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# EFFECTIVENESS OF TEXT-MESSAGING IN SPANISH VOCABULARY TEACHING / LEARNING

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EFFECTIVENESS OF TEXT-MESSAGING IN SPANISH VOCABULARY TEACHING /  
LEARNING

by

Flavia Melisa Velásquez Herrera

Master's Degree in Spanish Literature and TESOL  
M.A., Southern Illinois University, 2013

A Thesis  
Submitted in Partial Fulfillment of the Requirements for the  
Master's in Spanish Literature

Department of Foreign Languages and Literatures  
in the Graduate School  
Southern Illinois University Carbondale  
August, 2013

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THESIS APPROVAL

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Master's Degree in Spanish Literature and TESOL

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August, 5<sup>th</sup>, 2013

## AN ABSTRACT OF THE THESIS OF

FLAVIA VELASQUEZ, for the Master of Arts degree in Foreign Languages and Literatures, presented on August 5, 2013, at Southern Illinois University Carbondale.

TITLE: EFFECTIVENESS OF TEXT-MESSAGING IN SPANISH VOCABULARY TEACHING / LEARNING

MAJOR PROFESSOR: Dr. Thomas Thibeault

Mobile learning is the attainment of any knowledge or skill through using mobile technology, anywhere, anytime (Hashemi et al. 2477). Hashemi and Ghasemi also state that mobile phones are one of the most successful technologies in the past two decades (2947). More and more educators are using mobile phones as an educational tool. Second Language Acquisition has also been redefined due to the advent of Mobile learning and text-messaging. Khazaie and Ketabi explain that “the value of deploying technology at the service of learning and teaching seems to be both self-evident and unavoidable” (174). There are many studies of using text-message technologies in education and in Second Language Learning of English, but these publications do not provide any evidence of the use of Mobile technologies or text-messaging in Second Language Acquisition of Spanish. This paper presents a study using text-message in the teaching and learning of Spanish Vocabulary in a second semester Spanish course. It compared a Control group that used a conventional paper based task learning method and an Experiment group that used text-messaging leaning method to learn twelve Spanish Vocabulary words. The results from the study show that text-messaging can be used as an effective Spanish Vocabulary language learning tool and students enjoyed the use of this vocabulary learning method. The finding in this study could perform as a roadmap in creating more studies that involve the use of mobile learning and text-messaging in the learning of Spanish vocabulary and Spanish as a Second Language.

## DEDICATION

First of all I would like to thank my wonderful grandmother Gloria Maria Herrera. She has been the person that has helped, guided, motivated and supported me throughout all of my professional and personal life. She has been with me through thick and thin and has always given me the advice and love that have helped me reach all of my dreams and goals. I could've not done it without all her sacrifice.

I dedicate my thesis work to my family and many friends. A special feeling of gratitude to the three most important women in my life: my grandmother, mother and aunt whose words of encouragement and love were never scarce. To my brother, sisters, cousins, and my uncle Hernan who have always been proud of me. A special thanks to my friends Sandra Silvern, Jessica Diaz, Silvia Fernandez and my guardian angel Marcela Urcina. All of them are friends who I keep closest to my heart and have supported me through the process.

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## CHAPTER 1

### Introduction

For thousands of years, the evolution of culture and the evolution of humankind have depended on the transmission of knowledge. For a long period of time education remained unchanged. Classes were teacher-centered and “school learning must have been a deadening experience for the student, for lapses in knowledge were often met with brutal punishment” (Richard and Rogers 4); and even though many things have changed, education continues to be very traditional compared to what education should or could be now. Throughout the centuries education has tried to change, adapt and even innovate, and as the years go by education has also found itself having to cope with globalization. This “new trend” has shrunk our world even more. Since the industrial revolution, our society lives under constant pressure to keep up with this, not so new, phenomenon. It has affected our economy, launched technology innovation and the interdependence of these two dimensions. Hallak states that “the main characteristic of globalization is the interdependence of its different dimensions. Technological innovation has facilitated ...the increase in economic flows... [that] has led to a growing interdependence of companies. This tends to form a process that can only but lead to a globalized world, a global society that must continuously produce new forms of organization, and assure the production of new knowledge and know-how” (5).

As a consequence, second language learning has also become popular and important in the adaptation and change of this new global evolution. Hallak states that globalization produces two phenomena: diversification and standardization. It is this standardization that has made language learning so important and even relevant because the twentieth-century demands to have what is identified as global knowledge. The Internet has eliminated the idea of distance between

people and countries. It has restructured the transfer of information and has almost made boundaries disappear. Communication gaps have no or very few limitations now, since people are currently interested in learning different languages. According to Richards and Rodgers it is estimated that a multilingualism of almost 60 % exists in the world today and it has become a norm rather than an exception (3). Even the Modern Language Association, in a study about language learning in the age of globalization, says that besides providing one with knowledge, skills and attitudes that are very important in the workplace, second language learning gives a different insight and perspective about history, politics and culture which makes you an “informed and responsible citizen of your country and of the world” (Language Study in the Age of Globalization 1). It is once again this globalized world that has let us know how important it is to learn a second language, and this understanding of different languages and cultures can allow us to create opportunities for exchange, cooperation and mutual benefit.

Zelasko and Antunez have published important information that explains how learning a second language does not interfere in learning your first or native language. On the contrary, research shows that knowing more than one language increases a person’s thinking abilities, which is a great intellectual benefit. It also is an educational and personal benefit because it allows people to value their culture, value their heritage and contribute to a positive self-concept. Finally, it is also a social and economic benefit because having the ability to read, write and speak in more than one language is a great advantage in the job market and the demand for bilingual personnel is constantly increasing (9).

