pursue variations if any methodological issues arose during its execution. Overall, it is believed that a pilot study would aid to improve the main research. Here, the pilot study was conducted on a smaller scale to verify the efficacy of the materials, the accuracy of the target vocabulary and pursue a rigorous research process in the main study.

To explain the pilot study, we will present the objectives and the hypotheses. Also, we will give details about the participants, the materials employed, and the organization of the study. Finally, the analysis of the results will indicate some methodological implications that were considered for the main study.

3.1.1 Objectives

The main objectives of this chapter are:

- To analyze the familiarity students have with vocabulary from their English Learning material.
- To present an initial exploration of the influence of an explicit vocabulary learning strategy used for higher education students.
- To understand how the participants perceived the methodology used and the importance of vocabulary.

3.1.2 Research questions

- Does exposure to visual translation with aural input improve participants' vocabulary learning?
- What perceptions do students have regarding explicit vocabulary instruction through rote visual translation of vocabulary with aural input?

3.2 Methodology

3.2.1 Participants

Participants in this pilot study were 37 Ecuadorian students from a private university. The number of participants was small; nevertheless given the circumstances at the University at that time, a larger number was not feasible. The development of a future study will require the application of the methodology to a larger sample of students. The statistics employed in this pilot study considered the reduced number of participants involved.

The students were from different faculties: Philosophy, Business Administration, Science and Technology, Law, and Design taking the subject Foreign Language I. This class is an English language course of five credits. It is given five hours a week divided into one hour a day.

Two groups were involved in this pilot study and the researcher was the instructor for both classes. Although the total population between the control group and the experimental group was 43 people, only 37 students were considered for this research. Six students were excluded from the sample either because they were

absent from more than 10% of the lessons or they did not complete all the data collecting instruments.

The sample was made up of a wide spectrum of society (Table 1), 18 were male (48.6%) and 19 were female (51.4%). Participants' age ranged between 18 and 30 years old, with a mean of 20.5 years (SD=2.9). 20 students (54.1%) graduated from a private school.

Table 1. Socio-demographic details of participants in the pilot study

		n	%
Groups	Control	15	41.7
	Experimental	21	58.3
Gender	Male	17	47.2
	Female	19	52.8
School	Public	16	44.4
	Private	20	55.6

Previous experience of English varied in the sample (Table 2). 17 students (46%) had more than 3 hours a week of English instruction in Elementary School, whereas in High School the number was higher: 24 students (64.9%) had English as a compulsory subject with more than 3 hours per week.

Table 2. English learning background of participants in the pilot study

		n	%
Hours of English class during Elementary Education	Between 1-3 hours/week	19	52.8
	More than 3 hours/week	14	38.9
	More than 5 hours/week	3	8.3
Hours of English class during High School	Between 1-3 hours/week	13	33.3
	More than 3 hours/week	19	52.8
	More than 5 hours/week	5	13.9
English classes taken outside school	Never	19	52.8
	Less than 1 year	15	41.7
	More than one year	2	5.6

3.2.2   Textbook

The university textbook for Foreign Language I was *Interchange Fourth Edition Level 1A* from Cambridge University Press (Richards & Schmidt, 2013). It was developed for students who reached an A1.2 CEFR level in a sufficiency exam. The book is divided into two different sections: Student Book and Workbook. Every student had to purchase this textbook to attend class. With this textbook students can develop the four main skills: listening, reading, writing, and speaking. Ten different activities, which are detailed below, are included in every unit of the Student Book:

- Snapshot

This activity introduces the topic of the unit. Usually it is presented with some new vocabulary and its objective is to complete a small task or encourage students to give their opinion on a certain topic.

- Word Power

This is a vocabulary-focused activity where students need to match words with pictures, classify them into categories or practice their collocations.

- Grammar focus

This section introduces the grammar objective for the unit. There are two grammar-focus activities per unit; each one targeting different grammar aspects.

- Speaking

A group activity in which students obtain and discuss information about their classmates and then create a material with the information from the group.

- Role-play

Students also develop speaking in this section in which they tend to practice roles. This activity is planned for groups.

- Listening

A listening comprehension activity in which students need to answer questions or complete activities in reference to what has been mentioned in the audio file.

- Conversation

Students listen to a dialogue that they can follow through reading and then there is usually a second shorter audio, which is not presented to them in their books. Teachers are suggested to elaborate questions in reference to both conversations and also ask various students to read the dialogue. There are two of these activities in each unit.

- Pronunciation

In this activity students listen and practice intonation, reduction, vowel linking and syllable stress.

- Writing

Students need to write a paragraph about a unit-related topic. They are usually suggested to read a model text presented to them.

- Reading

This activity is the last activity in every unit. Students have to read a text and answer reading comprehension questions.

Besides the activities from the Student Book, the Workbook presents additional activities, which focus on grammar, vocabulary, reading and writing practice.

3.2.3 Instruments

The following instruments were used in this study and are presented in detail onward:

- A sociodemographic questionnaire
- Diagnostic and achievement tests: Vocabulary Knowledge Scale
- A semi-structured interview

Social-demographic questionnaire pilot study

First of all, and prior to the treatment, a social-demographic questionnaire was developed to analyse general aspects of the participants biographical and language background. This questionnaire included questions to obtain information about age, gender, academic department they belong, additional languages, and years of instruction prior to tertiary education (see Appendix A and B).

Vocabulary Knowledge Scale pilot study

For the diagnostic test 249 words from the Teacher Volume of the book *Interchange Fourth Edition* Level 1A from Cambridge University Press (Richards & Schmidt, 2013) were chosen to assess and select the target vocabulary for the intervention (See Appendix C for the complete list). This *Interchange* textbook, for general English, is part of a four-level series of resources for adult learners. Each level is divided into two textbooks. The participants of this study only utilized level 1A, which focuses on basic elements of the A1.2 level of the Common European Framework of Reference (CEFR).

The vocabulary was selected from the *Language Summary* section of the Teacher edition of this textbook. It was expected that the students would encounter this vocabulary throughout the course and therefore reinforce their learning with more encounters. This book presents eight language units, for this study only words from units 2 to 7 were considered. Unit 1 was not considered as the socio-

demographic questionnaire and diagnostic test were administered during the time that this unit was studied. Furthermore, Unit 8 was not considered either, since the semi-structured interview had to be conducted in parallel with the teaching of this unit.

For the pretest and the posttest a vocabulary knowledge measure had to be selected. After analysing which would be the most appropriate tool to diagnose and test vocabulary knowledge, we concluded that tests that involved only closed questions (yes or no) would not be contemplated. Following Read's (1993) recommendation, the vocabulary test selected included a section where students' knowledge could be demonstrated; the author considered that adding a productive writing requirement improves the reliability of tests. Thus, an adapted version of the Vocabulary Knowledge Scale (VKS) presented by Paribakht and Wesche (1993) was employed. This five-point scale has been used in several studies with or without adaptations (Joe, 1995; Qian & Schedl, 2004; Folse, 2006; Rukholm, 2011; Culligan, 2015; Zhong, 2018) and has been considered as an effective tool to assess the stages that learners experience to evolve from receptive to productive knowledge (Meara, 1996).

This scale was also deemed appropriate with respect to the objective of this study, which was to measure the initial status of a word and compare the evolution of its learning after a relatively brief instructional period. This scale includes a combination of self-report and elicitation of verifiable responses (Read, 1993). Therefore, it was simple to analyse students' positive answers and confirm if their responses were correct. The adapted version used in this research did not include all five points from the scale, the third point (C.) *I have seen this word before, and I think it means (synonym or translation)* was omitted. Karakas and Sariçoban (2012), in their study considered that responses from the third category had to either be categorized as the second level, if the student could not give a correct translation or synonym, or as a fourth level if the answer was correct. Therefore, the decision to exclude this category was taken under the belief that if the answers had to be classified as known words (verifying the correct response) or unknown words it would ease data processing. The adapted scale included four points A, B, C (which previously was D), and D (which previously was E). The VKS test was prepared in a Google Forms file and it was emailed to students (See Table 3. Adapted VSK (Vocabulary Knowledge Scale). They had to complete this test during class sessions.

Table 3. Adapted VSK (Vocabulary Knowledge Scale)

Vocabulary Knowledge Scale (adapted from Paribakht & Wesche, 1997)
A. I don't remember having seen this word before
B. I have seen this word before, but I don't know what it means
C. I know this word. It means (synonym or translation)
D. I can use this word in a sentence (write a sentence)

To avoid confusion, the present study considers the concepts of "unfamiliar" and "unknown" as interchangeable. Thus, two main groups of words were considered for the analysis: known words and unknown words (known/familiar or unknown/unfamiliar). Moreover, when students were unable to retrieve the meaning of a word in their first language (L1), that word was considered unknown or unfamiliar. If the student selected option A or B, it was assumed that the word was unknown. When the student selected C or D and the entry was correct, the word was considered known. The items on the adapted scale expected to gain the following insights about the participants' vocabulary knowledge:

A. The participant has never seen this word before.

B. The participant may have seen the word before, but cannot recall its meaning.

C. A correct synonym or translation is given.

D. The word is used with semantic appropriateness.

Slide presentation pilot study

Based on the results obtained from the pretest, a PowerPoint presentation was elaborated with the unknown words and displayed during the beginning of each class session, an LCD projector was used to show the presentation. Each slide presented the target word in L2 in black and its translation in L1 in red, which would provide visual translation of vocabulary. The font used was Calibri 48. An example of the slide is presented in Figure 1. An audio input of the pronunciation of the word, recorded from a native speaker, was played simultaneously. See Figure 7

Figure 7. Example of PowerPoint slide presenting unknown vocabulary identified in the pretest. The slide was accompanied with a recording of the word pronounced by a native speaker.

Semi-Structured interview pilot study

Finally, a semi structured-interview of four questions was elaborated and administered to all the participants from the experimental group (See Appendix D for the interview questions). The aim of the interview was to obtain their perception of the intervention methodologies and information about their autonomous study. It took place during the last week of the semester at the University campus. The interview was performed individually, students were asked to come to the university at a specific time one by one. The interview was recorded with the Voice Memos App on an iPhone 7; this application was previously downloaded for this purpose from the App Store. Then, each interview was typed for analysis in a Microsoft Word document. Information about how the instruments were employed is described in the following paragraphs.

3.2.4 Procedures

This pilot study was conducted during a 16-week semester. Each unit of the course *Foreign Language I* was taught two weeks approximately. Since this study included six units (unit 2 to unit 7), the intervention was conducted over a 12-week period. The following paragraphs will explain how the pilot study developed.

During the first week of class every student signed an informed consent form, so they would formally and voluntarily accept to participate in this study (See Appendix E for the Spanish version and Appendix F for the English version). During the same week a social-demographic questionnaire was given to students from both groups. The questionnaire was elaborated in Google Forms (See Appendix A for the Spanish version and Appendix B for the English version). The link to the questionnaire was sent to all students through email, and they answered the form during class. After gathering the biographical information and their English language back-

ground of the participants, the intervention stage began. The intervention of the pilot study consisted of seven stages (See Figure 8). Stages one to six were replicated for each unit.
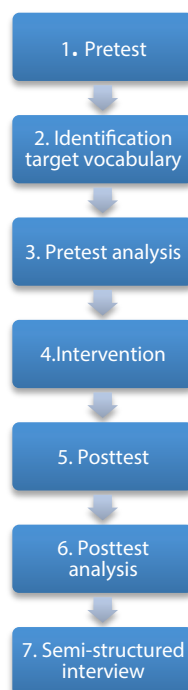
Figure 8. Procedure of Pilot Study

First stage: Diagnostic test

The participants took the diagnostic test elaborated on Google Forms. A link was sent to their email and they took the test on their smartphones during a class session. Participants were notified that this test would not influence their grade in any form. The vocabulary that was assessed proceeded from the Language Summary section of the Teachers' *Volume of the Interchange Fourth Edition Level 1A*, Cambridge University Press (Richards & Schmidt, 2013). The diagnostic test was an adapted version of the Vocabulary Knowledge Scale (VKS) (Paribakht & Wesche, 1993) (See the Adapted Scale in Table 3).

Second stage: Identification of target vocabulary

From the 37 diagnostic tests, the researcher identified the target words for the intervention. The condition for the selection of the target words consisted in identifying words that were unknown by 50% or more of the students in both groups. If students selected option A or B, it was considered that students did not know the word. On the other hand, if they selected option C or D they had to show their knowledge by writing a synonym, translating the target word or formulating a sentence. For options C and D the researcher had to review each answer. If students wrote an incorrect L1 word or used the word incorrectly in a sentence, the word was marked as unknown. Otherwise, it was marked as a known word if the translation or synonym of the word were correct, or if the word was used appropriately in the sentence. Known words were given a score of 1 and unknown words were given a score of 0. The diagnostic test served as the pretest. For example, if unit 2 presented 14 unknown words, the pretest identified the state of these words (unknown). To evidence how the intervention influenced word knowledge, at the end of the intervention these 14 words were assessed again in the posttest.

A total of 249 words between nouns and adjectives, obtained from the Teachers' volume, were assessed with the diagnostic test at the beginning. The test included a heading at the beginning of each section with the specification of noun or adjectives. Nouns were assessed in section one and adjectives in section two.

These words were drawn from units 2 to unit 7. It is worth mentioning that students did not have access to the vocabulary and therefore, they were not aware of which words they would be assessed on. As it will be explained in detail under the results section, a total of 87 unknown words were included in the intervention.

Third stage: Analysis of the socio-demographic questionnaire and pretest

The information gathered from the socio-demographic questionnaires was analysed through absolute and percentage frequencies using SPSS 25. The SPSS is one of the most commonly used resources for social science research. It allows researchers to operate on big volumes of data. It is relatively simple to manage and it allows access to an interface that simplifies different types of analysis. With more than 50 years of prestige in the markets it is more popular that other alternatives such as the programming language R. Within the open sources for statistical analysis, these two are the most popular options. The SPSS software has been selected by virtue of the author having the license.

The data obtained from the pretest was also analysed with the SPSS software and the results were presented by the measures of central tendency and dispersion. The behaviour of the data was determined by the Shapiro-Wilk normality test (alpha=0.05) to see if the data was normally distributed and then a Student's t-

test was employed to verify that groups were homogenous. See Leslie et al (1986) for details.

Fourth stage: Intervention

The researcher elaborated the methodology focusing on rote visual translation of vocabulary with aural input, with the unknown words identified in the diagnostic test. Each unknown word was typed on a slide from a PowerPoint presentation. The material was exposed to students every day (Monday to Friday). It presented a clear connection between L1 and L2; each slide consisted of a stimulus with the target word (L2) and its translation in Spanish (L1) (See Figure 1 for an example). When the word was on the screen students could also hear the pronunciation of the word in English. Each word was presented to the students for 5 seconds and after the presentation had ended, regular curriculum-related activities started. The class prepared for the presentation by turning the lights off in the classroom and placing their smartphones on the table so they would not be distracted. The participants did not receive any instructions as to which (if any) learning strategy to adopt. The control group did not have a PowerPoint presentation in the beginning of the session. The curriculum, class assignments, and homework were the same for both classes.

Fifth stage: Posttest

The posttest was elaborated in a Google Forms document. This platform is familiar to the students and they are able to access it without difficulty through their Google Classroom account. It is free, easy to use, and its results are presented in a spread sheet for further analysis. After the intervention a posttest was given to the participants from both groups. The test included only those words that were considered unknown in the diagnostic test. The link to the test was sent to students by email and they completed this on their smartphones in class. The words included in this test were those selected for the intervention. The stages, above mentioned, were replicated for each unit.

Sixth stage: Posttest analysis

The efficiency of the methodology used to teach vocabulary was evaluated with various statistical tests. First, a Mcnemar's chi-squared test was employed to determine if the changes in the individual familiarity of words were significant. Furthermore, to compare the means (before and after) within each group a paired Student's t-test was employed. Finally, an independent Student t-Test was used to analyse the difference between groups. We used an alpha of 0.05. Values equal or above this were not considered significantly different. See Box et al (2018) for details.

Seventh stage: Semi-structured interview

At the end of the semester, a semi-structured interview was conducted with the experimental group in Spanish (L1) (see Appendix D). The purpose was first to analyse the perception students had of their performance in the pretest and the posttest; then, to obtain their opinion about the methodology and finally, gather information about their self-study performance during the semester.

3.3 Results

3.3.1 Initial vocabulary level

The Student's t-test showed that there was no significant difference in initial vocabulary knowledge between the experimental and control groups (p=0.387). The experimental group knew between 69 and 211 of words with a mean of 152 (SD=34.65) and the control group showed familiarity between 78 and 222 with a mean of 140 words (SD=44.17) (Figure 9).
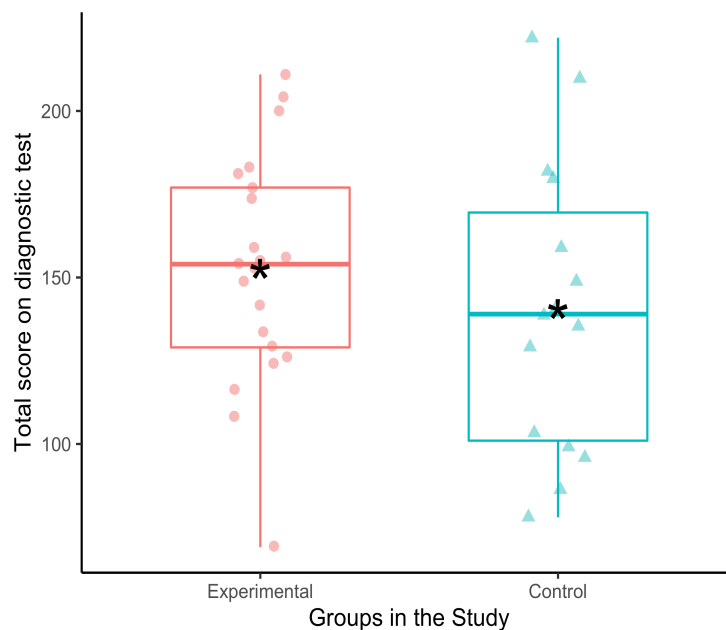
Figure 9. Results of the diagnostic test of word knowledge for the Experimental and control groups. The asterisk represents the mean of each group.

3.3.2   Total word selection

A total of 87 words were classified as unknown. Either the participants did not know the word or it was erroneously translated or used by at least half of the participants from both groups simultaneously. This represented 34.3% of the vocabulary presented in this level. The vocabulary is divided and presented by units in the Language Summary section in the Teachers' textbook. The number of adjectives and nouns varies per unit for no specific reason. Unit 3 has the largest number in the Language Summary section (n=79) and Unit 6 only presents 22 words. It was therefore expected that the number of unknown words would also be different between units. The total number of words considered unknown was the sum of unfamiliar words from every unit. Details can be seen in Figure 10
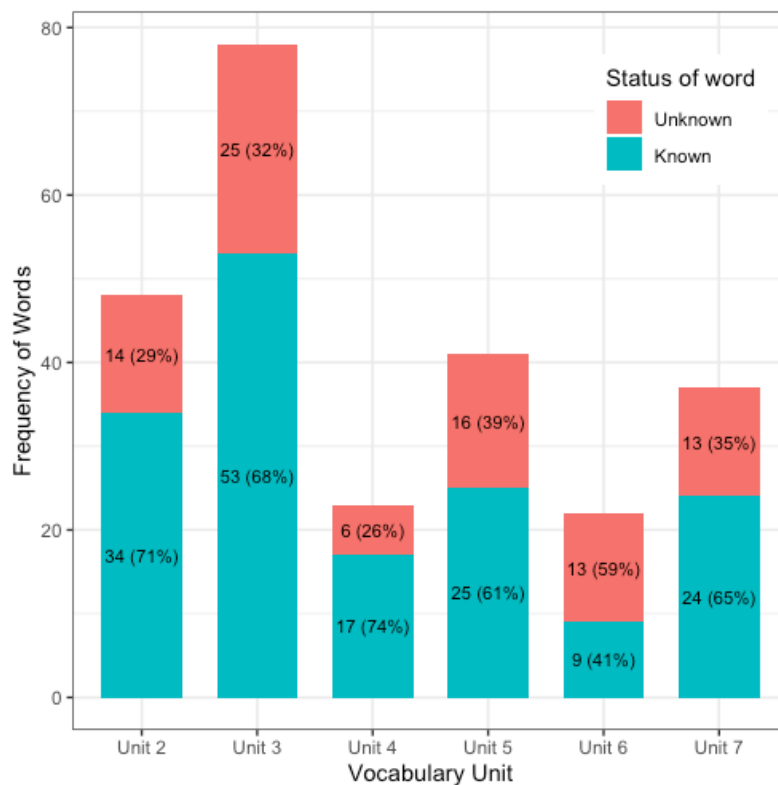
Figure 10. Frequency of known and unknown words from the vocabulary list of each unit in the intervention. The number of known and unknown words are shown within the bars and their percentage of the vocabulary in each unit is in parenthesis.

3.3.3 Word difficulty

It was interesting to know that the vocabulary from this textbook had words from all CEFR levels, although in different percentages. Most vocabulary presented in this textbook was from the initial levels, as expected since it aims to teach students who have reached an A1 CEFR level of English.

Words from A1 (n=128) and A2 (n=61) represented more than 75% of the total vocabulary (n=9). The participants were most familiarized with the vocabulary from these levels: A1 (80%) and A2 (63%). They knew more words than expected from levels B1 (55%) and B2 (30%), and did not know words from the higher levels C1 (n=7) and C2 (n=2). Figure 11presents in detail how many words were selected per CEFR level and the percentage this represented, based on their responses to the pretest.
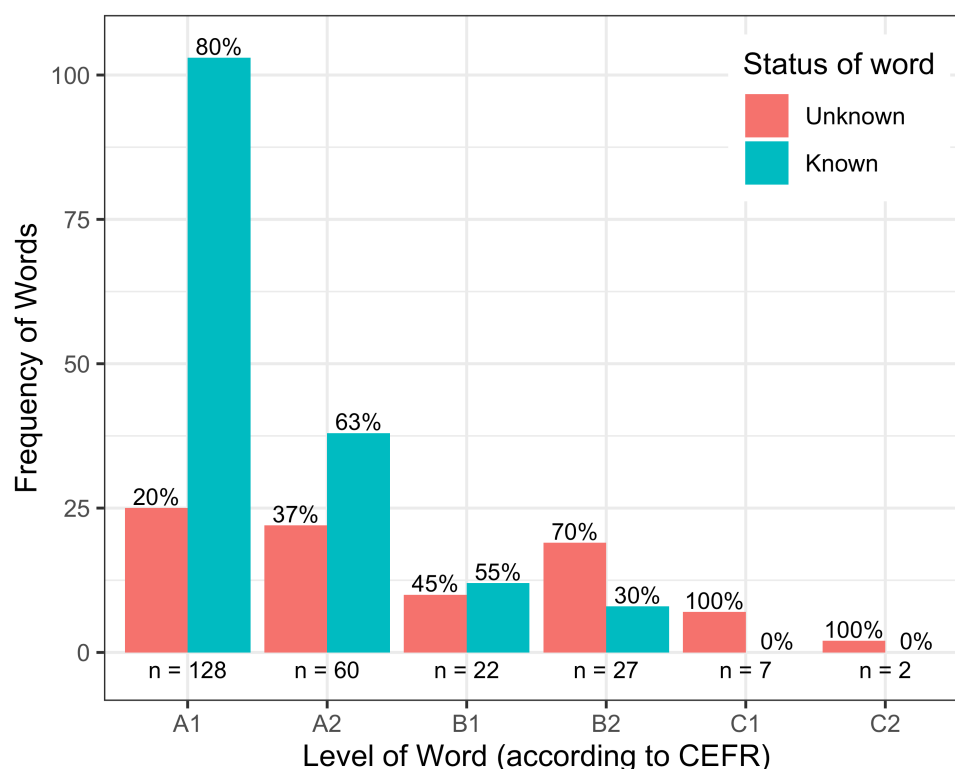
Figure 11. Frequency of known and unknown words from the vocabulary list of each unit in the intervention by CEFR level.