Technology has benefitted from this globalized era. Hallak also explains how globalization and technology go hand in hand creating a rapid and non-stop expansion of technological innovations that facilitate exchange, speed up production and allow the exchange

of ideas, goods and services around the globe. What a couple of decades ago took “a step for mankind,” now takes leaps for mankind, thanks to the velocity in which technology has affected the way human beings communicate. Technology now hands us an unlimited amount of options to access, share and offer, transmit and exchange information (5). It is a technologically woven world wide web that has made our planet big and at the same time small. It has and is constantly providing us with tools, techniques, methods, systems and especially machines to improve a problem, solve a problem or achieve a goal. Since the invention of the printing press all the way to internet, microchips, and smart phones, technology has affected our everyday lives.

Statistics show that more than three billion people in the world already own a mobile phone. Only China, which is the largest wireless market in the world, had 539.4 million users in 2007 according to Cui and Wang (69). That is why it is no surprise that Cui and Wang also explain that since all of these devices are small, portable and comfortable to use; they are now regarded as teaching and learning instruments. In this article, the writers also give us a nice overview of the different mobile devices that are being used in Mobile Learning. They explain the pros and cons of devices such as hand held computers, audio and video players, but most importantly, they provide great detail of the use of cell phones. Cui and Wang explain that with almost three billion cell phone users worldwide, cell phones are the most popular of all mobile devices. The unique features and functions that this small but useful device has, such as voice function, camera, downloading, web browsing and short message service, among new ones that are being created every day, demonstrates how much potential these devices have for teaching and learning purposes (71 – 73).

It is because of this information and technology explosion that education must also change. Philip Molebas, explains how the Education System is hesitant or slow to change,

especially when it means that there must be some incorporation of technology, despite how popular and trendy it might be. Molebas also mentions the Paralysis Paradigm, described by Jukes and McCain in 1997, as the delay or the limit in our ability to understand, use and cope with new technology. With the fast pace at which technology changes, never before in the history of society or education, has technology adapted as rapidly as today. For the benefit of education, an educational paradigm known as mobile learning (M-Learning) has exploded thanks to the evolution of wireless communication, which includes the use of personal media players, personal digital assistants (PDAs) and cell phones but especially smart phones, amongst others. The rapid evolution of cell phones into smart phones is fascinating, and the use of these technologies in pro of education is even more so.

All of these changes have created a new breed of students, the so called “digital natives” by Saeed Ketabi (174). These students have access to digital technology and remarkable digital fluency; they have been brought up with a new and different way of communicating, learning and even socializing. Other studies also support this idea that explains how these new technologies have become a trend and have become a means of communication and education in first world countries. These new technologies are also quickly expanding throughout the world, even in less developed countries. Text-messaging has now become a reliable and inexpensive communication system and is popular among mobile phone users, especially young people, but most importantly for this research, students. That is why more and more studies and research are being done by Chen, Kinshuk, Hsieh, Alavi and Leinder, Pieri and Diamantini, among many others, who are interested in learning and understanding this important and interesting relationship between technology (stimulus) and learning (response) (Mourna and Carvalho 282). This growth of technology and this boom of digital revolution have foreign language teachers

trying to find and think about newer, easier and more efficient ways to create a better and more effective foreign language environment. The foreign language environment is thus supported by all these multimedia technologies, not with the desire to challenge or replace forms of interaction but instead to complement, support, enrich and enhance the learning experience as we know it now.

Therefore, being a language teacher with the desire to keep up with the development of technological innovation in the Second Language Learning field where traditional concepts in the classroom are constantly being replaced, I have worked on this research, where I have investigated on a first hand basis and looked further into the use of mobile phones and text-messaging. Many times I have come across the frustration, not only as a teacher but also as a student, of being caught in the paradigm where the use of mobile devices has been seen as a disruptive phenomenon in the educational process. I, on the contrary, have seen through the eyes of Prensky, who literally cited by Meurant, explains the issue of frustration (99).

Despite what some may consider as limitations, our students are already inventing ways to use their phones to learn what they want to know. If educators are smart, we will figure out how to deliver our product in a way that fits into our students' digital lives- and their cell phones. Instead of wasting our energy fighting their preferred delivery system, we will be working to ensure that our students extract maximum understanding and benefit from the vast amounts of cell-phone-based learning of which they will, no doubt, soon take advantage.

With the desire to live by Prensky's advice and be smart, I conducted this case study by integrating text-messaging into the teaching and learning strategies of a Spanish class. The purpose of this case study was to see if students who were taking the class could learn Spanish vocabulary in a more efficient way. The goal was to prove that the use of text-messaging can

help second language learners, in this case Spanish students, by demonstrating how new technologies can be used to improve learning and that the use of their mobile phones can be a learning tool. Nonetheless, first we will take a close look at the importance of vocabulary learning when acquiring a second language, next define what Mobile learning is, then describe the importance and relevance of text-messaging today and finally, read more in detail about the research conducted for this thesis.

## CHAPTER 2

### Importance of Vocabulary Learning in Second Language Acquisition

It is well known that language acquisition is certainly a remarkable and fascinating characteristic of human development. What is even more impressive is the language development in a child's early years, and the great growth of vocabulary that children acquire during that time. Research also shows an interesting characteristic in regards to language learning. This characteristic is that first language acquisition has a remarkably high degree of resemblance in children all over the world. Researchers have described this similarity as a language developmental sequence of first language acquisition. These stages of vocalization common to all languages, start with that first involuntary crying, followed by cooing, babbling and producing words by the time babies have reached their twelfth month (Lightbown and Spada 1- 2).

Whitehurst et al. talk about this emergent literacy<sup>1</sup> and how important vocabulary is to the process of literacy acquisition (849). The first stages of language acquisition last between twelve and eighteen months in average and the school years will bring new opportunities for language development. Lightbown and Spada claim that on average a child starts school knowing a hundred or a few thousand words, and this "Vocabulary grows at a rate of between several hundred and more to a thousand words a year" (9). According to Nagy et al. children learn up to 600 words per year during their school years and research has reported that the vocabulary of a child increases by more than 5,000 words per year (234)<sup>2</sup>. Lightbown and

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<sup>1</sup> "Emergent literacy" is used to denote the idea that the acquisition of literacy is best conceptualized as a developmental continuum, with its origins early in the life of a child, rather than an all-or-none phenomenon that begins when children start school.

<sup>2</sup> It is even more interesting to know that even though it is during the child's school years that this spur of vocabulary learning takes place, relatively little direct instruction in vocabulary learning takes place (Nagy et al. 234).

Spada cited Nagy, Herman, and Anderson as they explained that this vocabulary growth also depends primarily on how much the child reads (9). For almost fifty years the behaviorist, innatist, and the interactional / developmental perspectives<sup>3</sup> have explained first language acquisition and how this language development takes place (Lightbown and Spada 8, 10).

In the Preface to the book “Vocabulary and Language Teaching,” by Carter and McCarthy, Christopher Candlin wrote “...the study of vocabulary is at the heart of language teaching and learning...” (vii). This simple phrase can give us an understanding of how important it is to learn vocabulary in first language acquisition. To support this last statement Iheanacho also uses the theories of Harris, Evans, Pouwells, Bismonte, Foley & Petty, Pellow, Watts & Bucknam, and Laufer. All the researchers previously mentioned are renowned scholars that also elucidate the importance of vocabulary in language learning (Iheanacho 13).

Researchers like Harris, Siribodhi and Robinett certainly recognize that vocabulary plays an important part in the development and the continuing improvement of the listening, reading, speaking and writing skills<sup>4</sup> (Iheanacho 13). It is therefore no surprise that studies to improve vocabulary learning have taken place since the twentieth century, when language teaching came to its own as a profession (Richards and Rogers 1). To this day, over six hundred experimental reports have taken place in the past twenty-five years (Brown and Rogers 195). All of these studies have taken place to benefit first language learners but especially have been utilized to the advantage of second language learners.

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<sup>3</sup> The behaviorist perspective promoted by B. F. Skinner, explained that children imitated the language produced by those around them and with ‘positive reinforcement’ they would continue to imitate and practice these sounds and patterns until they formed ‘habits’ of correct language use.

The interactional / developmental perspective hypothesizes that what children need to know is available in the language they are exposed to. (Lightbown 9)

<sup>4</sup>Iheanacho cites researchers like Harris (1969) and Robinett (1978) to further explain that the correct or incorrect use of vocabulary can either provide clarity or misinterpretation in the communication process and it has become the single most important aspect of language learning, and even students cite it as being their number one priority (14).

Dunkel wrote that, “The learning and teaching of foreign languages has been talked about for at least two thousand years, and the actual activity has probably been carried on for many millions more” (2). There is no exact date as to when second language acquisition started, but Cook says that second language learning (L2) emerged as an academic subject during the 1970’s, also called second language acquisition (SLA) (1). During the 70’s it started to be seen from a scientific perspective. Cook also literally states:

*Knowing another language may mean: getting a job; a chance to get educated; the ability to take a fuller part in the life of one’s literary and cultural horizons; the expression of one’s political opinions or religious beliefs. It affects people’s careers and possible futures, their lives and very identities. In a world where probably more people speak two languages than speak one, language learning and language teaching are vital to the everyday lives of millions (1).*

We cannot deny that people like Ascham and Montaigne during the sixteenth century, or Comenius and Locke during the seventeenth century, promoted approaches to language education. But we know for sure that it was Chorder’s and Selinker’s publications and their desire to refute behaviorists<sup>5</sup> when a Modern Study of SLA really began. It was during the 1980’s when Krashen and his Input Hypothesis<sup>6</sup> became prominent. Also important to mention are Long’s, Swain’s and Schmidt’s theories which were introduced to the field during the 1990’s, but it was Chomsky’s Universal Grammar<sup>7</sup> that was the primary area of interest. In the present day, research and studies are still being conducted. We also know that currently second language

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<sup>5</sup> Behaviorism is defined by Watson as “a natural science that takes the whole field of human adjustments as its own. It is the business of behavioristic psychology to predict and control human activity” (9).

<sup>6</sup> “Input Hypothesis claims to explain the relationship between what the learner is exposed to of a language (input) and the language acquisition” (Richards and Rogers 182).

<sup>7</sup> Noam Chomsky’s hypothesis states that “children are born with a specific innate ability to discover for themselves the underlying rules of a language system on the basis of the samples of a natural language they are exposed to” (Lightbown and Spada 15).

acquisition is the process of learning another language after the native language has been learned (Gass and Selinker 7).

Learning or knowing a second or third language is an ability that people perceive as something normal or as something rare<sup>8</sup>. Today it is frequently part of the norm to know more than one language, and knowing just one is uncommon. A great example is the last Modern Language Association survey which shows that there was an overall of 12.9% rise in American college enrollment in foreign languages courses (Sollors 66). There are also different reasons why people are multilingual. Some of the reasons, further explained by Cook, state that people are multilingual by choice, for religious purposes, or because several languages are official in a country. There are also two types of second language learners: children and adults.