3.3.4   General improvement after intervention

We compared the mean improvement of each group separately using a paired Student's t-test using the pretest and the posttest data. Afterwards, it also helped to determine if there were differences between groups. The pilot study shows that both the experimental group and the control group presented an increase and knowledge gain in vocabulary (experimental group p=0.000, control group p=0.006). See Table 4and Figure 12for details regarding these results.

Table 4. Summary statistics pretest and posttest for the experimental and control group.

Group	Test	mean	sd	min	median	max
Experimental	Pretest	22.57	16.07	0	17	49
	Posttest	47.67	18.56	16	46	81
Control	Pretest	21.20	20.19	0	16	67
	Posttest	41.07	15.96	17	40	65
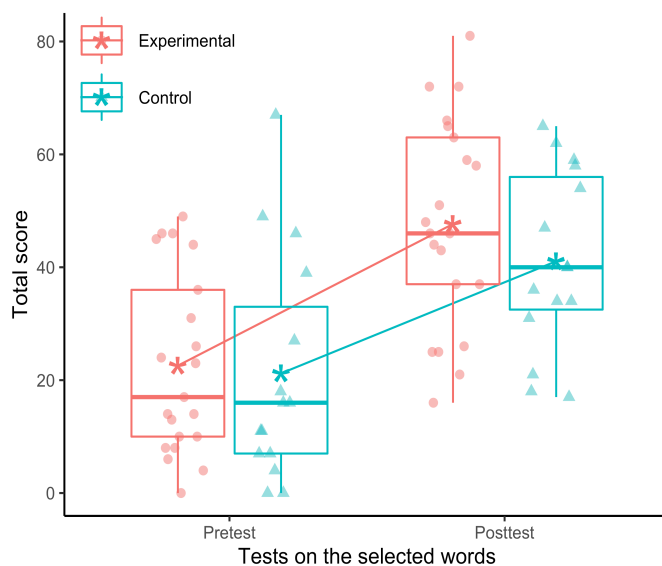
Figure 12. Results of pretest and posttest separated by groups. Solid line indicates change in mean between pretest and posttest.

- Experimental Group:

The average word knowledge of the 87 target words identified in the diagnostic test for this group was 23 words, which meant an average of 26.7% of the vocabulary was familiar to the participants. After the intervention the mean number of known words increased to 48 words (SD=19), which meant an average knowledge of 55.8%. Furthermore, MacNemar's Chi-squared Test Count Data showed that 45 words presented significant differences in responses between the pretest and the posttest.

- Control Group:

Data obtained from the pretest showed that vocabulary knowledge of the participants had a mean of 21 words, which is 23.6% of the total. The non-intervention group, attending classes normally, also increased their knowledge significantly. Participants presented a mean of 41 known words, indicating that they were familiar with 47.7% of the target vocabulary. In this group only 44 words presented statistical significance comparing the pretest and the posttest.

Results from the independent t-test conducted with both groups, suggest that the difference between groups grew compared to the p. value from the pretest (p=0.829). Nevertheless, the difference was not significant (p=0.262) (Table 5).

Table 5. Independent t-test of differences between performances of study groups on the pretest and posttest for knowledge of 87 selected words

Test	Mean Experimental Group	Mean Control Group	Difference in means	df	t.value	p.value
Pretest	22.57	21.20	1.37	25.83	0.22	0.829
Posttest	47.67	41.07	6.60	32.74	1.14	0.262

Table 6. Vocabulary words with statistically significant improvements in recall after intervention. Statistical significance was tested using McNemar's exact χ^2 indicates the vocabulary that presented significant improvements by group. As mentioned above, the experimental group evidenced statistical significance in 19 words, whereas the control group in 18. Furthermore, 26 words presented statistical significance in both groups.

Table 6. Vocabulary words with statistically significant improvements in recall after intervention. Statistical significance was tested using McNemar's exact χ^2

Group	Words with significant improvement
Both (n=26)	Busy, Caregiver, Expensive, Heaven, Passenger, Salesperson, Server, Thing, Usher, Customer, Leather, Loving, Necklace, Paperback, Powerful, Rubber, Stylish, Wallet, Wool, Award, Challenge, Above, Jogging, Stretching, Treadmill, Ruins
Control only (n=18)	Great, Schedule, Clerk, Each, Jealous, Painting, Scarf, Silks, Socks, Truthful, Warm, Whole, Worldwide, Children, Few, Freedom, Most, Bicycling
Experimental only (n=19)	Accountant, Cashier, Patient, Cheap, Tie, Nephew, Niece, Percent, Average, Both, Bowling, Fitness, Joke, Meal, Teen, Contest, Laundry, Weather, Wildlife

These results reveal that, in general, word knowledge increased in both groups and according to McNemar's Chi squared test in the posttest compared to the pretest, the overall increase in vocabulary between the two groups did not differ significantly (p=0.262). It is important to mention that to run the McNemar's test the control group results were rescaled to 21 individuals.

3.4 Analysis of vocabulary by unit

Details about the unknown vocabulary will be presented in this section as well as the results from the pretest and the posttest; this information will be analysed separately by units. Vocabulary that did not present significance by either of the groups will be presented in each unit with the statistical data. Nevertheless, we discussed this vocabulary and aim to provide an explanation for the results in section 3.5.

In each unit the textbook includes different goals for the following skill: Speaking, Grammar, Pronunciation, Listening, Writing and Reading. Although the words chosen were either adjectives or nouns, it was expected that the participants could confused some of the vocabulary with other parts of speech in the pretest or posttest. If the participants used a different part of speech, the response was considered incorrect.

3.4.1 Unit 2: What do you do?

Unit 2 is focused on activities related to professions and daily activities. Students can practice describing their daily schedule and job related activities. Table 7 presents details regarding the skills aimed for this unit.

Table 7. Unit 2: Objectives by skills

Skill	Objectives
Speaking	Describing work and school; asking for and giving opinions; describing daily schedules
Grammar	Simple present Wh-questions and statements; questions: when; time expressions; at, in, on, around, early, late, until, before, and after
Pronuncia-tion/Listening	Syllable stress Listening to descriptions of jobs and daily routines
Writing/Reading	Writing a biography of a classmate. "Why Do You Need a Job?": Reading about people who need jobs

After the pretest 27.5% of unknown words (n=14) from unit 2 were chosen for the intervention, from a total of 51 words. See Table 8 for details.

Table 8. List of words that more than 50% of students did not know in the pretest from Unit 2; the activities in which they appear and observations relating to their usage and translations

Unknown words	Student's Book								Workbook				Qualitative Observations
	Snapshot	Speaking	Pronun-ciation	Word Power	Listening	Reading	Conversa-tion	Grammar Focus	Gram-mar	Reading	Writing	Vocabu-lary	
Accountant			✔	✔		✔			✔				Noun: The translation of this word is different in Spanish depending on the context. In Ecuador, its translation is "contador" instead of "contable". Therefore, the former option was considered accurate and correct.
Caregiver	✔		✔			✔					✔	✔	
Cashier				✔			✔						
Salesperson		✔	✔						✔				
Server	✔		✔	✔		✔							Noun: In this unit this word refers to a waiter or waitress.
Usher	✔												
Heaven			✔										
Passenger								✔					

Unknown words	Student's Book								Workbook				Qualitative Observations
	Snapshot	Speaking	Pronun-ciation	Word Power	Listening	Reading	Conversa-tion	Grammar Focus	Gram-mar	Reading	Writing	Vocabu-lary	
Patient							✔						
Schedule					✔	✔				✔			
Thing						✔							
Busy						✔							
Expensive	✔												
Great					✔	✔	✔						

Analysis of the individual vocabulary words showed that there was a significant improvement in 12 of the 14 words between the pretest and posttest in the experimental group (Table 8). The word that presented most improvement was *accountant*. While this word was presented in various activities throughout the book, the knowledge of this word did not improve significantly in the control group.

In the control group 11 words presented statistical significance. It is worth noting at this point that McNemar's tests show the difference in responses between the two tests. Those that got it correct, or incorrect, on both tests do not contribute to the statistic. Thus, the absolute value of change of right answers may not be reflected by the same p-value. Thus it is sensitive to sample size (Experimental group=21, Control group=15); to avoid bias we rescaled the control group to 21. Details of the statistical results are presented in Table 9.

Table 9. Pretest and posttest results for unknown words from Unit 2. The summed pretest and posttest scores are presented. Forgot is the number of students who responded correctly in the Pretest but erred in the Posttest, while Learned are those that erred in the pretest and responded correctly in the posttest. The p-value is McNemar's χ^2 of these differences. Grey shadows highlight words with significant differences.

Word	Experimental Group					Control Group				
	Pre test	Post test	Forgot	Learned	p.value	Pre test	Post test	Forgot	Learned	p.value
Accountant	3	17	0	14	<0.001	6	11	3	8	0.227
Busy	6	16	1	11	0.006	3	15	0	13	<0.001
Caregiver	0	13	0	13	<0.001	6	13	0	7	0.016
Cashier	8	21	0	13	<0.001	8	13	4	8	0.388
Expensive	7	15	2	10	0.039	4	18	0	14	<0.001
Great	5	10	1	6	0.125	4	14	0	10	0.002
Heaven	3	10	0	7	0.016	6	13	0	7	0.016
Passenger	6	16	1	11	0.006	6	13	0	7	0.016
Patient	9	17	1	9	0.021	7	11	1	6	0.125
Salesperson	5	16	1	12	0.003	4	11	1	8	0.039
Schedule	4	9	2	7	0.180	0	6	0	6	0.031
Server	7	15	2	10	0.039	6	14	0	8	0.008
Thing	8	15	0	7	0.016	4	15	0	11	<0.001
Usher	0	6	0	6	0.031	0	6	0	6	0.031

Unit 3: How much is it?

Unit 3 is focused on activities related to shopping. Students can practice English using descriptions with colours and materials. Table 10 details the skills aimed for this unit.

Table 10. Unit 3: Objectives by skills

Skill	Objectives
Speaking	Talking about prices; giving opinions; discussing preferences; making comparisons; buying and selling things
Grammar	Demonstratives: this, that, these, those; one and ones; questions: how much and which; comparisons with adjectives
Pronunciation/Listening	Sentence stress
	Listening to people shopping; listening for items, colours and prices
Writing/Reading	Writing a text message
	"Fergie of the Black Eyed Peas"

After the pretests 31.3% words (n=24) were chosen for the intervention, from a total of 79 words. This is the unit with the largest number of words. See Table 11 for details.

Table 11. List of words that more than 50% of students did not know in the pretest from Unit 3; the activities in which they appear and observations relating to their usage and translation.

Unknown words	Student's Book								Workbook				Qualitative Observations
	Snap-shot	Role play	Writing	Word Power	Listen-ing	Reading	Conver-sation	Gram-mar Focus	Gram-mar	Readin g	Writing	Voca-bulary	
Necklace		✔							✔	✔	✔✔	✔✔	
Scarf							✔	✔	✔				
Socks				✔									
Tie				✔									
Wallet		✔											
Watch		✔			✔							✔✔	Noun: This word during this unit refers to a gadget that shows the time. Instead, students could provide the translation of a different part of speech: verb (mirar)
Leather				✔				✔	✔		✔	✔	
Rubber				✔									
Silk				✔					✔		✔	✔	

Effects of exposure to L1 translation in vocabulary acquisition in English as a Foreign Language with col-
lege students

Unknown words	Student's Book								Workbook				Qualitative Observations
	Snap-shot	Role play	Writing	Word Power	Listen-ing	Reading	Conver-sation	Gram-mar Focus	Gram-mar	Readin g	Writing	Voca-bulary	
Wool				✔			✔	✔	✔✔		✔	✔	
Clerk									✔				
Cup			✔										Noun: In this unit this word refers to a small container for drinking liquids.
Customer							✔						
Item					✔	✔							
Painting			✔										Noun: This word in this unit refers to a piece of arte. It could get confused with the present participle of the verb paint.
Paperback		✔											
Speakers		✔											
Cheap		✔							✔		✔		
Each							✔						
Jealous	✔												

Unknown words	Student's Book								Workbook				Qualitative Observations
	Snap-shot	Role play	Writing	Word Power	Listen-ing	Reading	Conver-sation	Gram-mar Focus	Gram-mar	Readin g	Writing	Voca-bulary	
Loving	✔												Adjective: This word is used to describe a personality type. It could be mistranslated with the present participle of the verb Love.
Powerful	✔												
Stylish							✔						
Warm							✔		✔				

*Note: * Significant difference*

Results revealed statistical significance (p<0.05) in 12 out of 25 words that were included in the vocabulary presentation in the experimental group. The words that presented most improvement were *tie* and *loving*.

In the control group 19 words presented statistical significance (p<0.05): *Clerk, loving, silk, socks, wallet* and *wool.* Three words did not present statistical significance in either of the groups: *item, cup* and *speakers*. The statistics are presented in Table 12.

Table 12. Pretest and posttest results for unknown words from Unit 3. The summed pretest and posttest scores are presented. Forgot is the number of students who responded correctly in the Pretest but erred in the posttest, while Learned are those that erred in the pretest and responded correctly in the posttest. The p-value is McNemar's χ^2 of these differences. Grey shadows highlight words with significant differences.

Word	Experimental Group					Control Group				
	Pre test	Post test	Forgot	Learned	p.value	Pre test	Post test	Forgot	Learned	p.value
Cheap	6	16	2	12	0.013	10	14	0	4	0.125
Clerk	3	6	2	5	0.453	3	11	0	8	0.008
Cup	10	13	2	5	0.453	8	10	0	1	>0.999
Customer	5	12	1	8	0.039	4	11	0	7	0.016
Each	4	5	1	2	>0.999	3	10	0	7	0.016
Item	6	9	2	5	0.453	8	8	1	1	>0.999
Jealous	5	10	2	7	0.180	3	10	0	7	0.016
Leather	6	14	1	9	0.021	7	14	0	7	0.016
Loving	9	19	0	10	0.002	6	14	0	8	0.008
Necklace	9	16	1	8	0.039	4	13	1	10	0.012
Painting	8	13	3	8	0.227	6	11	0	6	0.031
Paperback	1	7	0	6	0.031	1	7	0	6	0.031
Powerful	6	12	0	6	0.031	6	13	0	7	0.016
Rubber	4	13	0	9	0.004	7	13	0	6	0.031
Scarf	10	14	1	5	0.219	7	13	0	6	0.031
Silk	10	15	2	7	0.180	6	15	0	10	0.002
Socks	9	11	3	5	0.727	7	15	0	8	0.008
Speakers	7	9	2	4	0.688	7	10	1	4	0.375
Stylish	1	8	1	8	0.039	1	8	0	7	0.016
Tie	8	18	0	10	0.002	4	10	1	7	0.070
Truthful	2	4	1	3	0.625	3	8	0	6	0.031
Wallet	4	11	0	7	0.016	3	13	0	10	0.002
Warm	6	11	1	6	0.125	1	8	0	7	0.016
Watch	18	12	7	1	0.070	10	14	0	4	0.125
Wool	7	15	0	8	0.008	4	13	0	8	0.008

3.4.2   Unit 4: I really like hip-hop

Unit 4 is focused on activities related to preferences and likes. Student can practice English describing their favourite music, movies, TV shows. Table 13 details the skills aimed for this unit in speaking, grammar, pronunciation/listening, and writing/reading. After the pretest 26.1% (n=6) of the vocabulary was chosen for the intervention from a total of 23 words (Table 14).

Table 13. Unit 4: Objectives by skills

Speaking	Talking about likes and dislikes; giving opinions; making invitations and excuses.
Grammar	Demonstratives: this, that, these, those; one and one's; questions: how much and which; comparisons with adjectives.
Pronunciation/Listening	Intonation in questions.
	Identifying musical styles; listening for likes and dislikes
Writing/Reading	Writing a text message
	"Fergie of the Black Eyed Peas"
	Reading about a famous entertainer

Table 14. List of words than more than 50% of students did not know in the pretest from Unit 4; the activities in which they appear and observations relating to their usage and translation.

Unknown words	Student's Book		Workbook				Qualitative Observations
	Role play	Reading	Grammar	Reading	Writing	Vocabulary	
Rapper		✔					
Award		✔					
Grass	✔						
Highlight		✔					
Whole	✔	✔					
Worldwide		✔					

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Although this unit had the smallest number of unknown words, only the word *award* in the experimental group presented statistical significance comparing the pretest with the posttest. The control group presented statistical significance in the words *award, whole* and *worldwide.* The words *grass, highlight, and rapper* did not present any significance in either the experimental or the control group (Table 15)

Table 15. Pretest and posttest results for unknown words from Unit 4. The summed pretest and posttest scores are presented. *Forgot* is the number of students who responded correctly in the pretest but erred in the posttest, while *Learned* are those that erred in the pretest and responded correctly in the posttest. The p-value is McNemar's χ^2 of these differences. Grey shadows highlight words with significant differences.

Word	Experimental Group					Control Group				
	Pre test	Post test	Forgot	Learned	p.value	Pre test	Post test	Forgot	Learned	p.value
Award	3	12	0	9	0.004	6	11	0	6	0.031
Grass	4	9	1	6	0.125	7	10	1	4	0.375
Highlight	0	2	0	2	0.500	1	3	0	1	>0.999
Rapper	10	14	1	5	0.219	8	11	0	3	0.250
Whole	4	7	1	4	0.375	0	10	0	10	0.002
Worldwide	4	9	1	6	0.125	3	10	0	7	0.016

3.4.3 Unit 5: I come from a big family

Unit 5 refers to family and relationships. Students can develop language fluency by using the present continuous tense, sharing about their families and learning about their classmates' families. Table 16 provides details about the skills aimed for this unit.

Table 16. Unit 5: Objectives by skills

Speaking	Talking about families and family members; exchanging information about the present; describing family life.
Grammar	Present continuous; yes/no and Wh-questions, statements, and short answers; quantifies: all, nearly all, most, many, a lot of, some, not many, and few; pronoun: no one.
Pronunciation/Listening	Intonation in statements. Listening for family relationships.
Writing/Reading	Writing an email about family "Stay-at-Home- Dads"; Reading about three fathers

After the pretest, 39% of the vocabulary was selected for the intervention (n=16) from a total of 41 words. See Table 17.

Table 17. List of words than more than 50% of students did not know in the pretest from Unit 5; the activities in which they appear and observations relating to their usage and translation.

Unknown words	Student's Book						Workbook			Qualitative Observations
	Snap-shot	Word Power	Listen-ing	Readin g	Con-versa-tion	Gram-mar Focus	Gram-mar	Wri-ting	Voca-bulary	
Children	✔			✔				✔	✔	Noun: For the study, the translation that was considered accurate was the plural form of the word child: niños. The translation in singular: niño, niña was considered incorrect.
Father		✔	✔	✔	✔			✔	✔	Noun: For the study the only translation that was considered was padre, disregarding other translations such as papá, papi.
Nephew		✔	✔						✔	
Niece		✔						✔	✔	
Challenge				✔						
Couple			✔				✔		✔	

Unknown words	Student's Book						Workbook			Qualitative Observations
	Snap-shot	Word Power	Listen-ing	Readin g	Con-versa-tion	Gram-mar Focus	Gram-mar	Wri-ting	Voca-bulary	
Fact	✔									
Freedom				✔						
Government					✔					
Household	✔									
Men				✔						Noun: For the study, the translation that was considered accurate was the plural form of the word man: hombres. The translation hombre, singular, was considered incorrect.
Percent								✔		
Population	✔									

Unknown words	Student's Book						Workbook			Qualitative Observations
	Snap-shot	Word Power	Listen-ing	Readin g	Con-versa-tion	Gram-mar Focus	Gram-mar	Wri-ting	Voca-bulary	
Women	✔									Noun: For the study, the translation that was considered accurate was the plural form of the word woman: mujeres. The translation mujer, singular, was considered incorrect.
Most	,					✔	✔	✔	✔	Adjective: Since this Unit focuses on quantifiers, the translation of this word was the adjective: mayoría.
Few						✔	✔	✔	✔	

In Unit 5, the experimental group 4 words presented statistical significance, *challenge, nephew*, *niece* and *percent*. The control group presented statistical significance in the following words: *challenge, children, few, freedom* and *most.*

The words that did not present significance in both groups: *couple, fact, father, few, government, household, men, population*, and *women.* See Table 18.

Table 18. Pretest and posttest results for unknown words from Unit 5. The summed pretest and posttest scores are presented. Forgot is the number of students who responded correctly in the Pretest but erred in the Posttest, while Learned are those that erred in the pretest and responded correctly in the posttest. The p-value is McNemar's χ^2 of these differences. Grey shadows highlight words with significant differences.

Word	Experimental Group					Control Group				
	Pre test	Post test	Forgot	Learned	p.value	Pre test	Post test	Forgot	Learned	p.value
Challenge	8	15	1	8	0.039	7	13	0	6	0.031
Children	6	9	1	4	0.375	4	10	0	6	0.031
Couple	7	7	3	3	>0.999	7	11	0	4	0.125
Fact	6	6	4	4	>0.999	7	8	1	3	0.625
Father	9	12	3	6	0.508	8	10	1	3	0.625
Few	10	15	2	7	0.180	7	13	0	6	0.031
Freedom	10	9	2	1	>0.999	6	11	0	6	0.031
Government	8	13	2	7	0.180	7	10	1	4	0.375
Household	3	7	0	4	0.125	4	6	0	1	>0.999
Men	3	2	1	0	>0.999	0	3	0	3	0.250
Most	0	1	0	1	>0.999	3	8	0	6	0.031
Nephew	8	17	1	10	0.012	7	13	1	7	0.070
Niece	9	17	1	9	0.021	8	13	0	4	0.125
Percent	6	15	1	10	0.012	7	11	0	4	0.125
Population	8	8	3	3	>0.999	8	11	1	4	0.375
Women	1	1	-	-	-	0	1	0	1	>0.999

3.4.4   Unit 6: How often do you exercise

Unit 6 focuses on sports and exercise. Students can practice English by talking about the activities they perform in their free time. Furthermore, students practice to provide details about their activities regarding the frequency of these.Table 19 presents details about the skills aimed for this unit.

Table 19. Unit 6: Objectives by skills

Speaking	Asking about and describing routines and exercise; talking about frequency; discussing sports and athletes; talking about abilities.
Grammar	Adverbs of frequency: always, almost, always, usually, often, sometimes, hardly ever, almost never, and never; questions: how often, how long, how well, and how good; short answers.
Pronunciation/Listening	Intonation with direct address
	Listening to people talking about free-time activities; listening to descriptions of sports participation.
Writing/Reading	Writing about favourite activities "Health and Fitness"; reading the text and taking a quiz.

After the pretest, 59.1% of the vocabulary from Unit 6 was selected for the intervention (n=13) from a total of 22 words. See Table 20.

Table 20. List of words that more than 50% of students did not know in the pretest from Unit 6; the activities in which they appear and observations relating to their usage and translation.

Unknown words	Student's Book								Workbook			Qualitative Observations
	Snap-shot	Writing	Speaking	Word Power	Listening	Reading	Grammar Focus	Gram-mar	Reading	Writing	Vocabu-lary	
Bicycling				✔	✔				✔	✔	✔✔	
Bowling				✔	✔				✔			
Jogging	✔				✔				✔			
Stretching	✔	✔					✔			✔✔	✔	
Fitness	✔		✔			✔						*Noun: Although this word may often be used in exercise related venues, such as gyms, it is not commonly used as part of the Spanish repertoire.*
Joke			✔									
Meal						✔						
Teen			✔						✔			
Treadmill	✔							✔				

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lege students*

Unknown words	Student's Book							Workbook				Qualitative Observations
	Snap-shot	Writing	Speaking	Word Power	Listening	Reading	Grammar Focus	Gram-mar	Reading	Writing	Vocabu-lary	
Above						✔						
Average							✔		✔			
Both						✔						
Either						✔						

Unit 6 revealed that in the experimental group 11 words presented statistical significance: *above, average, both, bowling, fitness, jogging, joke, meal, stretching, teen,* and *treadmill*. The words *above, bicycling, jogging, stretching* and *treadmill* also presented significance. The word *either* presented no significance in the experimental and the control group. See Table 21 for more details on statistics.

Table 21. Pretest and posttest results for unknown words from Unit 6. The summed pretest and posttest scores are presented. Forgot is the number of students who responded correctly in the Pretest but erred in the Posttest, while Learned are those that erred in the pretest and responded correctly in the posttest. The p-value is McNemar's χ^2 of these differences. Grey shadows highlight words with significant differences.

Word	Experimental Group					Control Group				
	Pre test	Post test	Forgot	Learned	p.value	Pre test	Post test	Forgot	Learned	p.value
Above	3	13	0	10	0.002	8	3	6	0	0.031
Average	2	12	0	10	0.002	4	7	0	3	0.250
Bicycling	8	14	2	8	0.109	6	13	1	8	0.039
Both	4	10	0	6	0.031	7	6	3	1	0.625
Bowling	6	18	0	12	<0.001	8	14	1	7	0.070
Either	1	2	0	1	>0.999	0	0	-	-	-
Fitness	3	17	0	14	<0.001	3	4	0	1	>0.999
Jogging	1	18	0	17	<0.001	7	14	1	8	0.039
Joke	4	13	0	9	0.004	6	7	3	4	>0.999
Meal	1	14	0	13	<0.001	3	8	1	7	0.070
Stretching	3	15	0	12	<0.001	3	11	0	8	0.008
Teen	7	15	1	9	0.021	8	7	3	1	0.625
Treadmill	1	9	1	9	0.021	0	8	0	8	0.008

3.4.5   Unit 7: We had a great time

Unit 7 focuses on the simple past tense. Students practice this tense by providing information about recent events and activities using the simple past Table 22provides details about the skills aimed for this unit.

Table 22. Unit 7: Objectives by skills

Speaking	Talking about past events, giving opinions about past experiences; talking about abilities
Grammar	Simple past; yes/no and Wh-questions, statements, and short answers with regular and irregular verbs; past of be.
Pronunciation/Listening	Reduction of did you.
	Listening to descriptions and options of past events and vacations.
Writing/Reading	Writing an online post "Vacation Posts"; Reading about different kinds of vacations.

After the pretest, 35.1% of the vocabulary from Unit 7 was selected for the intervention (n=13) from a total of 37 words. See Table 23 for details about word appearance and qualitative features.

Table 23. List of words that more than 50% of students did not know in the pretest from Unit 7; the activities in which they appear and observations relating to their usage and translation.

Unknown words	Student's Book						Workbook				Qualitative Observations
	Writing	Word Power	Listening	Reading	Conversa-tion	Grammar Focus	Gram-mar	Reading	Writing	Vocabu-lary	
Contest					✔						
Glaciers				✔							
Laundry		✔						✔		✔	
Noise					✔						*Noun: It was expected that this word would cause confusion with the word Nose due to the similarity in spelling.*
Retreat				✔							
Ruins	✔										
Waves					✔						
Weather					✔		✔		✔	✔	
Wildlife				✔							

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Unknown words	Student's Book						Workbook				Qualitative Observations
	Writing	Word Power	Listening	Reading	Conversa-tion	Grammar Focus	Gram-mar	Reading	Writing	Vocabu-lary	
Awful			✔								
Broke						✔		✔			*Noun: This word could get confused with the simple past of the verb break. The only translation that was accepted was: quebrado (having run out of money)*
Cloudy					✔						
Foggy						✔				✔	

5 words presented statistical significance in the experimental group. *Weather* was the word with most change. The control group presented statistical significance in the word *ruins.* The words: *awful, broke, cloudy, foggy, glaciers, noise, retreat,* and *waves* did not present any significance in either of the groups. See more details in Table 24.

Table 24. Pretest and posttest results for unknown words from Unit 7. The summed pretest and posttest scores are presented. Forgot is the number of students who responded correctly in the Pretest but erred in the Posttest, while Learned are those that erred in the pretest and responded correctly in the posttest. The p-value is McNemar's χ^2 of these differences. Grey shadows highlight words with significant differences.

Word	Experimental Group					Control Group				
	Pre test	Post test	Forgot	Learned	p.value	Pre test	Post test	Forgot	Learned	p.value
Awful	4	10	1	7	0.070	4	6	1	3	0.625
Broke	7	7	5	5	>0.999	4	4	1	1	>0.999
Cloudy	6	7	1	2	>0.999	8	10	1	3	0.625
Contest	2	10	1	9	0.021	6	10	0	4	0.125
Foggy	4	10	1	7	0.070	6	4	3	1	0.625
Glaciers	6	11	2	7	0.180	4	6	1	3	0.625
Laundry	8	15	1	8	0.039	7	10	3	6	0.508
Noise	7	10	1	4	0.375	7	8	1	3	0.625
Retreat	3	6	2	5	0.453	1	4	0	3	0.250
Ruins	7	14	0	7	0.016	4	10	0	6	0.031
Waves	4	9	0	5	0.062	7	8	0	1	>0.999
Weather	5	14	1	10	0.012	8	11	1	4	0.375
Wildlife	5	12	0	7	0.016	7	6	1	0	>0.999

3.4.6 Students' perception pilot study

At the end of the intervention, the 21 students in the experimental group were given a semi-structured interview in their native language with four guiding questions, which were later analysed, translates and tabulated by the researcher.

The intervention allowed the researcher to gain the students perspectives on the intervention, both how it helped the students and how it influenced their study habits.

Perception about test results (pretest - posttest)

Based on the opinions from the first question: *Do you believe your responses changed from the pretest to the posttest?* Interesting facts were found:

a.   18 students believed their answers did improve. They mentioned that the methodology motivated them to study. Some of the things that were mentioned are:

- *The responses changed a lot because we encountered the words again in the activities from the book.*
- *I recognized some of the words in the book.*
- *In the first test I could not answer with the meaning, and at the final quiz I was able to fill most of the answers.*
- *The visual aid helped a lot.*
- *I checked the activities from the unit and studied from the book.*
- *I tried to study harder.*
- *It encouraged me to continue to study.*
- *I did some research at home.*

b.   Three students said overtly that their responses did not change:

- *I think my responses were the same.*
- *I do not think my responses changed.*
- *No, they did not change.*

Opinions about the methodology used during the semester

The second question: Do *you believe that the exposure to the vocabulary with the translation and pronunciation aid to improve vocabulary knowledge?*

a. 21 students believed that the exposure to vocabulary at the beginning of the class had a positive impact, it can be considered they were motivated:

- *We could remember words that were presented to us.*
- *We had the opportunity to see the words many times.*
- *It helped us to use these words in sentences and paragraphs.*
- *There were so many words I did not know at the beginning and now I know them.*
- *It helped me to remember what I studied in High School.*
- *The fact that the presentations were at the beginning of every class helped me to focus.*

b. Two students mentioned pronunciation as one of the key features of the vocabulary presentation

c. One student said that learning results depended on the attention paid to the class.

d. One student mentioned that this methodology only helped for his short-term memory, that he would not remember the words in the long term.

Vocabulary: autonomous learning

Question number three: *Did you study vocabulary at home?* Responses provided an individual and group perspective regarding this topic.

a. Seven students did not devote time to study vocabulary.

b. 14 who did dedicate time to study vocabulary words, mentioned that they *would*

- *Look up the meaning of an unknown word in the dictionary.*
- *Read and highlight unknown words to look them up in the dictionary.*
- *Repeat the words.*
- *Write them down.*
- *Look up their pronunciation.*
- *Watch movies in Spanish with English subtitles.*

Importance of vocabulary

Through question number four: *Based on your opinion, what is the importance of vocabulary in English learning?*

a. Every student acknowledged the importance of vocabulary to learn English, they highlighted that vocabulary is essential to convey ideas, to structure sentences and to be able to communicate with people:

- *Without vocabulary we cannot speak.*
- *Vocabulary and connectors are everything.*
- *It's important so we can pass this level of English.*
- *You need to know the meaning of the words so you can make sentences and understand them.*
- *To know vocabulary is the most basic thing in learning English.*
- *We need to make sentences and write longer paragraphs.*
- *If we don't know vocabulary, we cannot understand foreigners.*
- *Knowing more vocabulary means knowing more of the language.*
- *I don't think I know enough vocabulary; I think if I knew more I would be able to construct sentences faster.*
- *If you travel to a foreign country and you don't know vocabulary you are lost.*

b. Two students commented that vocabulary has the same importance as grammar.

Based on the answers obtained from the semi-structured interview in the pilot study we can elaborate reflections regarding two subheadings: vocabulary learning, and vocabulary relevance.

Learners' perceptions attributed the acquired vocabulary to the intervention. 18 students thought their responses varied positively from the pretest to the posttest. Furthermore, some stated they could not remember what they had previously studied in high school and that the opportunity to encounter words more than one time helped them remember.

Every student had a clear opinion about why vocabulary acquisition was important in his or her English learning process. Some of them mentioned the importance of vocabulary in skills such as listening, speaking, reading, and writing. This agrees with the opinions of students from studies such as Green and Meera (1995) and Meera (1980), who referred to vocabulary as a key aspect. Therefore, a deficiency of vocabulary can stymie language development. Students also explained some of the autonomous learning activities performed in their house to learn more vocabulary. Despite the fact that students were not given an explanation about vocabulary learning strategies, some of them mentioned that they dedicated time to specific vocabulary learning-strategies at home.

3.5 Discussion and conclusion

This pilot study was developed under a pretest - posttest design and it is considered a mixed study since it involves quantitative and qualitative information. It analysed the evolution of 87 words that were considered unknown by at least half of the students from the experimental and the control group in the pretest. Changes were measured and compared through the Students t-test. Finally, results from the interviews conducted at the end of the semester were also analysed.

After analysing the data obtained from the pretest and posttest from both groups and considering the information collected through the semi-structured we can provide responses for our research questions.

1. *Does exposure to visual translation with aural input affect the participants' vocabulary learning?*

Based on the statistics, we may conclude that the strategy did not affect vocabulary learning. The experimental group ant the control group presented similar improvements, which prevents us to suggest that the presentation of vocabulary with translation and aural input, enhances vocabulary learning.

2. *What perceptions do students have regarding explicit vocabulary instruction through rote visual translation of vocabulary with aural input?*

Even though the experimental group did not outperform the control group, perceptions toward the intervention were overall positive. Participants seem to have enjoyed the activity and some believed that it helped them to remember vocabulary that they have encountered before. Furthermore, all of them ratified that English learning necessitates vocabulary instruction

 The discussion of the results is presented in detail in the following paragraphs.

3.5.1 Interesting findings

From the statistical findings, it is necessary to point out that both groups presented significance in 26 words. This may lead us to postulate that the activities in the textbook that included this vocabulary provided adequate learning opportunities for the participants. Nevertheless, it does not exclude the possibility that participants could have learned some of this vocabulary outside their formal instruction by coincidence. How each task and activity from the textbook may have influenced retention of these words is difficult to assess; though, based on the number of times

these vocabulary items were each presented in the book, we could suggest that the number of times the word is presented might not influence passive retention. Some of the vocabulary was only included a couple of times in the book, and although these words were selected due to low familiarity among the participants, it is possible that participants may have been uncertain of the meaning at the beginning, but once they encountered this vocabulary in context they were able to recall it. Other words were presented with greater frequency. For example, *wool* was presented in unit 3 in six different activities, whereas most vocabulary words were introduced two to four times. The frequency of appearance of this word in the textbook may have contributed to its gain in knowledge among the participants.

A group of vocabulary words was only learned by the control group. This may be an artefact of the small sample size, since it only one response -wrong- or -right-, could affect the significance. Nevertheless, we should consider and mention that vocabulary can be heard and included in one's personal repertoire by random coincidence. This vocabulary, which only presented statistical significance in the control group was present in the book between 1 to 4 times and there was not any similarity or pattern in the type of activity that included these words.

The vocabulary that did not present significance in both groups (n=20) encouraged us to analyse and try to suggest an explanation for these results.

- First, it was perceptible that many participants were not able to identify irregular plural nouns and just provided the singular form, this was marked as incorrect (e.g. *children, men, women*).
- Second, certain nouns were confused with a different part of speech; some participants translated the adjective *painting* as the present participle of the verb *to paint*. Furthermore, it is clear that students provided an alternative meaning for the words *broke* and *watch*. At the beginning a group of students provided the response that was requested, the adjective for *broke*: *quebrado* and the translation of the noun *watch*: *reloj*. Nevertheless, in the posttest they responded with the simple past of break (*rompió*) and the infinitive of verb watch (*mirar*).
- Third, we considered some translations incorrect in an overly strict manner (e.g. *father, warm, cup*).
- Fourth, the vocabulary *highlight*, *worldwide* and *household* may have presented some difficulty for students in acquiring its meaning since they are compound words. Some students provided the translation of the verb *highlight* (subrayar).
- Fifth, synformy also may have had influence in the translations given. *Noise* is written very close to the word *nose* in English and some

participants wrongly gave this translation instead. The word *fact*, may have also given students a false perception of the translation and they provided the noun *factor* as an answer.

A part of the vocabulary that does not follow either of the suggested explanations mentioned above. These words do not share similarities in synformy, are not irregular plurals or compounds. It is not possible to elicit a clear explanation of why they were not acquired during the intervention period. We may suggest that rote learning does not provide sufficient input and does not require deep processing for the acquisition of this particular vocabulary. This vocabulary might require additional exposure, or activities to provide retrieval opportunities for the learner.

3.5.2   Reflections on the pilot study

Pilot studies are not found in all doctoral dissertations. As Prescott and Soeken (1989) consider, they might be under-estimated, under-discussed and even under-reported. In the case of this investigation, we feel it is important to describe in detail how the pilot study was conducted to support the adjustments made regarding the research questions and the methodology.

The results suggest that the explicit methodology employed during the pilot study was not enough to significantly increase vocabulary learning. We saw little difference between the experimental and the control group, although we suspect that the sample size may have obscured possible improvements. Therefore, a larger sample needs to be collected to validate that explicit vocabulary activities can improve vocabulary acquisition.

This first section gave insight to a methodological flaw and encouraged us to implement a complementary strategy for the main study. For the main study some changes have been implemented to obtain a wider perception on the methodology and a reflection on vocabulary learning strategies. The main study will introduce the following changes:

- Larger sample:
  - o To provide a better understanding of the starting vocabulary level in this course and participants' vocabulary development throughout time and support the statistics.
- Additional methodology:
  - o Web-based vocabulary activities to enhance vocabulary acquisition in the experimental group.
- Analysis based on word level (CEFR):
  - o To provide additional information about the vocabulary included during this level and how the methodology affected its acquisition.

- Word by word analysis presenting vocabulary that obtains statistically significant improvement in each group with Mcnemar's chi-squared test and also it will present the following:
  - Words that were learned
  - Words that obtained a correct response at the pretest and posttest
  - Words that were forgotten
  - Words that were always wrong, meaning that students did not know this word before nor after the intervention.
- The Chi-square test of proportions of the percentages will be used to present the percentage of the participants who did not provide a correct response in the pretest but did in the posttest and compare this information between groups.
- Words from the CEFR levels C1 and C2 will not be included in the study since students were not familiarized with any of these words in the pretest. Vocabulary from these levels may be too advanced for participants in learning A2 English.
- The main study will focus primarily on vocabulary acquisition from level A1, A2 and B1.
- The B2 will not be excluded in the diagnostic test in the main study since it was interesting to evidence that students were familiarized with 32.1% of the vocabulary from this level at the beginning of the experiment. Depending on the familiarity of participants towards this level in the diagnostic test we will have considered whether or not to include or not this level as part of the intervention.

Some vocabulary was presented with no significance either in the control group or the experimental group. This was pointed out in the analysis in section 3.5.1. Although it is not plausible to provide a causal explanation for why this vocabulary in particular presented these results, we identified surprising and unexpected results, which elicited a change in our study. The vocabulary that will present further clarification in the pretest and posttest in the main study take part in Unit 5 and also some words that were confused with different part of speech will be clarified so students do not provide an alternative translation (e.g. verb instead or noun, or noun instead of adjective).

Due to the scarce familiarity of a specific group of irregular plurals encouraged us to regard some adjustments in the tests and think over the consideration and parameters used to measure a response "right" or "wrong".

- Children: clarify that this is a plural noun.
- Men: clarify that this is a plural noun.
- Women: clarify that this is a plural noun.

The correct translation for the word *father* in the pretest and posttest was *padre.* This might have been overly strict, since responses such as *papi, papá, pa* could have been considered correct since it semantically represents the same noun. The main study will classify these other responses as correct. It is believed the same situation happened with the adjective *warm,* which presented some translations of *caliente* instead of *tibio.* This could have also been overly strict, and therefore both translations will be considered correct in the main study.

For some words, the response that the participants provided did not match the meaning we hoped would be noticed. Nevertheless, they provided a different but correct meaning. For these words we will include a clarification with the part of speech that the word represents in the test.

- Broke: clarify that it is an adjective.
- Watch: clarify that it is a noun.
- Drink: Clarify that it is a noun.
- Highlight: Clarify that it is a noun.
- Cup: will accept the responses *taza* and *copa.*

The following nouns will present a clarification that they are not referring to the present participle of each verb but are nouns or adjectives.

- Bicycling: clarify that it is a noun.
- Jogging: clarify that it is a noun.
- Stretching: clarify that it is a noun.
- Loving: clarify that it is an adjective.
- Laundry: clarify that it is a noun.
- Painting: clarify that it is a noun.
- Retreat: clarify that it is a noun.

3.5.3   Final comments

Both the experimental group and the control group improved their vocabulary knowledge. However, the intervention did not significantly increase the overall vocabulary knowledge between the groups. Thus, it has not been possible to attribute gains from the experimental group only to the explicit exposure. This outcome complies with Jones & Waller (2017) where both groups taking part of a vocabulary acquisition study, improved their knowledge but there were no statistically significant differences between the experimental and control group.

As Nation (1993) mentioned, "vocabulary flood" can be a solid first step. Since it is believed that the small sample may have affected the results, further study with a larger sample of participants is needed to understand the influence that explicit

vocabulary activities can have on vocabulary learning. We expected our results to corroborate with what had been mentioned by Laufer (2005) and Schmitt (2008). Both authors claimed that explicit vocabulary learning aids lead to gaining a greater amount of vocabulary, and is a viable option for short periods of time.

It could be postulated that the activities presented in the textbook do not consider vocabulary acquisition as a main objective. Although this study does not aim to find causal inferences for the results, there are some possible explanations for the findings.

First, it has been stated that vocabulary presented in textbooks throughout different activities can provide opportunities for vocabulary learning. Even though most words were included in more than two activities, the target vocabulary was not highlighted, and in some cases students did not need to fully understand the meaning of this word to complete the activity. Therefore, it is believed that students did not consciously notice these words and the word might have not been retrieved enough times. This explanation would line and support the validity of the levels-of-processing theory, which considers that memory is directly linked to the quality and complexity of information processing (Craik & Lockhart, 1972). It could be assumed that the activities only elicited a shallow processing and therefore vocabulary could not be recalled.

Second, we can generally agree with what Nation (2015) explained: if students do not consciously note words that they would be unlikely to guess from the context, they will have difficulty remembering their meaning.

Third, a possible explanation for those words that gained statistically significant improvement, but were not seen repeatedly on book activities, is that participants might have searched for words for their own learning after the pretest when these words were presented, or for some reason the word resonated with them and was retained for personal motives. These results can provide some suggestions regarding the degree of variation among the participants in this study, in the particular words that were learned, but also the process required for each one to store in their memory.

The results obtained from this Pilot Study agree with VannPatten (1990) who suggested that in early stages second language learners could encounter great difficulty in learning form and meaning simultaneously. Furthermore, vocabulary attrition has been evidenced in various words. The main study will shed light into this phenomenon, since it will present some differences regarding acceptable translations and it will include some clarifications so participants do not get confused with other parts of speech or number (e.g. irregular plural nouns).

This pilot study focused on one of the primordial aspects needed for vocabulary acquisition, which is *noticing* (Nation, 2001) (Review Chapter 2). The methodology

implemented did not evoke the expected improvements from the experimental group. For this reason, the second aspect of Nation (2013) proposal, *retrieval*, has been implemented in the main study. From the variety of methodologies, which can be performed in class, we decided to implement web-based vocabulary activities, whereby students would not only be exposed to the new words rather passively, but would be required to actively use them. The general access to smartphones allowed this study to include the use of this tool in classrooms. The next chapter will describe how the main study was conducted in detail and the considerations taken for the inclusion of the new strategy

Chapter 4
Main Study

4.1 Introduction

This chapter will focus on describing how the main study was conducted. This research, as well as the pilot study, follows a pretest-posttest design. It aims to provide information about the efficacy of explicit vocabulary activities. The familiarity with target vocabulary will be compared between the control and the experimental group at the beginning of the study and after the intervention period. A combination of visual and aural exposure, plus the fulfillment of web-based vocabulary activities are employed as the intervention. The modifications that are presented in this chapter were taken into consideration based on a thorough analysis of the implementation of the pilot study. The modifications applied to this study are the following.

First, we incorporated a larger sample, which would provide stronger data to analyse. Second, this main study contains an additional methodology with web-based vocabulary activities, besides the presentation of the target vocabulary through the projector. Third, we included a word-by-word analysis. The pilot study evidenced that every word from the CEFR, levels C1 and C2 was unknown; this was not surprising since the participants had been placed on an A2 level through a placement test before the course started. Therefore, levels C1 and C2 of the CEFR were excluded from the diagnostic test as well as words that were unlisted in the

vocabulary list from the Oxford Advanced Learner's Dictionary website (OALD) (2020).

Our last and fifth change was implemented since we had encountered some particular results with certain nouns and adjectives. Participants seemed to ignore or forget the word number or confuse the part of speech. Therefore, it was decided to clarify in each case if the requested translation was either singular or plural and include the specific part of speech for each word. The differences in the methodology between the Pilot Study and the Main Study are summarized in Table 25.

Table 25. Main differences between the pilot study and the main study.

	Pilot study	Main study
Sample of participants	Sample (n=37)	Sample (n=132)
Methodology	Vocabulary presentation through slides	Vocabulary presentation through slides and Web-based activities
Vocabulary assessed and Included in intervention	Vocabulary from all CEFR levels	Vocabulary from levels C1 (n=7) and C2 (n=2) was not considered, neither were words that were not listed within any level (n=3)
Plural nouns	Diagnostic test did not present clarification on plural nouns	Clarify the number of plural nouns (n=3)
Nouns/Adjectives	There was no individual information about the part of speech of each noun/adjective	The specific part of speech was included above every word in the pretest and posttest

4.1.1 Objectives

Objectives number one and three are the same as the pilot study, nevertheless as we have implemented some modifications, which have been included in our second objective:

- To analyze the familiarity students have with vocabulary from their English Learning material.
- To present an initial exploration of the influence of an explicit vocabulary learning strategy with web-based vocabulary activities used for higher education students.
- To understand how the participants perceived the methodology used and the importance of vocabulary.

The research questions have been adapted to prove how a new addition to the methodology and some adjustments to the analysis would influence vocabulary acquisition. Therefore, the main study presents two research questions:

1. Does exposure to visual translation with aural input and web-based vocabulary activities improve participants' vocabulary learning?

2. What perceptions do students have regarding explicit vocabulary instruction through rote visual translation of vocabulary with aural input and web-based vocabulary activities?

4.1.2 Hypothesis

*   Daily exposure to visual translation of vocabulary to L1 and aural input, plus web-based vocabulary activities will benefit vocabulary growth in adult learners of English as a Foreign Language.

*   Students will prefer web-based vocabulary activities to rote visual translation of vocabulary with aural input.