Childhood bilingualism is now a reality for millions of children all around the world. Some children learn different languages at home; others learn a second or third language when they go to school. As for adults, the rate of adult second language learners grows exponentially every day. France has an estimate of nine million people who are bilingual, around 285 languages are spoken in Cameroon (Cook 139) and over 279 million people are multilingual in the United States<sup>9</sup> (Sollors 60). Knowing a language has become crucial to access information; hence, researchers strive to search for improved methodologies, approaches and techniques<sup>10</sup> to learn and teach a second language.

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<sup>8</sup> Cook states that Cameroonians use four to five languages and 83% of Europeans between the ages of 20 – 24 know a second language. For them, knowing more than one language is normal (134).

<sup>9</sup> Sollors literally cites the Linguistic Society of America which say that “the vast majority of the world’s nations are at least bilingual, and most are multilingual, even if one ignores the impact of modern migrations” (59).

<sup>10</sup> Richard and Rodgers have an extensive explanation of different methods where we can find the Grammar-translation, Situational Language Teaching, Direct, Audio-lingual, Silent and TPR Method. There is also detail about the Communicative, Natural, Oral and Whole Language Approach, Content and Competency - Based Instruction, Task-Base Language Teaching, Cooperative Learning and Multiple Intelligences (*Approaches and Methods in Language Teaching*).

SLA is not easy and it is known that vocabulary is the foundation of and a fundamental step to language learning (Basoglu and Akdemir 1). Vocabulary learning is also one of the main challenges that foreign language learners face during the second language learning process. Since before the nineteenth century, there was a constant yearning to help students become independent learners (Richards and Rogers 7). With the development of technology and the flourishing of a digital revolution, foreign language teachers are constantly trying to use and adapt to new multimedia technologies in order to create better learning environments. The goal is not to challenge or replace current forms of interaction but to aspire to enrich and support current teaching methodologies (Mourna and Carvalho 281). This connection between technology and education has created a new paradigm known as mobile learning. This new approach known as mobile learning allows one to reflect on what it has to offer to second language acquisition. It has already started to cause an impact on how students learn and has become a great learning tool (Hu 1334).

## CHAPTER 3

### Mobile Learning

Between Confucius and the present day, many theories have been advanced regarding education, but all of them have said that learning generally occurs in a school classroom and with a trained teacher (Sharples et al. 1). Argyris, Freire, Illich and Knowles are some of the educational thinkers that developed theory-based accounts of learning outside the classroom (Sharples et al. 1). During the 1960's the lab was replaced by drill-based computer assisted instruction, later by computer assisted language learning, and the acceptance of Internet during the 1990's advanced the development of computer-mediated communications (Chinnery 9). But, it is since the 1970's that advances in learning and technology converged and set the stage for a successful mobile learning environment (Motiwalla 585). Many researchers and educators think of mobile learning as the immediate descendent of e-learning. Pinkwart et al. and Quinn defined e-learning as learning supported by digital "electronic" tools and media yet Keegan defines e-learning or electronic learning as the provision of education and training electronically, on the Internet and the World Wide Web (13).

To most, mobile means portable and movable, but it is easy to determine that when talking about mobile learning one can conclude that a stable and univocal definition of this concept does not exist (Perez et al. 15). Some evident interpretations might be either learning using a mobile device and/or learning while mobile. Some authors highlight either the technology involved, or the educational or philosophical aims of learning but each context can be based on the angle it is viewed from (Perez et al. 15). These are some of the definitions found for Mobile Learning:

\*Mlearning is the acquisition of any knowledge and skill through using mobile technology, anywhere, anytime that results in an alteration of behavior (Geddes qtd. in Hashemi and Ghasemi 2948).

\*Mobile learning is any educational provision where the sole or dominant technologies are handheld or palmtop devices (Tranxler qtd. in Hashemi and Ghasemi 2948).

\*mLearning is the intersection of mobile computing and e-learning: accessible resources wherever you are, strong search capabilities, rich interaction, powerful support for effective learning, and performance-based assessment. E-learning is independent of location in time and space (Quinn, mLearning: mobile, wireless, in-your-pocket learning, linezine.com).

\*Mobile learning is any sort of learning that happens when the learner is not in a fixed, predetermined location, or learning that happens when the learner takes the advantage of the learning opportunities offered by mobile technologies (O'Malley et al. 6).

\*m-Learning is a form of existing d-Learning (distance learning) and e-Learning (electronic learning) (Georgive et al. 1).

Therefore, it is clear that some of the common ideas when talking about mobile learning are: it can take place anywhere and anytime, it can be formal or informal, and the knowledge is situated within context (Yousefzadeh 216).

O'Malley states that Mobile learning is the learning that happens when the learner is not in a fixed or predetermined location (6). It is interesting to see that a study by Vavoula included in Sharples et al. (2), found that 51 percent of everyday adult learning takes place at home or in the office. Even more interesting is that the study further explains in detail that 21 percent of the learning happens outside the office, 5 percent happens outdoors, 2 percent happens at a friend's house, 6 percent in a place of leisure, 14 percent in other locations and 1 percent occurs on forms

of transport. It is then easy to notice that if only 1 percent of learning happens while learners are on the move this lets us know that mobile learning does not necessarily equate physical movement (Tabatabaei and Goojani 48). If on the other hand we take a second look at Tranxler's meaning, his definition focuses solely on handheld technologies. When referring to these technologies the diversity of applications and functions and the range of devices have to be considered. The devices can include mobile phones, smart phones, PDA's , multimedia players such as iPods and MP3 players, handheld game consoles, handheld computers, ultra-mobile personal computers (UMPCs), and tablets (Clarke et al. 6132).