4.2 Methodology

4.2.1 Participants

The control group and the experimental group of this study consisted of students enrolled in six different Foreign Language I classes, which correspond to A1.2 level. This subject is mandatory for students who have approved the CEFR A1.1 English level at the Cambridge English Placement Test proficiency exam (CEPT). Students take this test before the beginning of classes. Even though students may have taken English as a compulsory subject for various years, they have not reached a higher command level of this language. The low level of proficiency in some first year students in college could be related to a fairly scarce English education in Ecuador (See Chapter 2 for details). Further study is needed to know if there are other circumstances affecting students' English learning. Nevertheless, the participants' English learning background presented no correlation with any of the results from this study (Table 26).

The Language Unit of the University randomly assigned three classes to the researcher. The researcher was the professor of the three classes where the experimental intervention was employed. They were considered a single group for purposes of the analysis. The three classes that, did not present any planned exposure to vocabulary, had a different professor. Therefore, by convenience sampling one group became the control group and the other the experimental group. The professor of the control group coordinated the teaching sessions with the researcher. This

was performed to minimize the differences that could otherwise emerge in teaching.

Table 26. Socio-demographic details of participants in the main study

Details		Control group		Experimental group	
		n	%	n	%
Sex	Male	29	43.9	26	39.4
	Female	37	56.1	40	60.6
Faculty	Philosophy	21	31.8	24	36.4
	Business Administration	9	13.6	8	12.1
	Science and Technology	22	33.3	13	19.7
	Law	4	6.1	1	1.5
	Design	10	15.2	20	30.3
School	Public	34	51.5	33	50
	Private	32	48.5	33	50

Before the intervention began, to obtain information about the participants, they were asked to fill the same socio-demographic questionnaire (See Appendix A and B) that was performed with the participants from the pilot study. This information was collected in order to control variables that could influence the experiment; nevertheless these were not of central importance to the study (See Borg & Gall, 1998). Interesting findings from the questionnaire will be discussed in the results section.

At the beginning of classes, 140 students were enrolled in the study. One student did not participate in the socio-demographic questionnaire and seven students did not complete one of the main assessments, either the pretest or the posttest and were therefore removed from the study. A total of 132 first year students took part in this study. 66 students formed the control group and 66 students formed the experimental group, 52 (42.%) male students and 77 (63.1%) female students. The participants, at the time, studied at the following faculties: Philosophy, Business Administration, Science and Technology, Law, and Design. Their ages

ranged from 17 to 27 years in the control group (M=20.5, SD=2.7), and 16 to 26 years in the experimental group (M=19.6, SD=2.07). The socio-demographic questionnaire evidenced that half of the students graduated from a public school (n=33) and the other half from private school (n=33).

Details regarding years spent studying English and third-language knowledge are presented in Table 27. The division of participants shows a fairly equitable distribution, which makes the control group roughly equivalent to the experimental group.

Table 27. English learning background of participants in the main study

Details		Control group		Experimental group	
		n	%	n	%
English instruction (Middle school)	Between 1 to 3 hours/week	46	69.7	29	43.9
	More than 3 hours/week	17	25.8	26	39.4
	More than 5 hours/week	3	4.5	11	16.7
English instruction (High School)	Between 1 to 3 hours/week	27	40.9	18	27.3
	More than 3 to 5 hours/week	27	40.9	28	42.4
	More than 5 hours/week	14	21.2	20	30.3
Studied English at an English-speaking country	No	65	98.5	66	100
	Yes	1	1.5	0	0
English instruction outside formal education: institutes, private classes, etc.	I never studied English outside formal education	47	71.2	48	72.7
	Between 1 month to 1 year	11	16.7	11	16.7
	Between 1 to 3 years	8	12.1	7	10.6
Do you speak another language besides Spanish?	No	65	98.5	62	93.9
	Yes	1	1.5	4	6.1

4.2.2   Textbook

The university textbook for the class Foreign Language I, in the Main Study was the same one from the Pilot Study: *Interchange Fourth Edition Level 1A* from Cambridge University Press (Richards & Schmidt, 2013). Details about the skills and activities are presented in section 1.2.2 of Chapter 3. As mentioned in the previous chapter, this textbook includes the Student Book section and Workbook, which presents additional activities on grammar, vocabulary, reading and writing practice.

4.2.3   Instruments

The instruments employed in the Main Study were mostly the same as in the Pilot Study, except for the intervention, which included an extra activity. Refer to section 3.2.3 in the previous chapter for a description of the Social-demographic questionnaire, the Vocabulary Knowledge Scale (VKS), the slide presentation and the semi-structured interview. The instruments included in the pilot study and the main study, are presented with an X in Table 28.

Table 28. Instruments comparison (Pilot Study-Main Study)

Instrument	Pilot Study	Main Study
Social-demographic questionnaire	X	X
Vocabulary Knowledge Scale	X	X
Slide presentation	X	X
Web-based vocabulary activities	-	X
Semi-structured interview	X	X

Web-based vocabulary activities

Since the data from the pilot study did not present the expected results, for the main study an additional activity was implemented. Web-based vocabulary activities were elaborated by the researcher and reviewed by a professor of English as a Foreign Language with a masters' degree in TESOL. Each word was included in four different activities. First, in an activity of passive recognition; second, in an activity of sentence completion; third, in an activity of active recognition and the final activity was of reverse sentence completion.

The activities were elaborated in the webpage www.vocabtest.com. The researcher first created a teachers' account and elaborated each activity. This tool provides five different activities for vocabulary learning. The activities adapt to the vocabulary and the options you introduce to the site. Figure 13presents how unit 7 is displayed, as an example for the rest of the units.

Figure 13: Vocabtest Unit 7 display

For the main study, the following four activities were included:

- *Learning Definition,* a passive recognition activity*,* where the L2 target word is presented and the students are asked to choose the correct word in L1 from a pool of five options. See Figure 14.

> The word **Wildlife**
> MOST NEARLY means:
>
> A. Retiro
>
> B. Olas
>
> C. Horrible
>
> D. Nublado
>
> E. Vida salvaje

Figure 14. Activity: Learning definition/ Passive recognition

- *Vocabulary Used in a Sentence,* where the students need to select the missing word from a sentence in a pool of five different options. See Figure 15
-

> My sister works in the Amazon, she is a _____
> photographer
>
> Which word BEST COMPLETES this sentence?
>
> A. Initials
>
> B. Wildlife
>
> C. Noise
>
> D. Waves
>
> E. Cloudy

Figure 15. Activity: Vocabulary use in sentence

- *Reverse Definition,* an activity of active recognition, where an L1 word is presented and students are asked to choose the word in L2 that most closely matches the meaning. See Figure 16

Which word MOST NEARLY matches the
definition:
Vida salvaje

    A. Foggy

    B. Waves

    C. Awful

    D. Laundry

    E. Wildlife

•

Figure 16. Activity: Reverse definition/ Active recognition

- *Reverse Sentence* where students are presented with the target word and five incomplete sentences, they need to select the sentence where the target word fits best. See Figure 17

The word **Wildlife**
BEST COMPLETES which sentence below?

    A. My sister works in the Amazon, she is a _____ photographer

    B. There is too much _____ I cannot sleep.

    C. Mary is the best singer, she won a _____ last year.

    D. Today is very _____, I think it is going to rain.

    E. My name is Ryan Adams, and my _____ are RA

Figure 17. Activity: Reverse sentence activity

When students fail to answer a question, they can visualize a red *X* on the option they selected. They will visualize a red *X* on every incorrect option they choose and they will not be able to pass to the next question unless they select the correct option, see Figure 18. Furthermore, those questions in which students failed to answer correctly in the first try will recycle and appear again. The options are shuffled the second time the target word is presented. This sequence of reappearance of words that did not obtain a correct response in the first try provides a personalized approach, since it adapts to individual responses and therefore re-evaluates students' knowledge.

Figure 18. Vocabtest response sequence example

After they have responded to all the multiple-choice questions, students are able to visualize their scores. The figure below presents an example, as if the participant only has failed with the word *wildlife*. The participant can see their score in percentage at the top of the page and the table also presents results from everyone who has taken the vocabulary tests under the column "Correct*" and "Incorrect"*. Students were asked to email their results to the teacher so their participation could be registered. See Figure 19
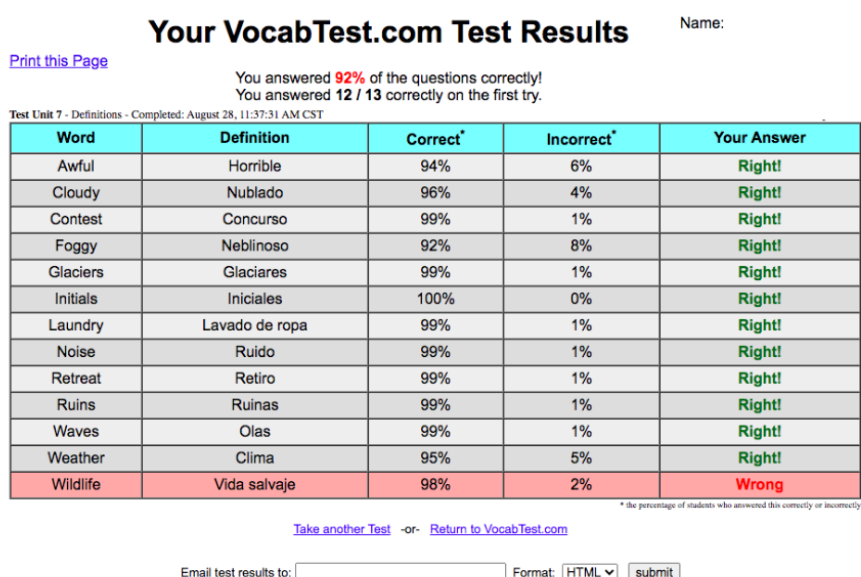
Figure 19. Example of the overall results students obtained at the end of each test.

4.2.4 Procedures

The main study was conducted during a full-semester. As explained in the pilot study, each semester at the University, where this study took place, lasts 16 weeks. It was developed with participants enrolled in the subject Foreign Language I, in which level A1.2 of English was taught. This course consisted of 8 units guided by the textbook *Interchange Fourth Edition Level 1A* from Cambridge University Press (Richards & Schmidt, 2013). The level syllabus suggested a period of two weeks for each unit. As in the pilot study, only 6 units were considered for the same reasons (see Chapter 3 section 3.2). The intervention occurred during a 12-week period.

Although the main study was executed similarly to the pilot study an extra activity was included in the intervention. Stages one to six were repeated in the same manner for each unit (see stages in Figure 20

```
┌─────────────────────────────────────────────┐
│                  Pretest                     │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│        Identification of target vocabulary   │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│               Pretest analysis               │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│                Intervention                  │
│  Vocabulary exposure │ Web-based vocabulary activities │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│                  Posttest                    │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│               Posttest analysis              │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│            Semi-structured interview         │
└─────────────────────────────────────────────┘
```
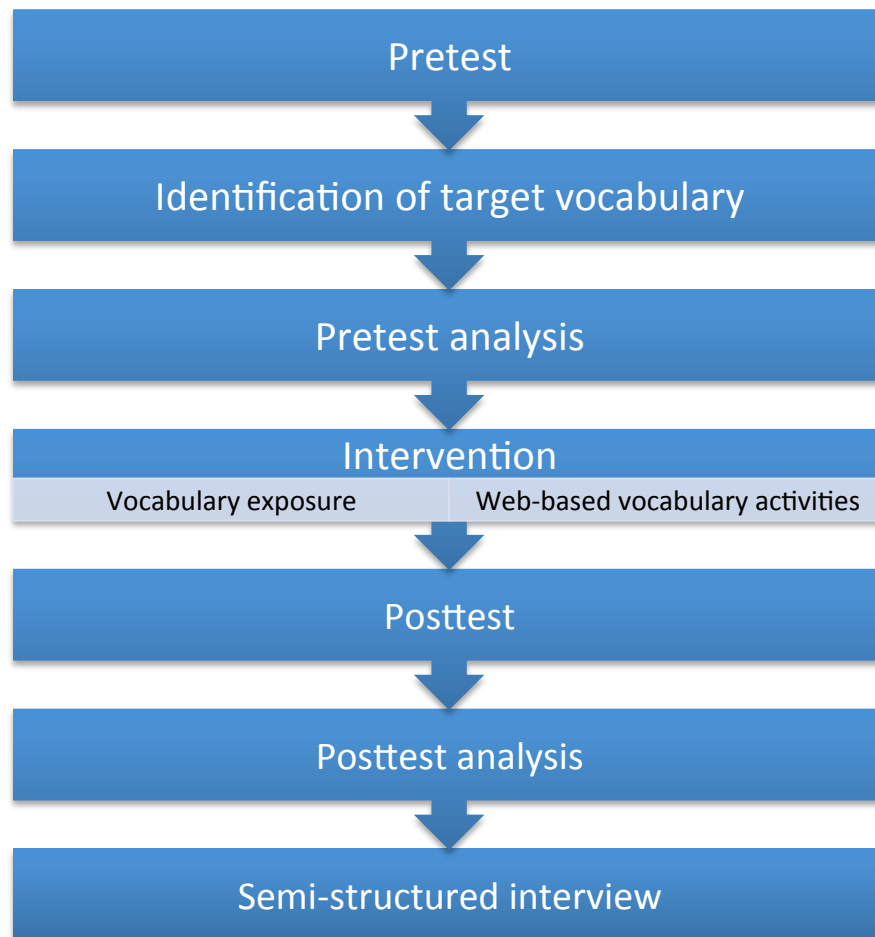
Figure 20. Procedures of the Main Study

127

First stage: Diagnostic test

The diagnostic test was given to the participants as the first stage. See details about the diagnostic test in section 3.2.4.1 Chapter 3.

Second stage: Identification of target vocabulary

132 diagnostic tests were collected and analysed with the same materials and procedure as the pilot study. These tests included specific information about the word number (singular/plural) and specifications about the part of speech (noun/adjective) in each word. For the statistical analysis known words were given a score of 1 and unknown words were given a score of 0. All unknown words were considered target words; these words were included in the intervention. This diagnostic test also served as the pretest for the target words.

Third stage: Analysis of the socio-demographic questionnaire and pretest

The data collected from the diagnostic test was analysed using the SPSS 25 software as well as the data collected from the questionnaires (see chapter 3 section 3.2.4.3 for a description of SPSS 25 software). The gathered data presented a normal distribution, and since two independent groups needed to be compared, the independent Student's t-test was used. Groups presented a similar knowledge of vocabulary at the beginning of the intervention ($p<0.05$).

Fourth stage: Intervention

The researcher elaborated the same intervention through a PowerPoint presentation that the one explained in Chapter 3 (3.2.3). Students followed the same procedure as in the pilot study to start the class. They were asked to place their phone on their desk and the overhead light in the classroom was dimmed. The vocabulary presentation was played for students three times a week: Monday, Wednesday and Friday, in different from the five-day a week presentation in the pilot study. Regular curriculum-related activities started once the presentation ended. The teacher did not recommend a particular strategy to adopt for their vocabulary learning. The control group did not have any intervention. Nevertheless the curriculum, class assignments and homework were the same for both classes.

The novel part of the intervention was executed on Tuesday and Thursday. During the beginning of the class students received a link through their Google Classroom account and did one web-based vocabulary activity each day. The vo-

cabulary presented to the participants was the same they saw on the PowerPoint presentation the previous day and the researcher developed each question. Since each unit lasted two weeks, students had to complete four web-based activities: *Passive recognition*, *Vocabulary Use in Sentences*, *Active recognition*, and *Reverse sentences*. For more details and examples about each web-based vocabulary activity review the instruments section 4.2.3.

Fifth stage: Posttest

Participants from the control group and the experimental group had to complete the posttest of the target words. This test was the same as the pretest. Students received a link to a Google Forms where they could respond to the adapted version of the VKS.

Sixth stage: Posttest analysis

The first six stages were employed for every unit in exactly the same manner. At the end of week 14, we had all the results from the pretests and the posttests and were able to start the statistical analysis.

First, the independent Student T-test, which compares the mean of two different samples, was employed to analyze the difference in performance between the control and the experimental group, by comparing their means.

Second, the paired T-test, which measures one group at different times, was used to compare the pretest and the posttest means scores within the control and the experimental group. The Chi-square of McNemar's was used to identify words that obtained a statistically significant learning improvement. This information was presented in a table to visualize the vocabulary that improved in both groups and in each group exclusively. This included every word from the vocabulary, even words that were known by participants in the beginning and at the end of the intervention period.

Third, statistics of the variation of word knowledge of the target vocabulary were obtained through the chi-square of proportions of the percentage of the participants who learned the target vocabulary during the intervention period. This includes only the vocabulary that had an incorrect response in the pretest but a correct response in the posttest and excluded the entries that presented a correct response in the pretest as well as the posttest.

Since the condition to identify a word as unknown was that half or more than half of students had to mark the word as if they did not know its meaning, it was believed that applying this condition again with the target words from the

posttest could provide interesting information. The respective findings will also be presented under the results section.

Seventh stage: Semi-structured interview

Finally, a semi-structured interview was conducted with all the students of the experimental group on week 16 (See Appendix G). It was performed outside their class sessions, with the same smartphone and transcript procedure as the Pilot study (see Chapter 3). See the materials section for more details about the semi-structured interview.

4.3 Results

4.3.1 Initial vocabulary level

The independent Student T-Test presented no significant differences between the groups at the beginning of the study (p=0.546). See Table 29. From the total of 238 words, the control group knew between 64 and 197 words, with a mean of 153 (SD=27.16). This corresponds to 64.3% of the vocabulary. The experimental group knew between 58 and 212 with a mean of 156 (SD=25.66), which corresponds to 65.5% of the total vocabulary. See Table 30.

Table 29. Welch Two Sample t-test results exploring differences in the means of the two groups in the pretest.

Mean Experimental	Mean Control	Difference in means	df	t.value	p.value
149.42	152.15	-2.73	129.72	-0.61	0.546

Table 30. Summary of the statistics from the pretest

Group	mean	sd	min	median	max
Control	149.42	26.46	64	152.5	194

Group	mean	sd	min	median	max
Experimental	152.15	25.25	59	152.0	218

Results from the independent Student t-test imply that participants from the experimental and control group had similar vocabulary levels before the intervention. See Figure 21
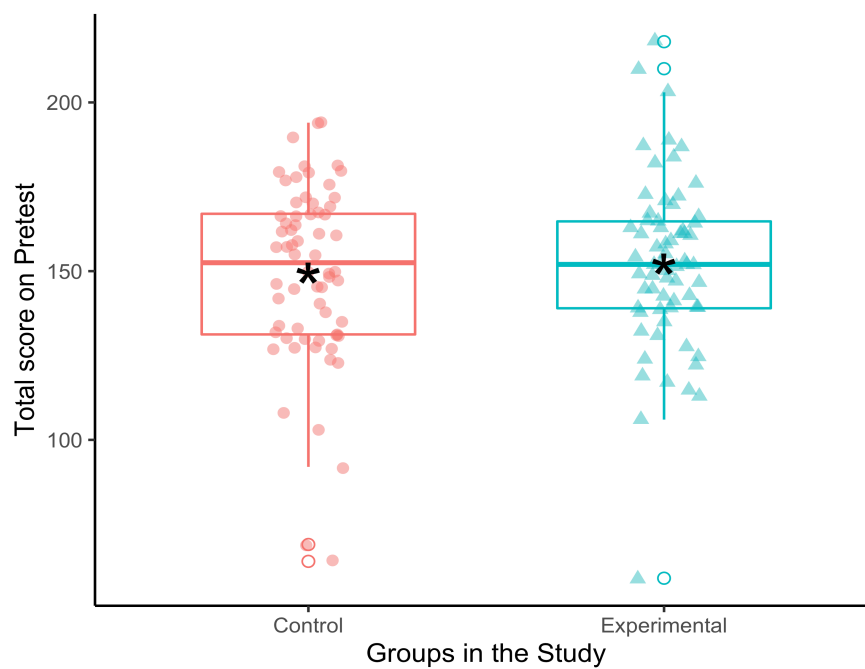
Figure 21. Results of the pretest of word knowledge (238 words) for the experimental and control groups from the main study. The asterisks represent the mean of each group.

4.3.2 Total word selection

76 vocabulary words were selected from the initial assessment of 238 words. These words were selected under the same consideration as in the pilot test. Words that were unknown by 50% or more students were categorized as unknown or unfamiliar and therefore added to the target vocabulary. 76 words represented 31.9% of the total amount of vocabulary. This vocabulary is presented through units in the textbook, as shown below:

- Unit two: 24% (n=11), from a total of 46 words
- Unit three: 36% (n=24), from a total of 75 words
- Unit four: 23% (n=5), from a total of 22 words
- Unit five: 39% (n=16), from a total of 41 words
- Unit six: 48% (n=10), from a total of 21 words
- Unit seven: 30% (n=10) from a total of 33 words

Figure 22presents the number of unknown and known words classified by unit. The percentage range between unknown words is from 22.4% to 47.6%. Unit 6 presents the highest number of unknown words and unit 2 and unit 4 the lowest.
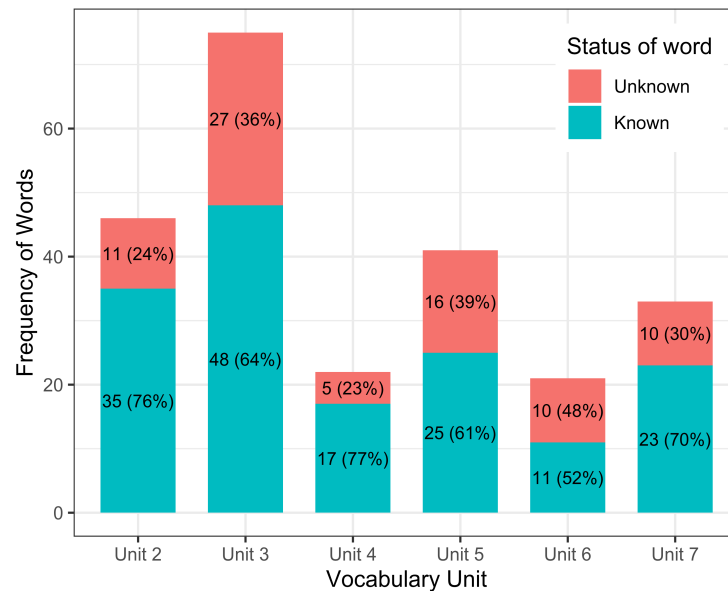
Figure 22. Frequency of known and unknown words from the vocabulary list of each unit in the intervention. The number of known and unknown words is shown within the bars and their percentage of the vocabulary in each unit is in parenthesis.

4.3.3 Word difficulty

In the same manner that in the pilot study, the vocabulary words included in this research were obtained from the English Textbook *Interchange Fourth Edition Level 1A*. Although this material introduces vocabulary from every CEFR level, for the main study the upper levels C1 and C2 were not included. From the results of the pilot study; we concluded that these levels were beyond the students' learning level. It was expected to find that levels A1 and A2 included most of the vocabulary, a total of 188 words. Levels B1 and B2 only contained 50 words. See Figure 23

- A1 CEFR level: 16.7% (n=22), from a total of 128 words
- A2 CEFR level: 40.0% (n=24), from a total of 60 words
- B1 CEFR level: 52.2% (n=12), from a total of 23 words
- B2 CEFR level: 66.7% (n=18), from a total of 27 words
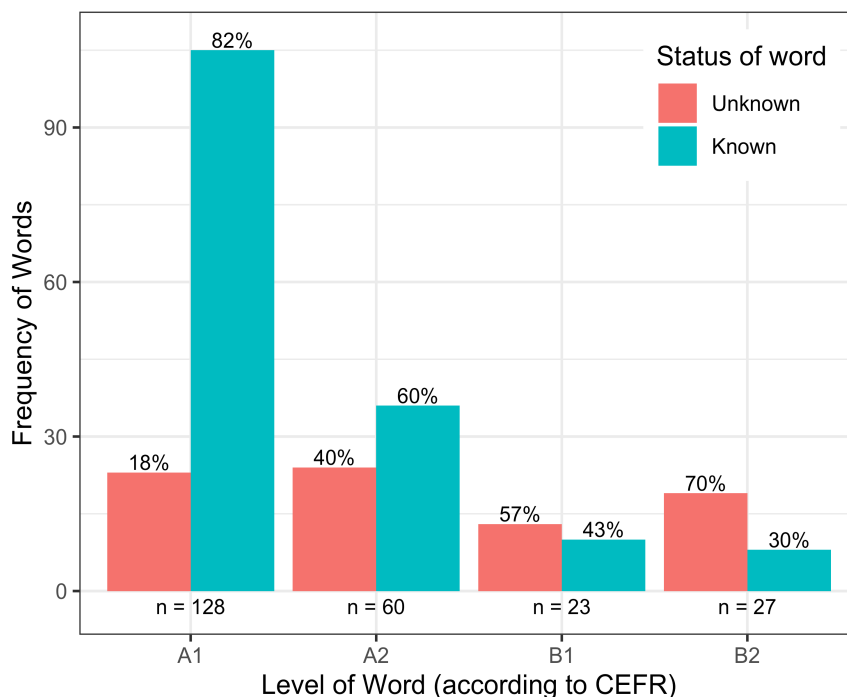
Figure 23. Frequency of known and unknown words from the vocabulary list of each unit in the intervention by CEFR level.