Most mobile devices are useful in education. They can be used in the teaching process, for organization and administration, as well as a learning support tool for learners. Hashemi et al. reported some of the main benefits:

- *“Learners can interact with each other and with the practitioner instead of hiding behind large monitors.*
- *It's much easier to accommodate several mobile devices in a classroom than several desktop computers.*
- *PDA's or tablets holding notes and e-books are lighter and less bulky than bags full of files, paper and textbook, or even laptops.*
- *It is possible to share assignments and work collaboratively, learners and practitioners.*
- *Mobile devices can be used anywhere, anytime.*
- *This technology may contribute to combating the digital divide, as this equipment is generally cheaper than desktop computers” (2479).*

On the other hand, Hashemi et al. also mentioned some of the potential disadvantages of mobile devices. Some of his points were that a small screen on these devices could limit the amount and type of information to be displayed, they have limited storage capacity, battery life is limited, and devices can become out of date very quickly (2479). Overall, mobile learning allows a great range of possibilities. With mobile learning we can access documents or document libraries, access quizzes and self-assessment like questions or games, participate in lessons and tutorials, receive lectures that are archived or that are broadcasted live, access video clips or audio libraries, read asynchronous postings, exhibit student work and even participate in virtual learning communities on the go (Hashemi et al. 2479).

Mobile devices have certainly started to make their presence and felt in the field of education, and language learning is one of the disciplines that looks set to benefit from it (Kukulska-Hulme 119). Mobile learning emerges more regularly in CALL literature and it is no longer a shock that mobile technologies are gaining momentum in foreign and second language learning environments (Hashemi and Ghasemi 2947). The common use of mobile devices is beginning to have an impact on how students learn, especially in the case of foreign language learning (Hu 1334). An exploitation of ubiquitous handheld technologies, collectively with wireless and mobile phone networks have facilitated, supported, enhanced and extended the reach of teaching and learning (Hashemi et al. 2478). All of these mobile technologies continue to evolve and so does their propensity to shrink in size. Since these devices are small, smart, portable and comfortable to use, digital natives are constantly using them in the learning environment (Cui and Wang 69). Moreover, thanks to these mobile devices, learners are most likely to have the option of mobile access to electronic learning materials, resources and people (Hu 1334).

Mobile learning is also characterized by mobility, relative low cost, ease-of-use, interactivity, context sensitivity and connectivity (McNeal and van't Hooft 24). That is why it is no surprise that mobile phones and smart phones are strongly connected to mobile learning. Since mobile phones appeared, their dimensions have decreased as much as their abilities have increased. Some of their features include Internet access, voice-messaging, SMS or text-messaging, MMS or multimedia messaging, GPS or global positioning system, cameras, and video recording among others. New examples of language learning are expected to be seen as mobile phones become more popular (Basoglu and Akdemir 1). Ahonen states that “mobile has set the record for the fastest growth from zero to one trillion dollars in annual revenues” (qtd. in Quinn 1), and there were also indicators that by 2011 the number of smart phones sold were higher than the number of personal computers sold (Blodget et al., qtd. in Quinn 2).

China is a good example of the growth in popularity of mobile phones. It has the greatest number of cell phone users and it is also the world's largest wireless market. By the year 2005 a study in the UK showed that 95 percent of young adults between the ages of 15 and 16 owned a mobile phone, and a similar study demonstrated that a 100 percent of Malaysian higher education students also owned a mobile device (Tabatabaei and Goojani 49). All of these statistics demonstrate that mobile phones are not just a trend but instead are a fundamental shift (Quinn 2). They have attracted educators as well as learners and have become important tools that provide great advantages that we will discuss further later in this article.

Hashemi et al. state that “Mobile learning is currently the most useful tool in the ICT world. It is also believed that mobile learning could be an essential factor involving young adults in learning, where more traditional methods have failed.” (2481). Hashemi et al. also add that “M-Learning certainly does not replace traditional learning, but is just another way of learning

using a new technology” (2477). Research has suggested that teachers and educators can utilize these new technologies to facilitate the learning process and be confident that they will make the learning process more enjoyable. Research also suggests that m-learning is definitely headed for a world where it will be a fashionable channel for language study (Chinnery 14).

## CHAPTER 4

### Text – Messaging and Language Learning

According to Simon So, there are increasing interests in using mobile devices to support teaching and learning in academic institutions (113). Many mobile devices can be used in mobile learning and digital natives<sup>11</sup> are taking advantage of the development of the latest devices (Cui et al. 70). Now people can learn whenever and wherever they want to. Cui et al. explain that cell phones, out of all mobile devices, are prevalent, and there are almost three billion cell phone subscribers worldwide today (71). Prensky states that “cell phones are not just communication devices sparking new modalities of interacting between people; they are also particularly useful computers that fit your pocket, are always with you, and are always on. Like all communication and computing devices, cell phones, can be used to learn” (qtd. in Cui et al. 71).

Technology continues to evolve and so do portable media (Chinnery 9). Cell phones are becoming very sophisticated in terms of capabilities. Cell phones are now able to include web browsing, still cameras, sound and video recording, MP3 players, video and TV displays, games, GPS devices, long distance digital walkie-talkies, electronic bilingual dictionaries, speech recognition and text-to-speech conversion, Internet access, voice and SMS text-messaging, and cameras (Chinnery, qtd. in Meurant 99). All of these features enable communicative language practice, access to authentic content, and task completion (Meurant 99).

Among the many applications now available to cell phone users SMS<sup>12</sup> or text-messaging is one of the most successful applications and is now a significant, even characteristic element of

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<sup>11</sup> Digital native: (noun) A person born or brought up during the age of digital technology and therefore familiar with computers and the Internet from an early age (Oxford Online Dictionary).

<sup>12</sup> Text messaging, or texting, is the act of typing and sending a brief, electronic message between two or more mobile phones or fixed or portable devices over a phone network. The term originally referred to messages sent using the Short Message Service (SMS); it has grown to include messages containing image, video, and sound content (known as MMS messages). The sender of a text message is known as a *texter*, while the service itself has different colloquialisms depending on the region. It may simply be referred to as a text in North America, the United

cell phone communication (Snowden 107). The first official SMS transmission is understood to have been sent in Britain on December 3, 1992. It was sent from the computer of the engineer Neil Papworth to the cell phone of Richard Jarvis at Vodafone,<sup>13</sup> and it was a simple and somewhat early message that said “MERRY CHRISTMAS” (Snowden 107). Today SMS is being widely used as a means of communication, “Text messaging has [even] become a way of life for many in the 21st century” (Beasley, qtd. in Motallebzadeh and Ganjali 1111).

This “new way of life,” even though not designed specifically for education, is increasingly becoming more interesting in academic institutions that are now using mobile technologies as a teaching and learning support or tool (Moura and Carvalho 282). Motallebzadeh and Ganjali, in “SMS: Tool for L2 Vocabulary Retention and Reading Comprehension Ability,” states that according to Lomine and Buckingham SMS presented several advantages that could be beneficial to language teaching / learning. As these researchers explained, SMS are quick, discrete, to the point, inexpensive, they require little or no familiarization or training and they also improve students’ motivation and retention and involve them more actively (1112). It is then easy to see that in recent years it has become common to adopt SMS or text-messaging as an educational resource. During recent years SMS-based programs have been created to support the teaching and learning process, and it has overall supported language learning and as a consequence several studies and experiments have involved the use of text-messaging in the classroom (Moura and Carvalho 283).

Some research papers regarding SMS and language learning are the following:

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Kingdom, Australia and the Philippines, an SMS in most of mainland Europe, and a TMS or SMS in the Middle East and Asia (Britannica Encyclopedia).

<sup>13</sup> Vodafone Group Plc is a British multinational telecommunications company headquartered in London and with its registered office in Newbury, Berkshire. It is the world's second-largest mobile telecommunications company measured by both subscribers and 2011 revenues (in each case behind China Mobile), and had 439 million subscribers as of December 2011 (“Vodafone moves world HQ to London”, BBC News).

Thorton and Houser developed an innovative project where they implemented the use of SMS in contrast to e-mail in English language learning at a Japanese university. Short mini-lessons were received by the students and lessons had five new vocabulary words per week plus previous vocabulary. Students were then tested bi-weekly and the two groups compared. Results demonstrated that the SMS students learned over twice the number of vocabulary words as the Web students and that the majority of the students, due to novelty, preferred the SMS instruction and believed it was a valuable teaching method (1896).

Levy and Kennedy reported the use of SMS in Italian language learning that took place at a university in Australia. Students received vocabulary words and idioms, definitions and examples in a spaced and scheduled pattern. They were evaluated with quizzes and the project, which took place in the class “Italian Literature and Society,” reported favorable evaluations and outcomes (qtd. in So 115).

Lu examined the use of SMS in ESL teaching in Taiwan. Vocabulary words were sent to students and they were able to retrieve push media anytime and anywhere. Participants were able to recognize more vocabulary during the post-test after reading the regular and brief SMS lessons than after reading the relatively more detailed print material. Students reported that this method was more convenient than learning vocabulary with a PC (qtd. in Motallebzadeh and Ganjali 1112).

Song explored the use of SMS in English vocabulary learning with foreign students. The experiment demonstrated an attitude improvement regarding the use of SMS in learning vocabulary and ten participants were involved (qtd. in Moura 283).

Cavus and Ibrahim investigated the use of wireless technologies through a SMS-based system called mobile learning tool (MOLT) that they created. It was put to the test with a group

of 45 undergraduate students learning technical English. In this experiment new words and their meanings were sent at half-hour intervals and students were assessed with a test at the beginning and at the end of the experiment (qtd. in So 115).

SMS has not only been successfully used for language learning but also implemented by Naismith in administrative communication, by Bollen et al. for communication and discussion, and Nix et al in the reduction of early course abandonment by university students.

Scornacavacca<sup>14</sup> and Markett<sup>15</sup> also created projects in which each developed a system that relied on the use of SMS that allowed a teacher-student form of communication used to the advantage of classroom learning (Moura 283).

The possibility of learning a language anytime anywhere is desired by busy learners (So 115). Research supported by authors such as Kulkulsa-Hulme et al., Levy et al., Song, Pincas and many others support that SMS technology is suitable for language learning (Moura 284). This is because detached SMS messages can be provided in an undersized and brief manner, and are readily accessible for learners in commuter trains, buses, between classes, and even before going to bed. This push media is ideal for the repeated exposures needed to learn foreign-language vocabulary efficiently, but more regarding the advantages and the disadvantages of mobile learning and text-messaging in the following chapter.

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<sup>14</sup> Scornacavacca designed the TXT-2-LRN system with the use of SMS that allowed teacher student interaction in the classroom where students were able to send the teacher questions and comments (Moura 283).

<sup>15</sup> Markett et al. conducted an experiment about which they reported in "Using short message service to encourage interactivity in the classroom." The project involved using PLS TXT UR Thoughts that encouraged interactivity in the classroom by allowing students to use SMS in real time through their mobile phones during class and online after school (Moura 283).

## CHAPTER 5

### **Advantages and Disadvantages of the Use of Mobile Learning and Text-messaging in Vocabulary Learning**

Language learning is now taking advantage of mobile technologies because they offer several applications and tools that have become fashionable in language learning according to Chinnery (9). Nonetheless, advantages and disadvantages of mobile devices and text-messages must be taken into consideration.