4.3.4   General improvement after the intervention period

Figure 24 presents the general behavior of the data, which includes vocabulary knowledge of the participants from both groups before and after the intervention. Both the experimental and the control group presented significant changes (p=0.000). This means that the vocabulary was also learned without the intervention. Nevertheless, the graph shows that the pretest and the posttest of the experimental group present a greater distance between its data, which indicates greater learning.
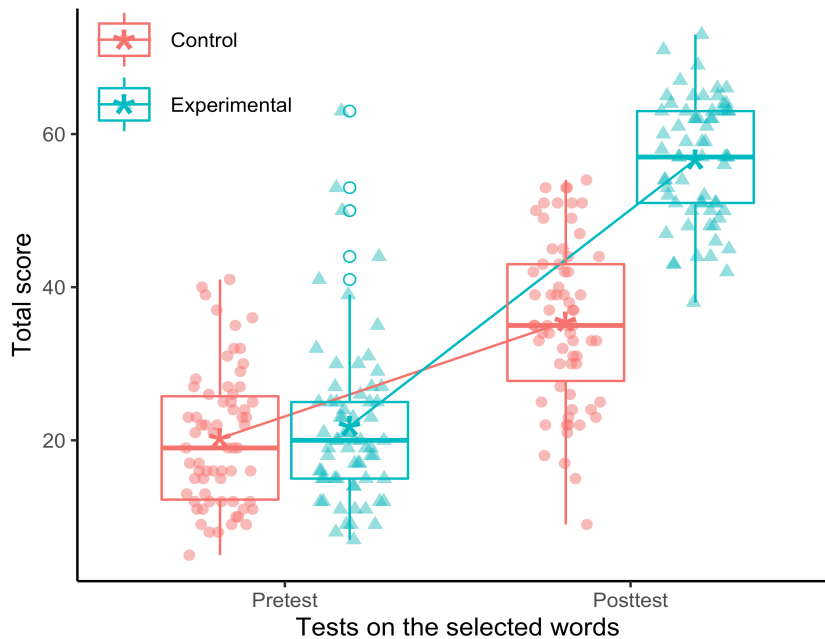
Figure 24. Results of Pretest and posttest separated by group. Solid line indicates change in mean between pretest and posttest.

The differences between groups can be express in two different manners (for the data see Table 31.

First, we compared the mean knowledge of words between the groups; the control group learned a mean of 36 words, corresponding to 47% of the target vocabulary. The experimental group reached a mean of 57 words learned, which is 75% of the target vocabulary. The difference between groups is 28%.

Second, there is also a difference considering only words that were learned in the time of the intervention in both groups. The control group learned a mean of 15 words at the time of the intervention (19.4%). This means that the control group did not know these words at the beginning. Whereas, the experimental group registered a mean of 35 vocabulary words, presenting an improvement of 46.1%.

The data presented a statistical difference between groups after the intervention period, as is presented on table 8. The vocabulary that presented statistical significance comparing the pretest with the posttest is presented on table 9.

Table 31. Summary statistics for pre and posttest in the control and experimental group (the pretest includes every word assessed).

Group	Test	mean	sd	min	median	max
Control						
	Pretest	20.26	8.78	5	19	41
	Posttest	35.52	10.69	9	35	54
Experimental						
	Pretest	21.85	10.81	7	20	63
	Posttest	56.65	7.94	38	57	73

There is a notable difference between the control group and the experimental group in the pretest and posttest. The independent t-test did not present a significant difference between groups at the pretest (p=0.355), whereas in the posttest the difference is larger and it presents statistical significance (p=0.000). See Table 32.

Table 32. Independent t-test of differences between performances of study groups on the pretest and posttest for knowledge of the 76 selected words.

Test	Mean Control Group	Mean Experimental Group	Difference in means	df	t.value	p.value
Pretest	20.26	21.85	-1.59	124.76	-0.93	0.355
Posttest	35.52	56.65	-21.14	119.92	-12.89	0.000

The vocabulary that presented statistically significant improvement is presented in Table 33. This vocabulary was assessed with the Chi-Square of McNemar's; it includes the vocabulary that presented correct responses in the pretest as well. As it can be seen there are 14 words that presented statistically significant changes only in the experimental group.

Table 33. Vocabulary words with statistically significant improvements in recall after the intervention.

Group	Words with significant improvement
Both (n = 62)	Accountant, Busy, Cashier, Drink, Great, Heaven, Salesperson, Schedule, Server, Bag, Cheap, Cotton, Customer, Each, Earrings, Item, Jealous, Leather, Light, Painting, Powerful, Rubber, Scarf, Silk, Silver, Socks, Speakers, Wallet, Wool, Whole, Worldwide, Challenge, Couple, Daughter, Fact, Few, Government, Household, Most, Nephew, Percent, Population, Some, Uncle, Above, Average, Bicycling, Both, Either, Fitness, Joke, Meal, Stretching, Awful, Cloudy, Foggy, Glaciers, Noise, Ruins, Waves, Weather, Wildlife
Control group only (n = 0)	
Experimental group only (n = 14)	Passenger, Thing, Clerk, Necklace, Stylish, Tie, Award, Grass, Highlight, Aunt, Freedom, Niece, Jogging, Contest

The Chi-Square of McNemar's does not exclude vocabulary that was familiar to some participants at the beginning, with the pretest and at the end with the posttest. Therefore, it was considered necessary to assess vocabulary knowledge in both groups considering only those responses that were incorrect in the pretest and then correct in the posttest. For this reason, we included an analysis conducting a Chi-Square test of proportions of the percentages of only those participants whose answers changed from incorrect to correct in specific vocabulary. For example, the word *cashier* in participant 'y' was included only if in the pretest the participant provided the incorrect translation, but gave the correct response in the posttest; whereas, if the same participant provided the correct translation for the word *accountant* in the pretest and the posttest, this word for this participant was not included in the analysis. It was considered that the latter does not present any learning process, but only maintenance of the vocabulary. Results from this analysis are presented in the following section by units.

4.4 Results of the vocabulary learning by unit

To analyse the results and present them, first we identified words that were learned, words that participants always answered correctly, words that were forgotten and words that were always wrong. The latter would mean that participants did not know these words at the beginning, and they did not know these words at the end. Consequently, we could suggest that this vocabulary was not learned during the intervention period. Only the vocabulary that received a correct response in the posttest after getting an incorrect response in the pretest was included. We used the statistical Chi-squared of proportions of the percentages of participants who learned the vocabulary during the intervention period. This excludes participants that knew the vocabulary in the pretest and posttest. This test determined if there existed a statistically significant improvement of vocabulary learning in the posttest between groups. The proportions were calculated by dividing the number of participants who learned a word by the number of students who did not know this word in the pretest. The vocabulary that was forgotten was included in the unknown category, since it might have been lost during the intervention period or the correct response was a lucky guess, and therefore, it was not learned.

In the next section the results obtained from vocabulary categorization per units are presented. To review the type of activities that included this vocabulary in the book, go to section 3.3.4 of Chapter 3, details about each unit are presented in this section as well.

4.4.1 Unit 2: What do you do?

The experimental group presented a higher number of vocabulary knowledge in every word than the control group. Vocabulary that was identified correctly in the pretest and the posttest is somewhat similar in both groups. The greatest difference of gain in vocabulary knowledge between groups can be seen in the vocabulary that is presented at the beginning. Furthermore, the word *thing* was forgotten or confused by participants from the control group (n=12) and the experimental group (n=4). Other words that were lost or forgotten during the intervention period were: *great* (n=3) *and salesperson* (n=2) in the experimental group; *schedule* in the control (n=3) and the experimental group (n=1). See Figure 25
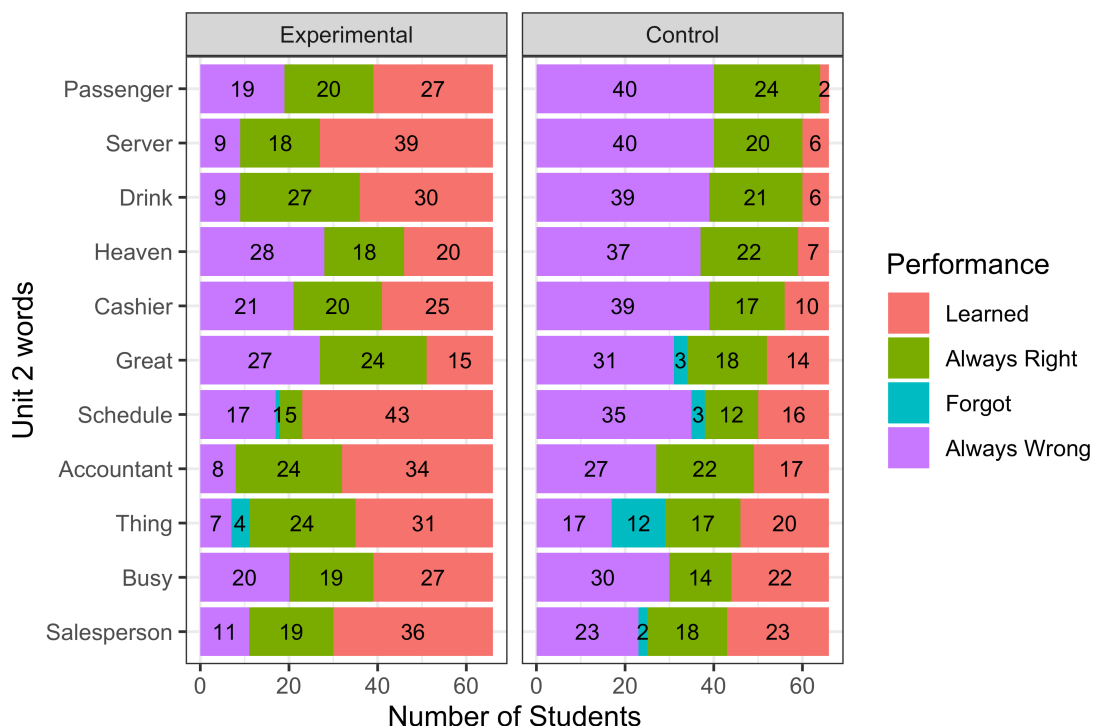
Figure 25. The target vocabulary of unit 2 is presented within four different categories: learned, always right, forgot and always wrong.

Results from the Chi-square of proportions presented statistical significance in every word except *great* and *busy*, both words from level A1 see Table 34.

Results in the experimental group: the vocabulary words from the experimental group that did not reach 50% of learning was *great* (36%) and *heaven* (42%). The vocabulary that presented the highest learning percentage in the experimental group was *server* and *accountant* (81%).

Results in the control group: It did not present knowledge gains higher than 50% in any of the vocabulary from this unit. The words with the highest percentage of learning were *busy* (42%) and *salesperson* (48%).

Table 34. Chi-square test of proportions of the percentages of participants who did not know the word in the pretest but showed learning in the posttest between the experimental and Control groups from unit 2. Proportions were cal-

culated by dividing the number of participants who learned a word by the number of participants who did not know this word in the pretest. This number was then rounded to the nearest whole number (Participants who "forgot" in the posttest were included). Grey shadows highlight words with significant differences.

Word	CEFR Level	Percentage of participants who learned the word		X² statistic	p value
		Experimental	**Control**		
Passenger	A2	59	5	45.56	<0.001
Server	B2	81	13	49.19	<0.001
Drink	A1	77	13	45.51	<0.001
Heaven	B2	42	16	11.66	<0.001
Cashier	B2	54	20	15.62	<0.001
Great	A1	36	29	0.75	0.385
Schedule	A2	70	30	16.00	<0.001
Accountant	B2	81	39	14.70	<0.001
Thing	A1	74	41	9.47	0.002
Busy	A1	57	42	2.27	0.132
Salesperson	B2	77	48	6.73	0.009

4.4.2 Unit 3: How much is it?

Unit 3 presents the largest number of target vocabulary (n=24). Figure 26 shows that the control group presented a higher number of vocabulary words that were always wrong. This means that a large number of participants who did not know the vocabulary in the pretest also did not know it in the posttest. Furthermore, the orange bars present the vocabulary that was acquired during the intervention period. It can be seen from top to bottom that the experimental group performed better with the exception of the words *tie* and *wool,* which presents a greater number of participants who learned these words in the control group. The words *light* and *silk* presented the same improvement in both groups.

Only the control group presented vocabulary loss in the word tie (n=11). Some participants from the control and the experimental group forgot the following words: *necklace, clerk, socks, silver, silk* and *wool*.

Figure 26. The target vocabulary of unit 3 is presented within four different categories: learned, always right, forgot and always wrong.

Results from the Chi-square of proportions did not present statistical significance in 10 words. From level A1: *painting, customer* and *cheap*; from level A2: *tie, light, speakers,* and *silver*; from level B1: *powerful* and *wool*; from level B2: *silk.* This unit presents the highest number of words without statistically significant improvements between groups. This finding is presented inTable 35.

Results in the experimental group: the only words that did not reach 50% of learning were: *stylish* (38%), *clerk* (48%), *tie* (25%), and *light* (32%). The vocabulary that presented the highest learning percentage in the experimental group is *bag* (94%) and *cotton* (89%).

Results in the control group: 9 words from this unit evidence a percentage of learning over 50%: *item* (50%), *earrings* (50%), *cotton* (54%), *leather* (53%), *powerful* (53%), *cheap* (58%), *silver* (65%), *silk* (60%) and *wool* (68%).

Table 35. Chi-square test of proportions of the percentages of participants who did not know the word in the pretest but showed learning in the posttest between the experimental and Control groups from unit 3. Proportions were calculated by dividing the number participants who learned a word by the number of participants who did not know this word in the pretest. This number was then rounded to the nearest whole number (Participants who "forgot" in the posttest were included). Grey shadows highlight words with significant differences.

Word	CEFR Level	Percentage of participants who learned the word		X² statistic	p value
		Experimental	Control		
Stylish	B2	38	9	17.89	<0.001
Necklace	B1	52	9	30.31	<0.001
Clerk	B2	48	19	12.55	<0.001
Tie	A2	25	23	0.08	0.773
Jealous	B1	67	24	20.32	<0.001
Light	A2	32	27	0.42	0.515
Each	A1	67	23	21.51	<0.001
Bag	A1	94	33	29.30	<0.001
Wallet	A2	81	34	19.21	<0.001
Scarf	A2	82	35	18.88	<0.001
Painting	A1	61	44	2.75	0.097
Speakers	A2	53	37	2.84	0.092
Sock	A2	65	42	4.94	0.026
Rubber	B2	75	42	9.31	0.002
Item	A2	74	50	4.65	0.031

Word	CEFR Level	Percentage of participants who learned the word		X² statistic	p value
		Experimental	Control		
Earrings	B1	73	50	4.30	0.038
Customer	A1	63	49	1.75	0.186
Cotton	B1	89	54	8.57	0.003
Leather	B1	86	53	7.83	0.005
Powerful	B1	63	53	0.86	0.353
Cheap	A1	68	58	0.79	0.373
Silver	A2	74	65	0.58	0.445
Silk	B2	69	60	0.63	0.428
Wool	B1	63	68	0.19	0.662

4.4.3   Unit 4: I really like hip-hop

Unit 4 is the shortest unit in the textbook. Only five words were considered unknown from a pool of 22. Figure 27presents the vocabulary and the number of participants who learned it, who knew it at the beginning and at the end, and those participants who did not know the vocabulary in the pretest or posttest. The vocabulary that was maintained is presented in green; it is similar for both groups. Nevertheless, the vocabulary that obtained an incorrect response in both the pretest and the posttest is larger in the control group. Neither of the target words was forgotten during the intervention period in either group.
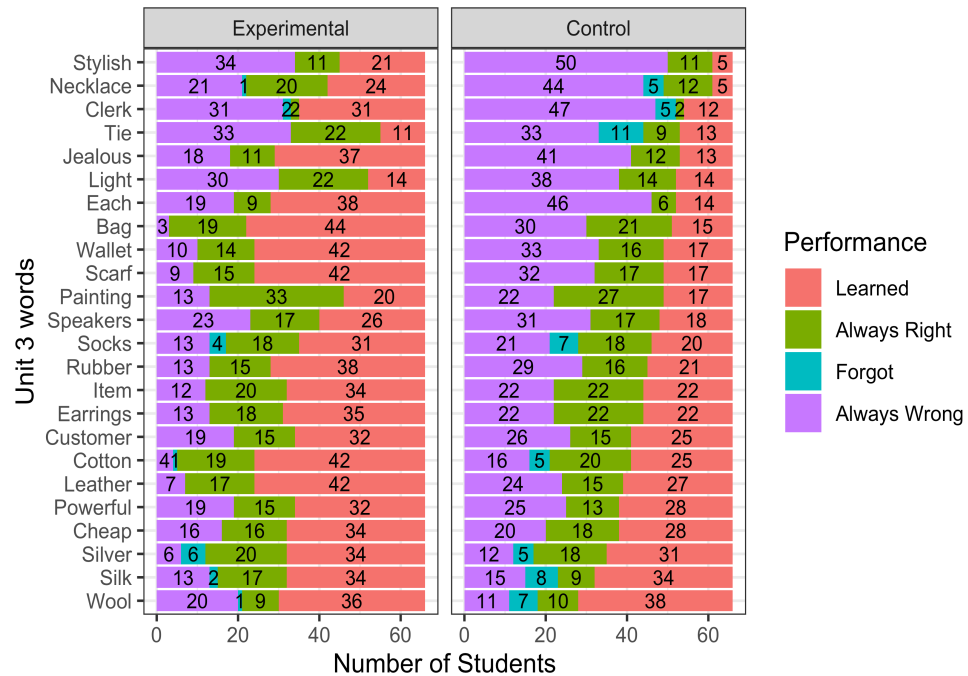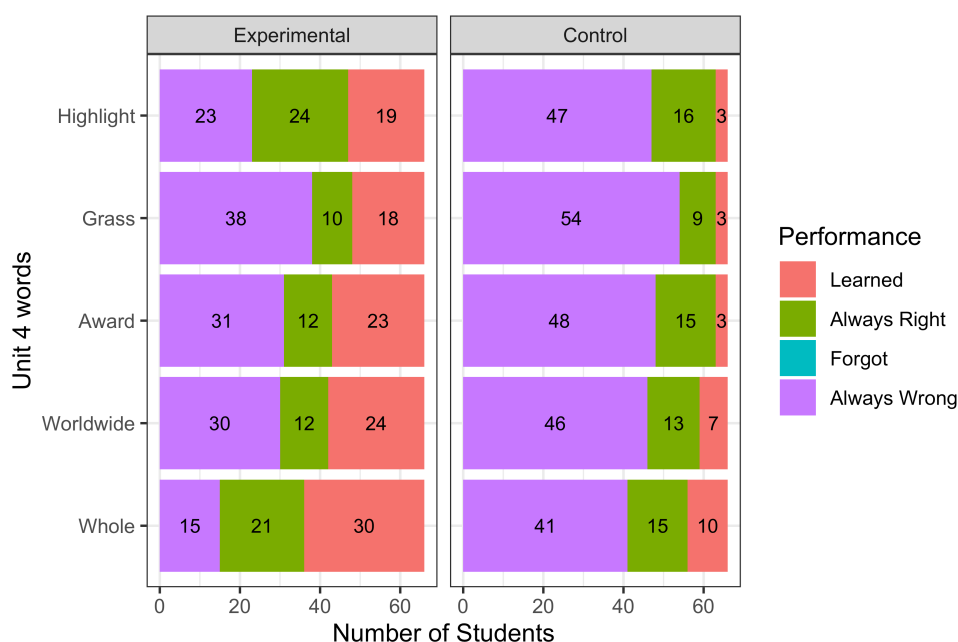
Figure 27. The target vocabulary of unit 4 is presented within four different categories: learned, always right, forgot and always wrong.

Results from the Chi-square of proportions presented statistical significance in all the five words of unit 4. See Table 36

Results in the experimental group presented only one word that obtained over 50%: *whole* (67%). The word *grass* presented the lowest percentage (32%).

Results in the control group evidenced that every word obtained less than 50% vocabulary learning.

Table 36. Chi-square test of proportions of the percentages of participants who did not know the word in the pretest but showed learning in the posttest between the experimental and Control groups from unit 4. Proportions were calculated by di-viding the number of participants who learned a word by the number of participants who did not know this word in the pretest. This number was then rounded to the nearest whole number (Participants who "forgot" in the posttest were included). Grey shadows highlight words with significant differences.

Word	CEFR Level	Percentage of participants who learned the word	X² statistic	p value

		Experimental	Control		
Highlight	B1	45	6	29.82	<0.001
Grass	A2	32	5	19.70	<0.001
Award	A2	43	6	27.94	<0.001
Worldwide	B1	44	13	16.86	<0.001
Whole	A2	67	20	25.39	<0.001

4.4.4   Unit 5: I come from a big family

Unit 5 included 16 words in the target vocabulary. Figure 28. The target vocabulary of unit 5 is presented within four different categories: learned, always right, forgot and always wrong.presents a larger number of words that were not learned in the control group than the experimental group; it is presented in the purple bars. The experimental group learned each word better than the control group; nevertheless, *percent* and *challenge* presented a similar number of participants who learned the word. Some participants from both groups forgot the word *government* after the intervention period; 10 participants from the control group and 2 participants from the experimental group.

Figure 28. The target vocabulary of unit 5 is presented within four different categories: learned, always right, forgot and always wrong.

The vocabulary that did not present a significant difference between the control and the experimental group is: *couple* (A2), *challenge* (B2) and *percent* (A2). See Table 37

Results in the experimental group: two words did not meet the criterion of reaching 50% of vocabulary learned: *freedom* (43%) and *couple* (26%). The vocabulary that presented the highest learning percentages was: *household* (96%), *government* and *uncle* (86%).

Results in the control group: only the words *challenge* and *percent* surpassed the 50% criterion with a percentage of 58.

Table 37. Chi-square test of proportions of the percentages of participants who did not know the word in the pretest but showed learning in the posttest between the experimental and Control groups from unit 5. Proportions were calculated by di-viding the number of participants who learned a word by the number of partic-ipants who did not know this word in the pretest. This number was then rounded to the nearest whole number (Participants who "forgot" in the posttest were in-cluded). Grey shadows highlight words with significant differences.

Word	CEFR Level	Percentage of participants who learned the word		X² statistic	p value
		Experimental	Control		
Freedom	B2	43	4	32.36	<0.001
Niece	A2	80	9	56.64	<0.001
Aunt	A1	76	11	48.56	<0.001
Uncle	A1	86	15	49.91	<0.001
Nephew	A2	67	12	38.29	<0.001
Daughter	A1	81	18	40.09	<0.001
Couple	A2	26	14	3.60	0.058
Some	A1	66	20	24.60	<0.001
Household	B2	96	22	46.41	<0.001
Most	A1	55	25	11.25	<0.001
Fact	A1	53	27	8.45	0.004
Few	A1	69	35	11.12	<0.001
Population	A2	66	38	7.54	0.006
Government	A2	86	42	15.12	<0.001
Challenge	B2	73	58	1.72	0.190
Percent	A2	62	58	0.13	0.715

4.4.5   Unit 6: How often do you exercise?

Unit 6 included 10 words in the target vocabulary. Figure 29 contains the data from the pretest and posttest. The purple bar shows that the vocabulary that was not learned is larger in the control group than the experimental group. Furthermore, the vocabulary that was learned, presented in orange, is larger in the experimental group. The participants did not forget any words from this unit. The vocabulary that obtained most correct responses in the experimental group was j*oke* and *jogging* (n=41), whereas in the control group was: *bicycling* (n=19), *fitness* (n=18) and *meal* (n=18).