#### **1. Mobile Devices**

##### 1.1. Advantages.

Researchers such as Moura, Lu, Kukulska-Hulme and Chinnery have also stated that mobile devices are useful in education and administration (Hashimi and Ghasemi 2947). Klopfer, as quoted in Hu (1338), identifies portability, social interactivity, context sensitivity, connectivity, and individuality as the five properties of mobile devices and are described as follows:

##### *Portability*

When referring to portability, researchers mention that the small size of a mobile device is viewed as positive by students, who would rather take a quick look at the device, instead of carrying a book or notebook (Kukulska-Hulme 126). The use of mobile devices, thanks to their size, can be easily accommodated in the classroom instead of using desktop computers (Hashemi et al. 2479). Furthermore, Prensky explains that they are sometimes so small that they fit in pockets, purses and backpacks, so it is no surprise that they are now the primary means of communication (2).

### *Social interactivity*

Since mobile devices cannot easily be separated from everyday life activities, it is certainly an advantage that mobile devices allow the integration of non-learning tasks and learning needs (Sharples et al. 1). A person can go for a run, go to the supermarket, even take a train ride, and use their mobile devices as a potential learning resource or tool to communicate with others. Hashemi and Ghasemi broaden this idea by saying that the availability of this mobile technology “enables people to learn by exploring their world, in continual communication...” (2948). Mobile devices used for language learning in the classroom allow learners to interact with each other and with the teacher, instead of having students hide behind large monitors (Hashemi et al. 2479).

### *Connectivity*

Connectivity is best exemplified with the “anywhere, anytime” characteristic, which is one of the most mentioned advantages of mobile devices (Hashemi et al. 2477). Lu remarks that students are able to use their phones at home, while they commute, between classes, inside or outside the classroom, or even before going to bed (516). Thanks to this connectivity, learners are able to extend classroom learning wherever they are.

This advantage of the “anytime, anywhere” characteristic in mobile devices is increased when the learner is able to use extra learning tools, such as a wireless connection that allows him or her to access online dictionaries, translators, and search engines that enable communicative language practice (Hu 1334). Connectivity is also possible thanks to the low cost of a mobile device compared to laptop computers or tablets and is also an advantage in the

relatively inexpensiveness of the service due to the multiple network servers available (Hashemi and Ghasemi 2948).

### *Context sensitivity*

Sharples explains that when exploring the complexity of mobile learning we must remember that the context in which it occurs has to be seen as a dynamic entity composed of the learner and its environment (3). This dynamism allows different changes, and instructors constantly search for ways to increase work and learning performances (Hashemi et al. 2478). That is why Information through mobile phones has been adapted to the context of learning and the learners' evolving skills, current knowledge and needs.

Researchers are constantly looking for effective ways of using mobile devices or adapting information in order to improve the education process. They teach vocabulary using multimedia technology (Khazaie 174), create mini-lessons and also teach vocabulary through text-messaging (Thorton and Houser 1896), create English vocabulary games using hand held devices (Hung and Young), and teach idioms via SMS (Levy and Kennedy qtd. in Chinnery 10), among many more.

### *Individuality*

Mobile education can adapt to the learners abilities, knowledge and learning styles and it can be designed to support personal learning (Hashemi and Ghasemi 2950). For instance, some people do not like overload of information when learning. Push media allows small amounts of information, quick content and the tools that a mobile device can provide. It is appealing to use mobile devices with the option of receiving information in small amounts without being overwhelmed with lengthy and too detailed information (Lu 516). The StudyCell learning program conducted by McNicol in Japan is a great example, and in this research only small chunks of information were provided via text-messages, which the students appreciated

(McNicol qtd. in Lu 2008). Mobile learning also attempts to engage students, not only by making it appealing and motivating, but also because this easy-to-use technology can be managed by people who have no previous experience with it (Hashemi and Ghasemi 2948).

## 1.2. Disadvantages

One of the most common disadvantages mentioned by researchers such as Lu, Chinnery and Hashemi is that mobile devices have relatively small screens. However, with quick advances in technology Van Camp explains that mobile device screens have gotten so big that manufacturers are actually starting to downsize. Phones like the Galaxy Note 2<sup>16</sup> and the Huawei Ascend Mate<sup>17</sup> were released with a 5.5 and 6.1 inch screens respectively and dwarfed other phones. Now the trend has started to reverse in size into more manageable options, and phones such as the HTC One<sup>18</sup>, Ascend D2, the Nokia and the Blackberry have fallen back or stayed in the 4 – 4.7 inch screen range (Eadicicco, “Samsung Galaxy Note 2 Release Date For Verizon Arrives: A Hands On Look At Its Best Features”).

Hashemi as well as Chinnery share what they think are other disadvantages of mobile devices. Two of them were that mobile devices were too small with limited audiovisual quality and had limited power batteries. As a consequence, batteries had to be changed regularly and that data could be lost in the process if it was not done correctly. Today mobiles like the HTC Touch Diamond2 and Samsung I8000 Omnia II are two examples of mobiles that are using 480 x 800

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<sup>16</sup> The Samsung Galaxy Note 2, manufactured by Samsung, is a device with multitasking features and the ability to act as both a smart phone and a tablet. (Eadicicco, “Samsung Galaxy Note 2 Release Date For Verizon Arrives: A Hands On Look At Its Best Features”)

<sup>17</sup> The Huawei Ascend is an Android and Windows Phone smart phone manufactured by Huawei, a Chinese multinational networking and telecommunications, with a 6.1-inch screen, HD resolution, and capable of appealing performance levels due to its 1.5GHz HiSilicon quad-core processor, paired with 2GB of RAM. (Arghire, “MWC 2013: Huawei Ascend Mate Hands-On”)

<sup>18</sup> HTC One is a series of Android smart phones manufactured by HTC (High Tech Computer Corporation) in an Android smart phone to be released by HTC in March 2013. Serving as a successor to the One X, emphasis has been placed by HTC on its hardware and software design, along with its unique camera implementation (htc.com).

pixel (WVGA) display resolution, and for smart phones, you can find phones with up to 1080 x 1920 pixel display resolution (“Highest Display Resolution - Cell Phones Top List”, phonegg.com). As for battery life, the Samsung Galaxy Note 2 is reported to have the longest lasting one, with a battery life of up to 10 hours and 12 minutes (Spoonauer, “Countdown: 10 Smart phones with the Longest Battery Life”).