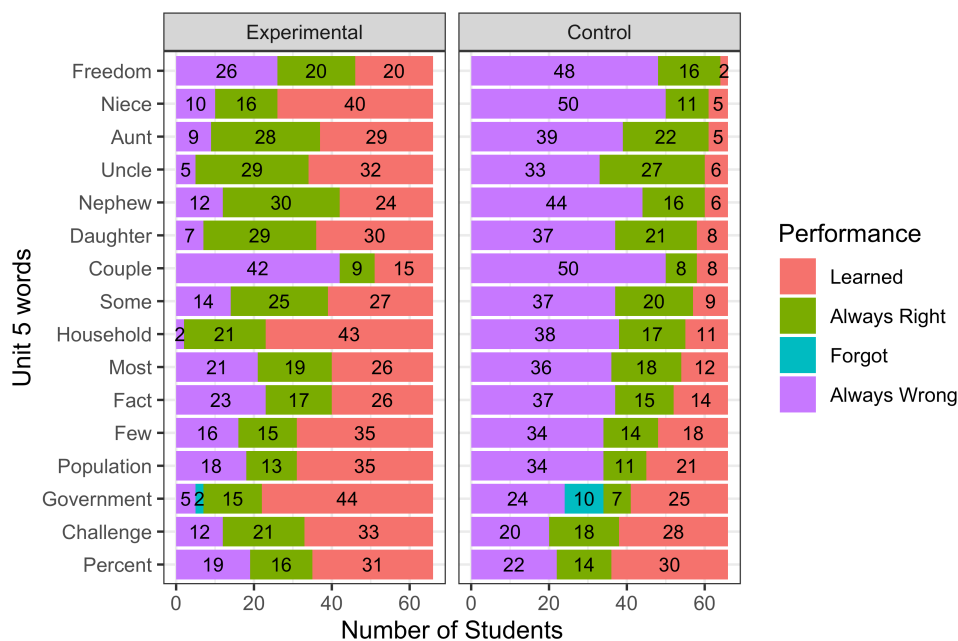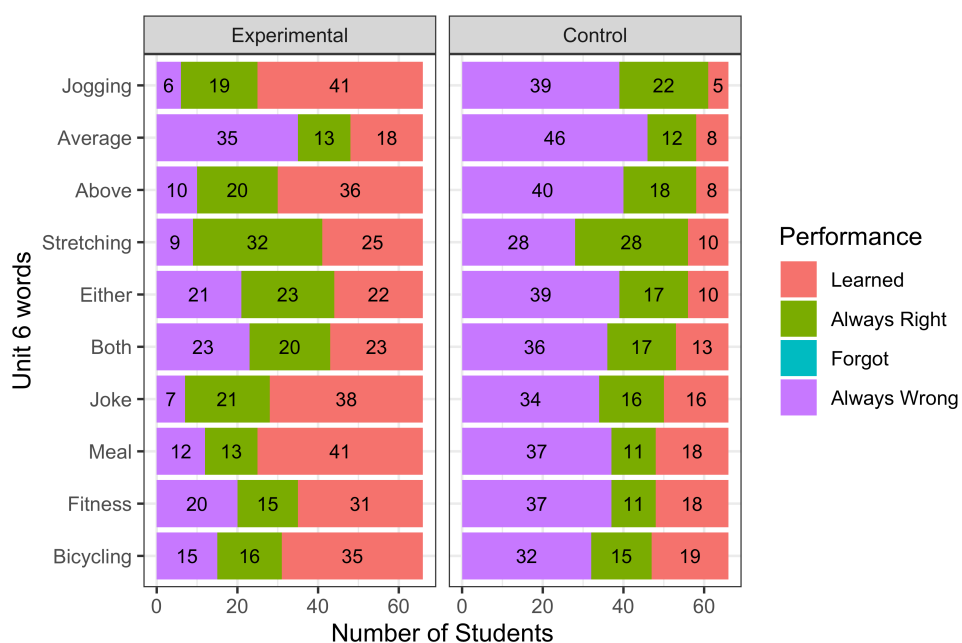**Figure 29. The target vocabulary of unit 6 is presented within four different categories: learned, always right, forgot and always wrong.**

Results from the Chi-square of proportions presented statistical significance in every word from the vocabulary of unit 6. See Table 38 for details.

Results from the experimental group: the word *average* (34%) did not meet the criterion of the 50% of learned vocabulary.

Results from the control group: every word presented a lower percentage, none of them reaching 50%; the highest was *bicycling* (37%).

Table 38. Chi-square test of proportions of the percentages of participants who did not know the word in the pretest but showed learning in the posttest between the experimental and Control groups from unit 6. Proportions were cal-culated by di-viding the number of participants who learned a word by the number of participants who did not know this word in the pretest. This number was then rounded to the nearest whole number (Participants who "forgot" in the post-test were included). Grey shadows highlight words with significant differences.

Word	CEFR Level	Percentage of participants who learned the word		X^2 statistic	p value
		Experimental	Control		
Jogging	A2	87	11	58.94	<0.001
Average	A2	34	15	7.37	0.007
Above	A1	78	17	39.17	<0.001
Stretching	B2	74	26	23.04	<0.001
Either	A1	51	20	13.54	<0.001
Both	A1	50	27	6.87	0.009
Joke	A2	84	32	23.31	<0.001
Meal	A1	77	33	17.60	<0.001
Fitness	B1	61	33	8.34	0.004
Bicycling	B1	70	37	10.18	0.001

4.4.6   Unit 7: We had a great time

Unit 7 included 10 words in the target vocabulary. Figure 30presents in purple the vocabulary that obtained an incorrect response in the pretest and the posttest. The green bar presents the number of participants who knew this vocabulary before and after the intervention period. One student forgot the word *glaciers* in the control group*.*
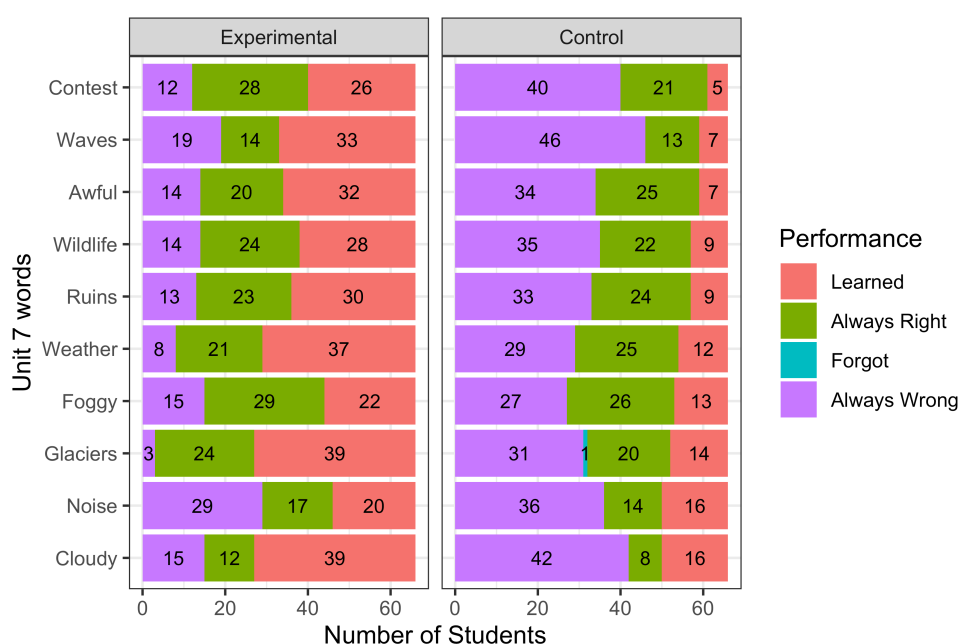
Figure 30. The target vocabulary of unit 7 is presented within four different categories: learned, always right, forgot and always wrong.

The vocabulary from unit 7 presented statistical significance between groups with the exception of the word *noise* (A2) (p=0.239), which did not present any significant difference. See Table 39

Results in the experimental group indicated that only the word *noise* (41%) did not reach the criterion of 50%. The words that presented the best learning percentage were *glaciers* (90%) and *weather* (82%).

Results in the control group: every word presented a lower percentage than the criterion of 50%. The word that obtained the highest percentage was foggy (32%).

Table 39. Chi-square test of proportions of the percentages of participants who did not know the word in the pretest but showed learning in the posttest between the experimental and Control groups from unit 6. Proportions were cal-culated by di-viding the number of participants who learned a word by the num-ber of participants who did not know this word in the pretest. This number was then rounded to the nearest whole number (Participants who "forgot" in the post-test were included). Grey shadows highlight words with significant differences.

Word	CEFR Level	Percentage of participants who learned the word		X² statistic	p value
		Experimental	Control		
Contest	B2	68	11	41.13	<0.001
Waves	A2	63	13	32.89	<0.001
Awful	A2	70	17	32.29	<0.001
Wildlife	B2	67	20	25.39	<0.001
Ruins	B2	70	21	26.38	<0.001
Weather	A1	82	29	25.31	<0.001
Foggy	B2	59	32	8.01	0.005
Glaciers	B2	93	30	32.27	<0.001
Noise	A2	41	31	1.39	0.239
Cloudy	B1	72	28	19.36	<0.001

4.4.7 Participants' perception main study

At the end of the intervention, 66 students participated in a semi-structured in-terview. Just as in the pilot study, this interview was conducted in their native lan-guage to avoid language barriers. The responses were recorded, translated and analysed by the researcher.

The interview provided information about the participants' perceptions regard-ing their experience through the intervention and their learning results. See inter-view questions in Appendix G.

1. Perception about test results (pretest-posttest)

Question one: *Do you believe your responses changed from the pretests to the posttests?*

The first questions focused on students' perception regarding their performance during the pretests and posttests. 65 students perceived they had improved in their vocabulary. Only one student mentioned that she believed she had improved but she was not sure. Some participants mentioned they knew about 60% of the initial vocabulary, which is actually accurate compared to the results obtained from the diagnostic test. On the other hand, students also stated that they had studied in high school some of the vocabulary they were assessed on, and the methodology helped them remember. Some of the responses can be read below:

● *I think they did. I mean the results were different. I think taking the tests also helped me to learn more words or to remember some that I had forgotten.*
● *Sure, I think my responses changed in most of the vocabulary. In the beginning I did not know about 60% and now I feel like I almost know 100% of the vocabulary assessed.*
● *Yes, I saw how my vocabulary evolved. At the beginning I didn't know a lot of words, but I felt like I could answer better in the posttests.*

2. Opinions about the methodology and preferences.

Question two: *Do you believe the methodology in general aids to improve your vocabulary knowledge?*

The answers to this question evidenced that all students related the methodology to the improvement of their vocabulary. Furthermore, this question also allowed us to ask about their preferences regarding the two methodologies used for the main study: the exposure to vocabulary with the L1 translation and aural input and the web-based vocabulary activities.

Nine students responded that they preferred the PowerPoint presentation for vocabulary learning, they reasons were:

● *It helped me to see the words and listen to the pronunciation. The pronunciation was the main thing for me, it helps me to understand.*

● *Overall I liked the projection, it was good to see the word in English and the meaning in Spanish.*

● *I think the projections helped me the most because I am bad with my pronunciation and that helped me.*

● *In the projection I paid more attention and sometimes I would write the words I didn't know.*

● *I am very visual, so I liked the projections. I was able to see the words and that helped me.*

● *The projection with the sound helped me to remember the words. Sometimes I get confused with the pronunciation.*

● *I preferred the projections because I could see both words at the same time.*

46 students, on the other hand, mentioned that they preferred web-based activities for vocabulary learning. This confirms hypothesis 2: Students will prefer web-based vocabulary activities to rote visual translation of vocabulary with aural input. 21 mentioned the web-based activities in general as an effective strategy to learn vocabulary. Seven preferred the active recognition activities stating that it helped them identify the correct word, and only having few translations to choose from helped them learn better. One student mentioned that since the active recognition activity marked wrong if she missed, it helped her to notice, which was the correct translation. 18 students mentioned that their favorite activity was the vocabulary use in a sentence; among their responses most of them mentioned words in context as a positive feature for learning and practice vocabulary:

● *By using the context of the sentence I could know the meaning and how to use it.*

● *The activity in which I had to choose which word is missing from the sentence helped me because it presented the context.*

● *By looking at the sentence I could know how to use the word, according to the sentence.*

● *It was easier to select a word from the options and add it to the sentence, I knew what it was about and it had a relation with the word.*

● *I liked the sentences because I could read everything and understand better.*

- *I think the sentences were more didactic. It was also easier to choose the word that was the best fit. The activity with the sentence was the best because we could see more vocabulary in use.*

- *I liked the activity that had the phrase, because I could learn to use the sentence in a context.*

- *I associated the word with the context.*

- *It helped me understand the word*

- *I tried to translate the sentence and to give sense to the information with the vocabulary I knew.*

11 students mentioned that both methodologies: the projection of words and the web-based activities helped them equally. The responses related to this preference stated that the presentation of words on the screen was a good start and then they felt that they could practice what they have seen in the web-based activities. They sensed that the web-based activities were complementary to the projections.

3. Vocabulary: autonomous learning

Question three: *Did you study vocabulary at home?*

Nine students mentioned that they never studied vocabulary at home, and 11 students said they rarely studied vocabulary. Some of the answers they gave mentioned that they would only look for words when they wanted to learn a song in English or they watched a movie with subtitles, two students mentioned that they felt what they did in class was enough.

The rest of the students (n=46), said they studied vocabulary at home. Some of the strategies they mentioned were:

- *I used an online dictionary.*

- *I wrote words I didn't understand in class and then I looked them up in the dictionary.*

- *I liked to repeat the words to improve my pronunciation.*

- *Sometimes I would write sentences to practice.*

- *I have a vocabulary notebook, I read it and test myself with it.*

- *I repeat the words I want to learn in my head.*

- *In the homework I would find words I didn't know and then translate them.*

- *I made small cards and pasted them around my room to memorize. I learned this in high school.*

- *I study vocabulary because I play video games.*

- *I study vocabulary with gestures, I need to move to remember.*

- *I wrote words I wanted to learn on a piece of paper and repeated this for like five times, I would also pronounce aloud.*

4. Importance of vocabulary learning

Question four: Based on your opinion: *What is the importance of vocabulary in English learning?*

Every student acknowledged the significance of vocabulary for English learning. The following skills were mentioned in the answers: speaking (21 times), listening (8 times), writing (13 times), and reading (6 times). It was also mentioned that it helps if you are looking to be fluent and that it is important to learn to pronounce correctly (4 times)

One student mentioned that it was important to understand which words to use depending on the context. Another student mentioned that people need a lot of vocabulary to communicate, and that is why it is important to learn more and more vocabulary. Vocabulary importance for communication was mentioned 11 times and 16 students established that vocabulary is important but did not provide a further opinion.

5. Ideas on how to improve vocabulary

Question five: *How do you think your vocabulary can improve?*

This question was added to the interview to analyze the perceptions students had regarding vocabulary learning strategies in general. Based on the responses we were able to categorize them into: practice through skills, multimedia, traditional learning and general responses. Some examples of what was mentioned by students are shared next:

a. Practice through skills:

○ *Writing sentences with new words to practice their use.*

○ *Trying to talk to somebody who knows the language.*

○ *Listen to audios.*

○ *Reading and looking for words that I don't understand.*

b. Multimedia:

○ *Like the webpage we used in class, there is another one called wish English, it gives you one word a day with its pronunciation.*

○ *With more practice through links and apps online.*

○ *Watching movies, listening to music in English and practicing at home.*

○ *Trying to practice pronunciation by watching YouTube videos.*

○ *Watching series in English*

c. Traditional learning:

○ *Looking up words in a dictionary.*

○ *Translating sentences to understand the idea and then using a dictionary for each word.*

d. General responses:

○ *Practicing more.*

○ *Studying more.*

Based on the results obtained from the interview, we were able to identify that students had a positive perception of the vocabulary significance in learning a new language. Nevertheless, not every one of them dedicates time outside class to grow their repertoire. Regarding the methodology used in this study, it is evident students preferred web-based activities for their vocabulary learning. Context played an important role, according to the students it helped to understand and remember the meaning of words. Their idea of vocabulary learning strategies and their implications on vocabulary teaching will be further discussed in the next chapter.

4.5 Discussion and conclusion

The present study was conducted with a pretest - posttest design. It included a control group and a treatment or experimental group and it collected quantitative and qualitative data. 76 words were considered target vocabulary for this study. This target vocabulary consisted of the words that were identified as unknown by 50% of the participants or more. The behavior of the data was normal based on the Kolmogorov-Smirnov Test (p>0.05) and hence, the Student T-test was used to measure and compare changes within each group and between them. Furthermore, McNemar's Chi-Square was used to evidence the changes and identify words that presented statistically significant improvement in each group. Based on this test the vocabulary that presented statistically significant improvements only in the experimental group are the following words (n=14): *Passenger, Thing, Clerk, Necklace, Stylish, Tie, Award, Grass, Highlight, Aunt, Freedom, Niece, Jogging, Contest.* It is important to notice that the statistical significance of the McNemar's sometimes can be evidenced with a small gain, since it includes the vocabulary that was known in the pretest and the posttest.

Because of McNemar's Chi-Square specifications, it was decided to include an analysis with the Chi-Square of proportions. This allowed us to identify the difference between groups considering the percentages of participants who did not know the vocabulary in the pretest but provided a correct response in the posttest. The participants who knew the target word in the pretest and the posttest were included in this analysis, as well as those who forgot the vocabulary. This analysis was conducted to discover if there was a significant difference in the vocabulary that was unknown at the beginning of the intervention for each of the target words between groups.

Results evidenced that vocabulary learning in both groups was statistical significant. The control group, without the intervention, also evidenced a significant learning of the vocabulary in general. Nevertheless, the Student T-test showed that the experimental group outperformed the control group, presenting a statistically significant difference (p>0.00) between them (see Table 8 and Figure 12). In response to question number three of the study: *Does exposure to visual translation with aural input and web-based vocabulary activities affect the participants' vocabulary learning?* results suggest that the strategies included in the main study contribute to vocabulary learning.

Furthermore results from the interview provided a response for research question four: *What perceptions do students have regarding explicit vocabulary instruction through rote visual translation of vocabulary with aural input and web/based vocabulary activities?* Although the responses implied a positive perception toward

the strategies, most of them preferred vocabulary instruction with web-based vocabulary activities rather than rote visual translation. Nevertheless there were some participants who highlighted that they did benefit from the PowerPoint presentation as well. Overall their opinions suggested that they perceived explicit vocabulary instruction as an enhancing activity for vocabulary learning. They were aware of the significance of vocabulary for language learning and provided some insights regarding autonomous learning exercises they perform at home.

4.5.1   Interesting findings

Results from the modifications implanted in the main study.

The changes implemented in the main study provided better results. The larger sample facilitated obtaining a more robust data to analyse. There was no need to adjust any of the statistical tests due to the imparity between groups, since both groups presented the same amount of participants.

Based on the results, we could assume that the combination of activities given in this study, which consisted of an aural and visual presentation of individual words plus a web-based activity, promoted a superior vocabulary acquisition.

It was interesting to see that the main study presented similar data to the pilot study regarding vocabulary knowledge based on the CEFR levels. This could suggest that the proficiency exam that students take at the beginning of the semester is accurate. The participants from both studies were most familiarized with the vocabulary from levels A1 (81%) and A2 (63% pilot study-56% main study). As expected, the percentage of known words lowered among words from level B1 (55% pilot study and 43% main study) and B2 (32% pilot study and 30% main study). Words from the C1 and C2 levels were not included in this study.

In the main study we implemented specifications regarding the part of speech in each word (noun, adjective). It was expected to improve the responses in words that presented an alternative meaning in the pilot test (verb instead of noun). Nevertheless, this was not the case for every word. As it can be seen, words such as *bicycling and painting*, which had the clarification that these words were not the past participles of verbs, were still chosen as target words since many of the participants responded with the past participle translation. There was a small number of correct responses in the pretest for these words. It is believed that the participants did not know the other part of the speech, so they provided the only translation they knew at the time. It is believed the same thing happened to the noun *highlight.* Although the clarification seems to have worked for the words *watch*, *bowling, broke, laundry,*

and retreat, which were not included in the target vocabulary of the main study due to a higher rate of correct responses in the pretest.

Regarding the plural form of the nouns, based on the results from the pilot test it was decided to accept the singular form as a correct response as well. It increased the number of correct responses of the following words: *men*, *women* and *children*. These three words were not included in the target vocabulary of the main study.

In the pilot test we also concluded that the assessment of the responses of the vocabulary was overly strict. Therefore we considered widening the options of correct responses. It is believed that words like *father*, *warm* and *cup* were not part of the target vocabulary in this study due to this decision.

Word by word analysis and suggestions

The criterion that was established to select the target vocabulary was also in line with the results from the posttest. In consequence, words that presented over or equal to 50% of participants that provided a correct response, were considered sufficiently well learned. Based on this precedent table 16 presents the vocabulary from the experimental group that obtained less than 50%. This could indicate that the methodology provided through the intervention was not enough for the participants to reach a higher and optimal learning level. It was expected that all these 14 words were also under the same status in the control group, which corroborates that, activities from the book do not provide enough learning opportunities for this particular vocabulary. A word that caught our attention was *great*, since it presented a really low acquisition within participants from the experimental (n=15) and control group (n=14). See Table 40

Table 40. Vocabulary from the experimental group that presented <50% of learning at the posttest.

Unit	Word	%
Unit 2	Great	36%
	Heaven	42%
Unit 3	Stylish	38%
	Tie	25%
	Clerk	48%
	Light	32%
Unit 4	Highlight	45%
	Grass	32%

Unit	Word	%
	Award	42%
	Worldwide	44%
Unit 5	Freedom	43%
	Couple	26%
Unit 6	Average	34%
Unit 7	Noise	41%

It is important to highlight the vocabulary that obtained the lowest and highest improvement in the control group. This can provide some insights on the efficacy of the activities from the textbook. For this analysis we have selected two words from each level that obtained the lowest percentage results. See Table 41

Table 41. Vocabulary results from the control group that obtained the lowest percentage in the Chi-Square of proportions

Control Group		
Unit	Word	%
U2	Passenger	5%
	Server	13%
U3	Stylish	9%
	Necklace	9%
U4	Grass	5%
	Highlight	6%
	Award	6%
U5	Freedom	4%
	Niece	9%
U6	Jogging	11%
	Average	15%
U7	Contest	11%
	Waves	13%

Some unexpected results were identified from data obtained in the posttest. First, the word *server* obtained the highest percentage of unit 2 in the experimental group, whereas it was one of the vocabulary words with the lowest percentage in the control group. These results could suggest that the intervention provides better results in certain vocabulary words. To corroborate it, we can evidence that other

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words presented similar or even higher results in the control group, suggesting that the activities performed in class with the textbook provided enough and strong learning opportunities for these particular words. Examples of this can be found specifically in Unit 3 (e.g.: *wool*, *silk*, *silver*, *cheap, powerful)* and Unit 4 (e.g.: *percent*, *challenge*).

4.5.2 Conclusion

The analyses presented in this chapter are encouraging. The statistical significance between the posttest of the control group and the experimental group suggest that the intervention was positive. The sum of visual and aural vocabulary presentation combined with web-based vocabulary activities provide learners the opportunity to learn specific words. The participants encountered the target vocabulary on a screen and then they were able to retrieve it in the web-based activities.

Participants from the experimental group presented a higher vocabulary learning in most of the target words. Nevertheless, the Chi-Square of proportions evidence that certain words were similarly learned without the intervention. This could suggest that certain activities that were offered in the textbook were sufficient for students to learn this specific vocabulary. On the other hand, other words from the experimental group (n=14) did not reach the expected standard percentage of 50%. It can be assumed that this particular vocabulary should be earmarked for further practice and used in retrieval activities.

The qualitative analysis also provided important information. Through the responses obtained we could confirm hypothesis number two: students preferred web-based vocabulary activities to rote visual translation of vocabulary plus aural input. Furthermore, their learning perception, opinions regarding both methodologies, their autonomous learning performance and their own ideas on how to grow their vocabulary shed light on pedagogical recommendations for future research and EFL teaching with young adults at college level. These recommendations will be shared in the next chapter.

Chapter 5
Discussion and Conclusion

5.1 Introduction

Vocabulary learning is a popular topic among language teachers and language learners. Limited vocabulary can stymie speakers from effective communication and impoverish interaction. This area of language learning is most likely included in different skills but its significance may sometimes be overlooked. Based on the literature review, we evidenced that the importance of lexis has been taken into consideration by researchers due to the essential part it plays in the functioning of language, and therefore it is believed it should be a main aspect of language learning. With this study we aimed to provide results regarding the implementation of explicit vocabulary instruction in real classroom settings. The tests given to students enabled us to understand how different strategies can contribute or not to vocabulary learning in the participants involved in this study. The strategies were employed for ambition to shed light to the efficacy of new activities for college students learning English as a Foreign Language.

The research conducted for this dissertation has been undertaken to analyze how explicit vocabulary instruction can influence vocabulary repertoire in college students taking English as a Foreign Language (EFL). This study followed a pretest – posttest design and it was conducted in two different moments. The first part included a pilot study, which consisted of implementing only vocabulary exposure

with translation and aural input. It was believed that this could provide opportunities for the participants to notice target words and improve vocabulary (see Chapter 3). Based on the results, which did not present significant improvement in the experimental group compared to the control group, it was decided to include an extra activity. The additional activity required participants to retrieve the target words receptively and differentiate from other words in order to complete the activity successfully. More precisely this activity was conducted through four different web-based vocabulary activities (see Chapter 4, section 4.2.3.1). Results from the main study, which included the extra activity, provided promising results since there was a statistically significant difference between the groups.

Both parts of this study presented two different research questions based on its objectives. This chapter will first respond to the research questions of the pilot study and continue with the main study to confirm our hypotheses. Then, it will present different conclusions elaborated from the results obtained from the quantitative and qualitative data. It will ultimately present pedagogical recommendations based on the results of the study, and then we will share some possible reasons on why certain target items improved greater than others. Finally we will provide concluding commentaries, limitations of the study and considerations for future research.

5.2 Responses to the research questions

The next paragraphs will consider the research questions from the pilot study and the main study. It will first share the responses and reflections to target the first two research questions from the pilot study and then, after clarifying the changes that were adopted for the main study, the two last research questions will be answered.

Research question I: Does exposure to visual translation with aural input improve the participants' vocabulary learning?

The first strategy implemented in this study considered a very important stage of vocabulary learning: Noticing (Nation, 2013). The intervention, which included a PowerPoint presentation, was developed for the experimental group with target vocabulary that was unknown by 50% or more of the participants. It was thought that a visual and aural presentation of isolated words with its L1 translation and English pronunciation could play an important role in vocabulary development as previous studies evidenced (Prince, 1996; Laufer & Shmueli, 1997). Nevertheless, results obtained from the pilot test suggested that both groups learned similarly.

Regardless of treatment, there was only a slight difference between the control and the experimental group and it was not found to be significant (p=0.262). The

similarity between groups suggests that the intervention may not have been of benefit to the participants. Both groups presented statistical significance in their learning, which leads us to believe that the textbook activities provide vocabulary-learning opportunities. The first stage of vocabulary learning, noticing, may imply that students need to pay attention to the word, nevertheless it could be that there were not enough repetitions, or that the activity by itself does not produce significant learning.

We did not expect that the improvement in the experimental group would be almost equal to the control group. Although some other studies have argued that vocabulary presentation with translation can provide learning opportunities, our results contradict this. The analysis of the data encouraged us to consider different ways to present vocabulary flood in the first steps of English Language Learning.

Research question II: What perceptions do students have regarding explicit vocabulary instruction through rote visual translation of vocabulary with aural input?

It was interesting to know that the PowerPoint presentations were perceived overall as a positive strategy to use inside classrooms. During the intervention participants seemed to focus on the screen and we could observe that some of them would repeat the word with a low voice after being heard. Perhaps students had positive perceptions toward the activity due to the familiarity of a PowerPoint presentation inside class. Also, since it does not challenge their memory, this could have been introduced as a conceivable familiar activity but it lacked opportunities for significant learning to take place.

Research question III: Does exposure to visual translation with aural input and web-based vocabulary activities improve participants' vocabulary acquisition?

Following the results from the main study, we decided to include various modifications to the intervention in the main study, which were expected to enhance vocabulary learning, in the experimental group, significantly. This study presented the same pretest-posttest structure and selected the target vocabulary in the same manner as the pilot study.

First, we decided to add an extra activity that would provide different encounters with the target vocabulary. The additional activity incorporated in the main study for the experimental group, considered the second stage presented by Nation (2013), retrieval. Besides the PowerPoint presentation, web-based vocabulary activities were developed with each of the target words so students could bring the target word through memory with additional encounters.

Second, we believed that the vocabulary included in the pilot study needed to be reconsidered. The pool of words that contained the pretest included words from every level from the CEFR levels. It is believed that levels C1 and C2 were a hindrance for our participants since these levels are considered advanced; therefore, in the

main study these levels were excluded. Furthermore, some vocabulary words that presented difficulty among students, due to a possible confusion regarding parts of speech and singular and plural nouns were clarified in the tests to provide more information about the vocabulary. This was considered in order to avoid confusion within the participants. See the specific changes in section 3.5.2.

The main study analysed vocabulary learning in 76 words. The vocabulary included nouns and adjectives, and the intervention was conducted with the experimental group. Results from pretests and posttests were compared within groups and between them. Results from the statistical analysis between groups revealed enough information to believe that the experimental group outperformed the control group in the posttest due to the intervention (p<0.00). These results supported our hypothesis that daily exposure to visual translation of vocabulary to the first language (L1) and aural input, plus web-based vocabulary activities benefited vocabulary growth in adult learners of English as a Foreign Language. This evidence supports the important role of noticing and retrieval (Nation, 2013), and brings attention to MALL and its implementation for vocabulary development.

Considering that the control group also presented a significant improvement in vocabulary growth, it has to be acknowledged that the professor in charge, the materials used and the activities performed during the semester, although not in the same magnitude, improve vocabulary learning as well. From this, it can be said that when vocabulary is presented within skills such as writing, reading, listening or speaking, it can provide a positive effect among students (Folse, 2004).

Research question IV: What perceptions do students have regarding explicit vocabulary instruction through rote visual translation of vocabulary with aural input and web-based vocabulary activities?

Opinions about the strategies used during the intervention were positive. Most of them confirmed that their vocabulary increased during the intervention time, also that it encouraged them to review some of the vocabulary that they had encountered in the past. This highlights the importance of recycling vocabulary. Participants mentioned that both the PowerPoint presentation and the web-based vocabulary activities improve their vocabulary. Furthermore, around 86% of the participants mentioned that they preferred the web-based activities since they felt that they could identify the correct meaning within the options and this helped them to remember. A smaller percentage mentioned that they preferred the PowerPoint presentations. Some of the reasons were that they could listen to the pronunciation and see the translation at the same time.

The information collected from the interview allowed us to reflect on the role of vocabulary presentation. Learners need to encounter new vocabulary in order to widen their repertoire. It is the instructor's responsibility to provide opportunities for

this to happen. Nevertheless, the best option for vocabulary introduction is uncertain and still open to discussion.

We were able to confirm our second hypothesis since; in fact, they did prefer web-based vocabulary activities to rote visual translation of vocabulary with aural input. Their perception of this interactive activity was positive and it was mentioned that it helped them remember the vocabulary when they saw it in context. From the researcher's perception it was noticeable that they were involved with the vocabulary activities and that they did not have any inconveniences with the platform used. Based on some of the positive responses from their opinions about the vocabulary presentation through the class projector, it encouraged us to consider how different types of learning can influence students' motivation and learning process. In this case, participants who consider themselves visual learners shared their preference for the PowerPoint presentation.

5.3 Conclusion

Now that we have answered our research questions, the following section has been designed to present some conclusions that we were able to draw from the results obtained in this study.

5.3.1 Conclusion I: Students initial vocabulary knowledge

The vocabulary assessed in the diagnostic test was obtained from the Teachers' Volume of the Students English Book Level 1A. This material is designated to be used by students who have approved an A1 level in the placement test given at the University. First, for this study we only selected nouns and adjectives. In the pilot test we classified the vocabulary at the end of the intervention to assess how students learned accordingly at each level. For this classification we considered the CEFR levels by the Oxford Advanced Learners' Dictionary website (2020). The classification showed that more than half of the vocabulary was from level A1 (54%), which according to the placement test students have already passed. It could be questioned why a large amount of vocabulary from a previous level is included in the material, nevertheless, considering Nation (2013), retrieving vocabulary is a key aspect for a long term memory. And so, recycling vocabulary through repetition can "add to the quality of knowledge and also the quantity or strength of this knowledge" (Nation, 2001, p. 75). In other words, there is a need for recycling vocabulary, which justifies and supports the existence of A1 vocabulary in an A2 course.

Results from the diagnostic test evidenced that students from the control group knew about 65% of the total vocabulary and the experimental group knew about

67%. It is important to consider that the condition, which was used to select the target vocabulary, left out those words that evidenced knowledge of more than 50% of students. Hence, although it might not mean that every student knew more than 60% of the vocabulary, more than half of students did. This was somewhat unexpected; furthermore, it could be positive to make students aware of what they already know to motivate them to continue to grow their vocabulary. To draw this conclusion we also considered results from the pilot study. It was interesting to see that most words were unknown by the groups involved in the pilot study and the main study.

5.3.2 Conclusion II: The material and methodology for the control group

Results from the Student's t-test for paired samples evidenced a significant increase ($p<0.05$) in vocabulary in the experimental group where the vocabulary-focused methodology was implemented. Furthermore, as presented in the results section, the control group also presented a significant improvement ($p<0.05$) without any vocabulary intervention though. It can be assumed that the activities from the English Learning textbook enhance vocabulary learning. For this reason it was important to acknowledge the type of activities that are included repeatedly in each unit in the Student Book.

Each unit from the Student Book section presents activities to practice the following skills and/or areas: Speaking, Grammar, Pronunciation, Listening, Reading, Writing, and an Interchange exercise, in which they provide an interactive activity among students. Furthermore, there are ten different types of activities included in each unit. For details about each type of activity see Section 3.2.2

As it can be seen, there is only one vocabulary-focused activity in each Unit. This exercise does not include all the vocabulary from the unit, which would be overwhelming considering the large number of words. Nevertheless, it is a solid exercise for students, it allows them to notice new words and work actively with them. Vocabulary is included in the activities throughout the book, although it can be assumed students will notice the words, there are not any specifications on how to retrieve, and encourage creative processing with new vocabulary. It can be also suggested that the activities from the Student Book have notwithstanding, accomplished some vocabulary learning in both groups.

5.3.3 Conclusion III: The materials and methodology used with the experimental group

The combination of exposure to vocabulary and web-based recognition activities provided opportunities that can enhance vocabulary knowledge among college students. The pilot study's final results showed that the experimental group obtained nearly the same outcome as the control group. The difference was not significant. For this reason, we implemented an additional activity, which included web-based vocabulary strategies for the main study. Besides considering the importance of noticing vocabulary for learning, we added retrieval activities that would support students learning by creating new encounters with the target words. This was the main objective of the study, we wanted to understand to what extent vocabulary focused activities in a real EFL college setting could influence students' vocabulary learning. Results from the statistical analysis suggest that a positive impact can be obtained from the strategies implemented during the intervention stage of this study. This was confirmed by the independent student t-test, which showed statistical significance between the experimental and the control group ($p=0.000$). The results obtained in this research align with what Lin and Lin (2019) discovered in their systematic review and meta-analysis study, that Mobile Assisted Language Learning (MALL) activities supplement L2 vocabulary learning. Furthermore, Agca and Özdemir (2013), presented similar results comparing a control group and an experimental group. The experimental group which presented mobile supported activities for vocabulary learning outperformed the control group in the posttest.

5.3.4 Conclusion III: Vocabulary loss

It was very interesting to discover that some of the vocabulary presented attrition in both studies, although not in a large number of participants. In reference to these findings and based on previous studies regarding the phenomenon of attrition it has been suggested that individual factors such as attitude, language maintenance and motivation can influence language attrition (Oxford, 1982). Oxford findings are in line with an earlier study presented by Ebbinghaun (1885 in Weltens & Grendel, 1993) where he besides establishing that motivation and attitude influenced attrition, he discovered that there was a positive relation between the level of proficiency and the level of attrition among learners, which would mean that the more you know, the more you are likely to forget. Studies regarding attrition have mainly focused on bilingual students, there is a clear need of studies with foreign language learners in their initial stages.

5.3.5   Conclusion V: Methodology preferences

The semi-structured interview conducted with every participant from the experimental group allowed us to confirm one of our hypotheses. Students do prefer web-based vocabulary activities to rote visual translation of vocabulary plus aural input. Almost 70% of students (69.6%, n=46), mentioned that they preferred the web-based activities to the PowerPoint presentation. Among their answers they mentioned that context helped them remember, and that vocabulary use in a sentence was a positive practice for them to understand how to use the target word.

The positive perception students had towards the explicit intervention based on translation learning and web-based activities, were contrary to the results of Clarke (2018). The students from Clarke's research mentioned that time set aside to monitor vocabulary learning can be disengaging if it happens in every session. Nevertheless, it surprised us that participants from Clarke's study also expressed disappointment because they felt they did not dedicate enough class time to vocabulary acquisition. Deciding weather to set specific time for vocabulary teaching or to include this area in activities with other focus can be a challenging decision for teachers. Vocabulary instruction should continue to be studied and reflected on with the aim of providing improvements in foreign language learning.

5.4 Learning of specific target items

Considering that the target vocabulary of this study is extensive, providing an analysis for each of these words was not feasible. Nevertheless, we will present possible reasons for our results. We will analyze three different situations: words that obtained the greatest improvement in the experimental group after the intervention period, words that did not reach 50% of correct responses among participants, and words that presented similar results in the experimental and the control group after the intervention period.

First, we identified the vocabulary words that have improved the most, considering only words that were learned by over 80% of the participants. We aim to analyse why this could have happened and how the strategies used in the intervention could have influenced positively in their learning. The percentage represents only the vocabulary that was incorrect in the pretest and correct in the posttest. It has not considered the responses that were right in both tests.

Four words were from A1 level, five from A2, two from B1 and four from B2. The following section will also discuss how some of the similarities of the vocabulary to its Spanish translation may have influenced their acquisition, as Kroll & Stewart's Revised Hierarchical Model (1994) presented that beginner learners of a foreign

language may rely heavily on their L1 when working on word translation and concept mediation. See Table 42

Table 42 Vocabulary with the highest percentage of learning

Unit	Word	CEFR	%
Unit 2	Accountant	B2	81%
	Server	B2	81%
Unit 3	Bag	A1	94%
	Cotton	B1	89%
	Wallet	A2	81%
	Scarf	A2	81%
	Leather	B1	86%
Unit 5	Household	B2	96%
	Government	A2	86%
	Uncle	A1	86%
	Daughter	A1	81%
Unit 6	Jogging	A2	87%
	Joke	A2	84%
Unit 7	Glaciers	B2	93%
	Weather	A1	82%

Unit 2: The word *accountant* and *server*, both words from the B2 CEFR level, presented the greatest learning during the intervention period. They were introduced in the book in four different activities.

The word *accountant* was retrieved in the web-based activities eliciting its translation in Spanish *contador*, also known as *contable* in other countries. Furthermore, the sentences elaborated to present students were: *My dad is an accountant; he loves numbers*. Although this word was also presented in the book as an isolated word in the section Snapshot, it is believed this word might have obtained a high increase in knowledge due to a small phonetical proximity in both languages: *Contador* (kõn̪ta.ˈðoɾ)/*Accountant* (əˈkaʊntənt). Participants may have obtained a greater knowledge of the word because this phonetic characteristic made it easier for students to make a connection between the English and the Spanish word. The word *Accountant* is derived from the French word *Compter*, which is derived from the Latin word *Computare*.

The word *server* was used as the synonym of *waiter* in the book. Its similarity in spelling to the Spanish word *servir*, may have caused confusion in the pretest. Some of the participants gave the translation of *servicio*. After working on this word in the web-based vocabulary activities, participants seemed to acquire an alternative meaning. Some of them responded with the word *mesero* and the rest of the correct responses were *servidor*. The sentence employed in the activity was *At a restaurant the server brings your menu and takes your order*. The sentence provided students with a context and familiar words like *restaurant* and *menu*, which it is believed helped participants to remember the meaning. The word *server* is most common since it can be used for female and male employees. This word was presented in the book

Unit 3: the words: *bag* from A1, *cotton* from B1, *wallet* from A2, *scarf* from A2, and *leather* from B1, obtained greater gains in vocabulary learning among the participants of the experimental group. This unit presents the greatest improvement since over 80% of the participants gave correct responses in five words. We could suggest that the quality of the activities from the book plus the strategies implemented collaborated for a significant improvement. Most of the target vocabulary from this unit was presented multiple times in various activities from the book. Further, the activities included pictures and roll-play; the book suggested that the students would bring certain items for the latter. Having the concrete object could have provided additional learning opportunities for the nouns: *wallet and scarf*.

Even though the word *bag* is an A1 word and we would have expected our students to be familiar with it, its use in English teaching material might not be as common. In the textbook used by the participants it is presented only in one grammar activity, there is not a picture of the item when this word is introduced. The accepted translations for this word were *bolsa* or *cartera*. The sentence used was: *I have too many things in my hands I need a bag*.

The noun *cotton* was introduced in the book in a vocabulary activity in which students need to write the material or fabric of various items. The word *cotton* fits with the picture of a blue shirt. The sentence that was elaborated for the activity was: *Ryan's shirt is made with cotton, it is very soft*. We included the noun *shirt* in the sentences to provide a similarity to the activity from the book. This word could have been remembered due to the resemblance to the word cotonete, which means cotton swab. Both words come from the Arabic word *qutn*.

81% of the participants of the experimental group and 34% of the participants of the control group learned the noun *wallet*. This word is not a cognate of its Spanish translation: *billetera*, it is also known as *cartera* in other countries. The word *wallet* comes from the Greek word *kibisis*, whereas the word *billetera* comes from the Latin word *bulla*. It is unlikely that the participants could have made a connection

based on phonetic or spelling. The sentence used in the web-based activities was *I have all my documents in my wallet*. This sentence was structured to have the word documents in it, since it was believed that students would easily identify this word in Spanish and retrieve the word *wallet* based on the context. The role-play activity could have provided a learning opportunity for both groups, providing examples with the concrete object can help to relate an unknown word to its meaning, specially for visual learners.

The noun *scarf*, classified as an A2 CEFR word, was learned buy a large percentage of participants in the experimental group. 81% vs. 35% in the control group learned this word. Just like *wallet* this word was included in the same activity where students could see and touch the object while practicing through a buyer and seller role-play activity. It is suggested that through this activity some participants of both groups were able to learn the word.

The noun *leather* was included in five different activities throughout the textbook. It was presented in two vocabulary activities, two grammar activities and a writing activity. 86% of the participants of the experimental group and 53% from the control group learned this B1 CEFR word. These results could suggest that for leather, the activities that were included in the textbook provided rich and positive encounters with the word. Nevertheless, the strategies aid for further learning. The sentence used for the web-based activity was *Leather jackets are very expensive*. During this unit the textbook presented a leather jacket in one of the vocabulary activities, it was therefore believed that presenting this sentence would enhance learning and provide an additional and familiar collocation with the word.

Unit 4: The only word from this unit that was learned by over 50% of the participants was *whole*, which is from level A2 of the CEFR.

The translations accepted for this adjective were *entero*, *completo* or *todo*. This word was included in the book in two activities, in the instruction of a role-play activity and a reading activity. The sentence used for this word was: *I am so hungry; I could eat a whole chicken*. The participants during this unit learned about modal verbs, so we decided to include the modal verb *could* in the sentence.

Unit 5: Four words obtained more than 50% of learning: *household*, *government*, *uncle* and *daughter*. The three words from different CEFR levels.

The noun *household*, is classified as B2 level in the CEFR. It was included in the first activity from the unit, within a vocabulary section. This word can be confusing for students who first encounter it, since it is not as commonly used as the synonym *house*. Students from the experimental group were able to encounter this word in the web-based vocabulary activities in this sentence: *We do not smoke in this household*. Two aspects, are believed, helped the acquisition of this word. First, the clarity of the context and second, the fact that the translation is linked to a one that

they already knew. Therefore, most participants did not present difficulties with this word in the posttest.

The A2 CEFR word *government* is included in the textbook in a conversation activity. Students are meant to read a dialogue in pairs. In the text, they mention a man that works in a secret mission for the government. It might not have been enough for everyone to remember or learn this word. The additional strategies given to the experimental group allowed participants to encounter this word in a different context. The sentence that was presented was: *The government should cover health needs*. This word comes from the Latin word *gubernare*. Therefore, *government* is a cognate with the word in Spanish *gobierno.* This can also explain why students from the experimental group were able to gain this word easily.

The noun *uncle* is classified as A1 in the CEFR level. A large number of participants of both groups knew this word at the beginning of the intervention period; nevertheless, a higher number of participants of the experimental group learned this word after the intervention period. This word was included in the textbook on three different occasions: two vocabulary activities and a reading activity. The sentence used for the web-based activity was: *My dad's brother is my uncle*. During this unit the possessives are learned and practiced. Participants of the control group seemed to confuse the meaning of uncle *tío* with the meaning of aunt, which is *tía*.

The word *daughter*, which translates as *hija*, is classified as an A1 CEFR word. This word was included in four different activities throughout the textbook. Nevertheless, participants of the control group had difficulty learning this word. This word is not a cognate in Spanish and it presents three consonants together: *ght.* This combination of consonants does not appear in Spanish. It can be suggested that the activities included in the intervention allowed for 81% of the participants in the experimental group to learn this word. The sentence used for the web-based activity was: *Mary has two daughters: Alexia and Josephine*.

Unit 6: The two words that obtained the best percentage of learning among participants of the experimental group were *jogging* and *joke*.

The noun *jogging* can be translated in Spanish as *trote*. There are not any clear similarities between these two words. It is classified as an A2 CEFR word. Participants of both groups encounter this word in three different activities in the book (snapshot, listening and reading). 87% of the participants from the experimental group who did not know this word at the beginning of the intervention period learned it. The sentence used for this word was: *My brother goes jogging in the park on Saturday*. This unit presents different sports activities and students learn the collocation of *go*, *do* and *play* with activities like *jogging*, *swimming*, *yoga*, *tennis*, etc. Therefore, it was considered appropriate to include this collocation.

The noun *joke*, from level A2 CEFR, can be translated as *broma* or *chiste*. This word appears in the book in a speaking activity. The sentence used in the web-based activities was: *Sophie is very funny and she loves to make jokes*. During the time of this intervention, the movie Joker was playing in theaters, this might have influenced some learners to remember the word. Movies in Ecuador usually keep the original English name in theaters and advertisements.

Unit 7: *Glaciers* and *weather* were the target words that presented the greatest improvement in the experimental group.

The word *glacier*s is classified under the B2 level of the CEFR. In the book it was presented to students in a reading activity about the glaciers in Chile. Therefore the sentence that was used was: Antarctica has numerous glaciers. Almost every participant from the experimental group learned this word; it was also learn by fairly high percentage in the control group (30%).

The noun *weather* presents a consonant blend that does not exist in Spanish (th). This word was included in a reading activity in the Student's Book. It is not cognate with Spanish and it does not resemble its translation in Spanish *clima*. Furthermore the sentence elaborated for this word for the web-based activities was: *The weather in Canada is very cold*.

It was important for us to present, for the words that improved the most from each unit, the sentences that were included in the web-based activities. Also, to notice that students had four different activities that included the target vocabulary. That is to say that the experimental group encountered the target words at least 7 times during a week, so 14 times in two weeks. Words were not learned equally, this could mean that this activity provided a significant opportunity for students to learn and retrieve words; nevertheless, it is difficult to suggest why it might not have the same effect for every word.

Second, just as the condition for the pretests, we have identified words that did not reach 50% of knowledge in the experimental group and try to provide possible reasons for why this vocabulary did not improve as hoped. There were 14 words out of the 76 target words. Two words were from A1, five from A2, two words from B1 and five from B2 (see Table 43)

Table 43. Vocabulary that did not reach 50% of correct responses

Unit	Word	CERF	%
Unit 2	Heaven	B2	42%
	Great	A1	36%
Unit 3	Stylish	B2	38%

Unit	Word	CERF	%
	Clerk	B2	48%
	Tie	A2	25%
	Light	A2	32%
Unit 4	Highlight	B2	45%
	Grass	A2	32%
	Award	B1	43%
	Worldwide	B1	44%
Unit 5	Freedom	B2	43%
	Couple	A2	26%
Unit 6	Average	A1	34%
Unit 7	Noise	A2	41%

It is important to notice that this vocabulary was equally distributed in levels A (n=7) and B (n=7) of the CEFR. This could suggest, the type of the activities and the number of encounters may influence more in vocabulary acquisition than the level the vocabulary might be classified by.

Unit 2:

42% of the participants of the experimental group learned the word *heaven* during the intervention period. The translation of this word in Spanish is *cielo*. The sentence that was included in the web-based activity was: *My grandmother died, she is in heaven*. This sentence may have confused students since in this unit they have not yet reviewed the simple past. It was believed that after years of English instruction, basic simple past tense verbs could have been familiar to them, but it seemed this was not the case. Furthermore, since this word represents an abstract concept it might have been difficult for participants of both groups to grasp the meaning. Its appearance in a reading activity in the textbook did not provide a strong idea of the concept since it appears as the name of a hamburger's place and it does not present any additional cues for this word to be understood.

36% of the participants of the experimental group learned the word *great* and 29% of the control group. This word, although it could appear that it is commonly used in everyday English, is included in three different activities in the book, but the instructions of these activities do not request students to further employ the word. The sentence used in the web-based activity was: *vacations are great!* Since *great* is not a concrete noun, this could have affected its learnability. Furthermore, it is believed that the context of the sentence could have been too general for the participants to retrieve the meaning. This word presented no significant difference be-

tween the control group and the experimental group. Both group had a low per-
centage of correct responses.

Unit 3:

Even though the test included the specification of the parts of speech each
word belongs to, it was clear that participants still confused the target word *stylish*
with the noun *style* and provided the translation *estilo* as a response. Both of these
words come from the Latin word *stilus*. Due to its similarity, we can suggest that it
was difficult for students to remember the correct translation in Spanish: *elegante*.
This word was only included once in the book in a grammar activity. The sentence
included for this word was: *Doctors are always very stylish*. Perhaps this adjective
could have been included in a different sentence that could have reflected the
meaning of the word clearer. 38% of participants of the experimental group learned
this word.

The target word *clerk* is not a cognate in Spanish. Its translation in Spanish is
vendedor. Throughout Unit 3, other synonyms are commonly used, such as *sales-
person* and *salesclerk*. It appears one time in the textbook in a grammar activity. The
sentence that was included in the web-based activity was *A clerk sells clothes in a
clothing store*. Participants did not confuse this word with another one, more than
half of the participants marked that they have seen this word before, but they did
not remember its meaning. This word was learned by 48% of the participants of the
experimental group.

The noun *tie* is not cognate in Spanish. Some participants in both groups pro-
vided the translation of a different part of speech *amarrar*. There was not a signifi-
cant difference between the control and the experimental group. In general, partic-
ipants seemed to have had difficulty learning this word. Only 25% of students in the
experimental group and 23% of students in the control group provided a correct
response in the posttest. This activity was only included in a word power activity
where students needed to identify the correct material for certain items. A tie was
one of these items.

The word *light* is a homonym. Although it was presented as an adjective, this
word is also a noun and a verb. The adjective form also has different translations in
Spanish: *claro*, *liviano*, *ligero*. Since the activities from the textbook considered this
word as -not heavy or not dark- the three translations in Spanish were accepted.
Nevertheless, students remember its noun translation more: *luz* and overlooked the
indication that it was an adjective. Some students also provided the translation *de
dieta* since it has become very popular that food packaging has the word *light* on
them which means that the has been modified and they usually include less of cer-
tain components. 32% of the participants of the experimental group learned this
word compared to 27% in the control group. The sentence that was included in the

web-based activities was: *My backpack is empty, it is very light*. Maybe the word empty was unknown to some students.

Unit 4:

The word highlight is classified as B2 CEFR word. It is not too surprising this noun did not present a general acquisition growth. It evidences morphological difficulty, the meaning of the word may seem straightforward to students, since the word Highlight is made out of two words in English: high and light. Nevertheless, its meaning is not a tall luminosity. Laufer (1997) would call this a deceptive transparency. This word was only included in the title of a reading activity and its meaning in the activity could be understood as: to emphasize or make standout. As the Cambridge Dictionary (2020) suggested, we used the translation *Lo más destacado*, for this reason it was considered appropriate to elaborate a sentence with the same context: The *highlight* is always on the first page of the newspaper. Considering that many participants did not learn this word even after the intervention period, we can assume that the sentence did not provide enough context for this word, and also that most of the participants might not read the newspaper and would not know how it is organized. Another aspect that could have influenced is that this concept is somewhat abstract and so we could assume it influenced the results (Allen & Valette, 1972).

The word *grass,* classified as A2 CEFR noun, was presented in a role-play activity in the textbook. This word has not presented a phonetic relation or is a cognate with Spanish. The sentence presented for the word grass was: *The grass at the park is very green*; furthermore, the translation word that was marked as correct in the recognition activity included the following Spanish word: *césped* or *llano*. 32% of the participants of the experimental group learned this word, whereas only 5% in the control group, we could assume that the activity in the textbook did not provided enough input for students to acquire this word.

The word *award* was presented in a reading activity in the Students' book. Learners did not need to understand this word in order to comprehend the text. It might be because of this that only 5% of the participants in the control group learned the word. The percentage was higher in the experimental group 43%. This noun does not present any similarity with the word *premio* in Spanish. The sentence used to practice this word was: *The Grammy Award recognizes the best musicians*. Since this word is not cognate with Spanish it is suggested that the intervention process could have influenced the increase in the acquisition of this word. This word is classified as B1 in the CEFR level.

44% of the experimental group participants learned the word *worldwide* but the same word was learned only by 13% from the control group. This adjective appeared in the textbook in a reading activity about Fergie of the Black Eyed Peas. This

is a compound word made of the word world and wide. Again, this word can cause deceptive transparency. The sentence that was used in the web-based activities was: *McDonald's is a worldwide company*. The translation that needed to be elicited was *global* or *internacional*. Most of the participants that provided a correct response typed *internacional*.

Unit 5:

43% of students of the experimental group learned the word *freedom.* This noun was included in a reading activity, but again, participants did not need to know the meaning of this word to understand the text. That is probably the reason why only 5% of students of the control group learned this word. This word is not cognate in Spanish. Its translation *libertad* was presented in the PowerPoint presentations and elicited in the web-based activities. The sentence presented to the participants of the experimental group was: *Lucy has the freedom to go anywhere she wants.*

In the experimental group only 26% of the participants learned the word *couple*. There was not a significant difference with the control group, since 14% of them learned it. It has caught our attention that this word presented such a low percentage of learnability among the participants, especially because it is included in three activities in the textbook and it is not from a high CEFR level (A2). This noun is not a cognate in Spanish. Participants who presented no improvement did not provide any translations in the posttest, it seemed that they did not confuse this word with another meaning, but they just did not remember. The sentence that was included in the web-based activity was: *My parents are the best couple.*

Unit 6:

The word *average*, classified as A2 in the CEFR level, was not learned as expected. Only 34% of the participants of the experimental group learned this word, and 15% of the control group. This adjective was presented throughout Unit 6 in a grammar and a reading activity. This word is not cognate in Spanish and does not present any similarity with the translation in Spanish: *promedio*. The sentence used in the web-based activity was: *The average grade in my class is 8/10*. Maybe in this sentence the word *grade* got confused with the word *grado*, meaning level of study, if so, this could have caused students to get confused.

Unit 7:

The noun *Noise* is classified as an A2 CEFR level word. 41% of the participants of the experimental group learned this word, whereas 31% of the control group. The noun was included in a grammar activity, in which students needed to fill in the missing words. This word can be constantly mistaken for nose, as in some of the responses obtained from the diagnostic test, various students believed they knew this word and gave *nariz* as the translation in Spanish, instead of the word ruído.

According to Laufer (1997), *symorfy* classification with *case* would fall under the Category 7, since the words differ from each other only in a vowel sound present in one word (*Noise*) but not the other (*Nose*). The sentence elaborated to practice this word in context was: *There is a lot of noise in my neighborhood, I cannot sleep.* This word is not cognate with Spanish, and there are not any phonetic similarities between the word in English and its translation in Spanish.

Third, it was surprising to see that in some words the percentage of participants who learned them was similar in the control group and the experimental group. This could suggest two things. First, for words that reach a low percentage of participants who learned the words it could mean that neither the activities from the book, nor the strategies used during the intervention provided the best scenario for vocabulary learning. For example, the following words present less than 10% difference between the participants that learned the words in the control and the experimental group:

- Great, A1, 36% vs. 29%
- Tie, A2, 25% vs. 23%
- Light A2, 32% vs. 27%

Second, for those words that reached a high percentage of participants that learned, we could assume that the activities performed in the book provide enough encounters and may have elicited students to notice and retrieve the target vocabulary enough times to provide significant learning opportunities.

- Silver, A2, 74% vs. 65%
- Silk, B2, 69% vs. 60%
- Wool, B1 63% vs. 68%

5.5 Pedagogic recommendations

The present study based its design on two different stages of vocabulary learning: noticing and retrieval. Furthermore, it also considered all three aspects of lexical learning: form, meaning and use. Explicit instruction of vocabulary creates opportunities for additional encounters with target vocabulary. The elaborated tools for this study encourage us to believe that educational instructors are able to facilitate vocabulary learning in their classroom practice, this has been previously acknowledged (Nation, 1993; Paribakht & Wesche, 1993; Laufer & Shmueli, 1997; Folse, 2004; Schmitt, 2008). Based on the positive results presented in this study, several pedagogical suggestions have emerged.

First, an explicit vocabulary strategy can aid students to improve their vocabulary acquisition when its visual and aural presentation is combined with web-based vocabulary activities. Most students have their smartphones in class and they could

be seen as learning tools instead of a distraction if used properly. The activities conducted in the intervention of this study could be replicated to include a five-minute activity at the beginning or at the end of a class. As results from the pilot tests presented from the four groups included in this research from the pilot and main study, their level of vocabulary was similar and this could help to select proper target words to include and prepare web-based activities that could enhance vocabulary learning, especially in level A1.2.

Second, it might be important to initiate the beginner's level of English as a Foreign Language (EFL) class by differentiating parts of speech in language and grammatical features of vocabulary, since some students may be confused or unaware of certain significant aspects of language, even in their mother tongue.

Third, vocabulary instruction should take place in class. It was proven that this motivated students to also study at home. Nevertheless, based on the results, the explicit exposure to translation by itself may not be the most recommended since it takes time from the class and does not evoke significant learning. We would suggest implementing supporting activities that can involve students directly with the words. There are enough tools online for additional support for EFL students. It would seem that choosing the correct tools online could ease the struggle educators once faced in elaborating time-consuming materials for one time use. *Vocabtest.com* is one of the many platforms available for learners and instructors, institutions could take advantage of the opportunity the internet provides and start elaborating long lasting tools, which could be shared among different levels and institutions. The use of technology can enroll and motivate students to keep learning, this does not discredit traditional learning with cards, board games, etc.

Fourth, noticing and retrieval were included in this study; a third step to take in vocabulary teaching would be to create opportunities where students can perform a generative use of the target vocabulary, the last of the processes suggested by Nation (2013). As a result, students will make use of more and deeper mental processes, as is supported by authors like Craik and Lockhart (1972) and Craik and Tulving (1975).

Fifth, it is believed that students could benefit from metalinguistic awareness (Nunan, 1995). Therefore, if students knew their initial stage of vocabulary knowledge it would encourage and motivate them by building confidence with the language and so lead to greater diligence. Furthermore, it is also suggested that teachers should be prepared to let students know how to grow their vocabulary during the course. From the qualitative responses from participants, an open and positive perspective to web-based activities was evidenced. Hence, an early introduction to vocabulary-related platforms could provide a wider opportunity for remote and autonomous practice, which would lead to vocabulary recycling.

Finally, it is impossible to believe learners will acquire a large amount of vocabulary through word lists alone. Especially college students taking 28-35 credits in a semester cannot invest long hours to study vocabulary outside their \hour class. That is why it is imperative that educators include vocabulary in their lessons and find motivating and encouraging activities where they can recycle target vocabulary. Retrieval and rehearsal of target items may increase the opportunity to include them in the short-term memory and then reach the long-term memory. Students could be motivated to analyze their vocabulary-learning path, and so it is positive to provide feedback about their achievements. Despite the preference an educator may have for vocabulary teaching, it is imperative to draw attention to this area of language learning throughout the curriculum with explicit and implicit methodologies.

5.6 Concluding comments

In this study a pretest-posttest study design was described and an explicit vocabulary instruction was assessed by a comparison between groups (control group vs. experimental group). The sample of participants in the pilot study included only 36 students, nevertheless the main study was. This aided to obtain a larger data to analyze and interpret. Even though the sample was still considered small (n=132), it was not possible to work with a larger sampler due to specific regulations of class quota and limited number of students that were registered in this level at the time of the study. Groups were equally divided, which provided more accurate and robustness statistical results.

The results evidenced that the methodology implemented with the experimental group throughout the semester improved vocabulary acquisition in students. The difference between the control and the experimental group in the post-test was significant (p=0.000) As students agree, broadening vocabulary is an essential aspect of language learning, and so it has been proven through research. It is believed that English language teachers must consider vocabulary acquisition a noteworthy aspect to tackle in class. This dissertation has proven that vocabulary is a complex, significant area to be studied and encouraged within Foreign Language Learning, since it can motivate students to improve and enhance their general language learning.

Furthermore, our results are in line with the opinion of Sökmen (1997), who defends that vocabulary teaching should occupy a significant section in the curriculum, which would enhance the opportunity students have to encounter the unknown words. Furthermore, their responses also referred to how the explicit instruction motivated them to study more at home and pay more attention in class.

Our research supports the claim that to go from receptive vocabulary acquisition to productive vocabulary is a process that takes time. It does not develop in parallel as mentioned by Laufer (1997). The pilot study, which only included noticing activities, did not present significant results and based on this we implemented receptive retrieval opportunities through web-based activities. The main study presented encouraging results, which allowed us to affirm that various steps should be taken in order to reinforce and grow vocabulary. Consequently, it could be useful to consider besides noticing and retrieval, activities that could focus on a creative processing or generative use level to keep moving forward in vocabulary development (Nation, 2001; 2013). The final goal, fluency and an active use of language should be the ultimate goal of a language learner. Keeping in mind that productive vocabulary evidenced in writing, could even be considered to be a final stage of vocabulary learning (Brown & Payne, 1994; Laufer & Goldstein, 2004).

Individual variables, context related aspects, materials, motivation, etc., could be some of the influential factors for vocabulary acquisition. Furthermore, this study also considered the intralexical aspect of words and how they can affect the learning burden. It has been proven, once again, that learning is a complex process to understand since it involves uncountable variables; nevertheless, research regarding vocabulary acquisition needs to be an ongoing activity. Language learners can always encourage teachers and researchers to seek a pedagogical procedure that may ameliorate vocabulary development and long-term retention so second or foreign language acquisition can take place.

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Appendices

Appendix A: Sociodemographic questionnaire Spanish version

ENCUESTA SOCIODEMOGRÁFICA
Estimado estudiante:

Esta encuesta forma parte de un proyecto con la Universidad Politècnica de València. Los datos presentados en la misma serán usados únicamente con fines investigativos. Se mantendrá el anonimato en el estudio.
Se le solicita que conteste todos los campos.
Muchas gracias por su colaboración.

- Horario de clases
- Sexo
- Edad
- Facultad donde estudia
- Carrera que estudia
- Ciudad de nacimiento
- Colegio donde estudió
  - Público
  - Privado
- Horas a la semana que estudió inglés en la escuela. (1ro de básica a 10mo de básica)
  - 0 horas
  - 1 a tres horas
  - Más de tres horas
  - Más de cinco horas
- Horas a la semana que estudió inglés en el bachillerato
  - 0 horas
  - 1 a tres horas
  - Más de tres horas
  - Más de cinco horas
- Total de años que estudió inglés sin contar con el colegio, es decir institutos, clases particulares, etc.

- o Nunca
- o Más de un año
- o Más de dos años
- o Más de cinco años
- ¿Ha estudiado inglés en un país donde el idioma hablado sea inglés?
  - o Si
  - o No
- ¿Habla usted algún otro idioma?
  - o Si
  - o No
- Si su respuesta anterior fue sí: ¿Cuál, o cuáles?

Appendix B: Sociodemographic questionnaire English version

Bibliographical and Language Background English Questionnaire

Dear student:

This survey is part of a research project at Universidad Politècnica de València. The information provided in this document will be included in a research study. Your information will be maintained anonymous.
Please answer all the questions.

Thank you for your collaboration..
- English class schedule
- Sex
- Age
- Faculty where you study
- Major of study
- City of birth
- What type of high school did you attend?
  - Public high school
  - Private high school
- Hours per week you had English during elementary school and middle school.
  - 0 hours
  - 1 to three hours
  - More than three hours
  - More than five hours
- Hours per week you had English during high school.
  - 0 hours
  - 1 to three hours
  - More than three hours
  - More than five hours
- Total amount of years you studied English outside of school (private institutions, tutoring, etc.)
  - Never

- o   More than a year
- o   More than two years
- o   More than five years
- Have you studied English in a country where this language is mainly spoken?
  - o   Yes
  - o   No
- Do you speak any other languages than spanish?
  - o   Yes
  - o   No
- If your previous answer was yes: Which one, or which ones?

Appendix C: List of words (all words, n=249)

Accountant	Backpack	Green	Aunt	Walking
Caregiver	Bag	Orange	Brother	Country
Carpenter	Boots	Pink	Children	Fitness
Cashier	Bracelet	Purple	Cousin	Gym
Dancer	Dress	Red	Dad	Joke
Musician	Earrings	White	Daughter	Meal
Nurse	Jacket	Yellow	Father	Teen
Pilot	Necklace	Attractive	Grandfather	Treadmill
Receptionists	Ring	Boring	Grandmother	Vitamin (s)
Reporter	Scarf	Cheap	Husband	Above
Salesperson	Shirt	Each	Mom	Average
Server	Socks	Fun	Mother	Both
Usher	Sunglasses	Happy	Nephew	Either
Airline	Sweater	Jealous	Niece	Adventure
Company	Tie	Light	Sister	City
Garage	Wallet	Loving	Son	Congratulations
Newspaper	Watch	Medium	Uncle	Contest
Office	Cotton	Mysterious	Life	Dishes
Restaurant	Gold	Perfect	Adult	Fishing
School	Leather	Powerful	Age	Food
Store	Plastic	Pretty	Attention	Glaciers
University	Rubber	Pure	Challenge	Homework
Breakfast	Silk	Reasonable	Couple	Initials
Clothes	Silver	Sad	Elevator	Lake
Dinner	Wool	Small	Fact	Laundry
Drink	Cent(s)	Stylish	Freedom	Noise
Experience	Clerk	Truthful	Government	Party
Heaven	Coffee	Warm	Household	Airplane
House	Cost	Action	Housework	Retreat
Job	Cup	Guitar	Men	Ruins
Music	Customer	Actress	Money	Statues
Passenger	Decisions	Group	People	Surfing
Patient	Design	Rapper	Percent	Test
Phone	Dollar	Singer	Photographer	Vacation
Schedule	Item	Award	Population	Waves
Snack	Lamp	Concert	Project	Weather
Thing	Notebook	Cyclists	Women	Wildlife

Time	Opinions	Date	All	Amazing
Work	Painting	Game	Most	Awful
Bad	Paperback	Grass	Some	Broke
Busy	Price	Highlight	Few	Cloudy
Different	Review (s)	Instrument	Aerobics	Cold
Difficult	Smartphone	Level	Bicycling	Cool
t-shirt	Speakers	Stadium	Bowling	Excellent
Expensive	Style	Voice	Gymnastics	Foggy
Fantastic	Black	Famous	Jogging	Full
Fast	Blue	Free	Running	Hot
Favorite	BrownBlue	Glamorous	Soccer	Incredible
Great	Brown	Welcome	Stretching	Special
	Gray	Whole	Swimming	Vegetarian
		Worldwide		

Appendix D: Semi-Structured Interview Pilot Study

Question one:

- *Do you believe your responses changed from the pre-test to the post-test?*

Question two:

- *Do you believe that the exposure to the vocabulary with the translation and pronunciation aid to improve vocabulary knowledge?*

Question three:

- *Did you study vocabulary at home?*

Question four:

- *Based on your opinion, what is the importance of vocabulary in English learning?*

Appendix E: Consentimiento informado

Consentimiento informado

Por el presente, se le solicita que usted participe en un estudio en referencia al aprendizaje de una lengua extranjera. Al inicio del semestre te pediremos que rellene un cuestionario sociodemográfico, además darás algunas pruebas durante el semestre. Tu rendimiento y la información que se recoja en esta investigación es privada y confidencial. No se utilizará para ningún otro propósito fuera de los propios de esta investigación.

Beneficios: Tu participación podrá contribuir en el conocimiento sobre el desarrollo y aprendizaje de una lengua extranjera.

Riegos: No existe ningún riesgo al participar.

Si tienes preguntas sobre esta investigación puede comunicarse con Cristina Palacios, escribiendo al email cspalacios@uazuay.edu.ec o llamando al 4091000 ext. 173 en horario de 9:00-12:00.

Su participación en este estudio es voluntaria.

Si firma este documento, usted confirma que le han descrito el estudio de investigación y que acepta participar en él.

_____   _____
Firma del participante   Fecha

Appendix F: Informed consent

Informed consent

Through this form you have been requested to participate in a research study regarding foreign language learning. At the beginning of the semester you will be asked to fill a socio-demographic questionnaire and you will take various tests during the semester. Your performance and the information that will be collected will stay anonymous; it will only be used for research purposes.

Benefits: Your contribution may provide insights regarding foreign language development and acquisition.

Risks: There are not any risks.

If you have any questions regarding this research you can contact Cristina Palacios, by sending an email to cspalacios@uazuay.edu.ec or calling to 4091000 ext. 173 from 9:00 to 12:00.

Your participation in this study is voluntary.

By signing this form you confirm that you have understood what is your role in this research and you give consent to participate.

_____   _____
           Signature   Date

Appendix G: Semi-Structured Interview Main Study

Question 1

Do you believe your responses changed from the pretest to the posttest?

Question 2

Do you believe the methodology in general helps to improve your vocabulary knowledge?

Question 3

Which methodology do you think helped the most to vocabulary acquisition, the explicit exposure to English words and its translation to Spanish or the activities performed with your smartphone after the exposure?

Question 4

Did you study vocabulary at home?

Question 5

How do you think your vocabulary can improve?