The previous disadvantages are some of the ones that, due to rapid technological evolution, no longer can be considered disadvantages. But among other unresolved disadvantages researchers have listed:

- Potentially limited social interaction.
- Can become out of date very quickly (Hashemi et al. 2479).
- Limited storage capacity.
- Less robust.

## **2. Text-messaging**

In mobile learning the adoption of text-messaging or SMS has become a popular resource, and several studies and experiments have taken place in recent years (Moura and Carvalho 281). For the last ten years, many SMS project researchers have reported the use of SMS in education (So 114), but also some disadvantages of SMS in language learning and teaching have been found. These disadvantages are summarized as follows:

### **2.1. Disadvantages**

- Text-messages allow a limited amount of information to be sent (Clarke et al. 6135). The original size of short messages allowed a total of 160 characters, but now the latest

mobile devices can send and receive up to 160 characters per message (Moura and Carvalho 282).

- Not everyone has the appropriate high-end device (Clarke et al. 6135) and SMS is considered “low-tech” (Moura and Carvalho 284). Despite high-end devices having resourceful tools, SMS ranked higher in terms of user convenience and is a characteristic of all mobile phones (Clarke et al. 6133).

- Users do not want to pay extra for service (Clarke et al. 6135).

## 2.2. Advantages

- Today text-messaging is free of charge or it is a service already included in cell phone plans. Clarke et al. note that SMS messaging that is included in pay plans charge approximately 9 cents per text-message, which is still affordable (6135).

- All network and mobile devices provide SMS (Clarke et al. 6135).

- Receiving and sending text-messages is straight-forward and “fool-proof”(Clarke et al. 6135); it does not require technical learning (Moura and Carvalho 284).

- Text-messaging is push media (Thorton and Houser 1896).

The use of short-message-service or text-messaging technology is one of the most powerful mobile technologies today. Most people own a mobile phone with free text-messaging that can be used for learning (Moura and Carvalho 281). The advantages of text-messaging in educational contexts are still being researched with the desire to find new opportunities to use text-messaging and improve the conditions of vocabulary learning (Motallebzadeh and Ganjali 1111geddes).

Several studies regarding the use of SMS and the learning of English and Italian have been, made but no studies have been done with SMS and Spanish language learning. The desire to cope and integrate mobile learning to language learning and teaching guided me to conduct a research, and the purpose of this experimental study was:

Examine if Spanish Vocabulary Learning can be effective and enjoyable with the use of Mobile Learning specifically with the use of Text-messaging.

The research question was:

Does Spanish Vocabulary Learning with the use of Mobile Learning through Text-messaging result in a better learning and acquisition of the words than other learning methods?

And three hypotheses were made. They were:

H1. Push Media will allow students to use vocabulary words within three hours.

H2. There will be a significant difference (approximately 30%) between the Experiment group and the Control group in relation to their mean scores in the Final vocabulary test.

H3. There is a significant difference in Spanish Vocabulary learning between the Experiment Group and the Control Group.

## CHAPTER 6

### Research

#### 1. Method

##### 1.1. Participants

The participants in this study were selected from students enrolled at Southern Illinois University Carbondale (SIUC) in Carbondale, Illinois. They were enrolled in the 140 B Spanish class. They attended this course during the fall semester as part of a beginner level class. All of the participants had previously taken the 140 A Spanish class.<sup>19</sup> There were six available sections in this semester and two sections were chosen because they shared the same professor. In this case study the Experiment group and the Control group consisted of subjects registered in the SPAN 140 B class during the fall semester. The Experiment group and Control group had the same professor. Sections were randomly assigned to a Control group and an Experiment group. The Control group began with twelve participants but only ten participants took the final evaluation. The Experiment group began with fourteen participants but only nine participants took the final evaluation. The Control group comprised 1 male participant (10%) and 9 female participants (90%). The Experiment group comprised no male participants (0%) and 9 female participants (100%).<sup>20</sup> The participants' age ranged between 18 to 27 years old.<sup>21</sup> In the Control group one student was in third year (Junior) (10%) and nine students were in fourth year (seniors) (90%). As for the Experiment group, two students were in first year (freshmen) (22.2%), one student was in second year (sophomore) (11.1%), one student was in third year (Junior) (11.1%), and five students were in fourth year (seniors) (55.5%).<sup>22</sup> In the Control group

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<sup>19</sup> Graphic of Previous Knowledge of Spanish Language can be seen in Appendix A.

<sup>20</sup> Graphic of male and female participants and its total is found in Appendix B.

<sup>21</sup> Graphics of participants' age can be seen in Appendix C.

<sup>22</sup> Graphics of School Year can be seen in Appendix D.

11 of the participants listed English as their first language (90%) and one student listed Spanish as his first language (10%) but this student was not taken into consideration for statistical analysis. In the Experiment group, all the participants listed English as their first language (100%)<sup>23</sup>. In the Control group, nine participants spoke English only (90%) and one participant spoke a different language (10%). The other language listed by the participant in the Control group was Bulgarian. In the Experiment group, three participants spoke a language different than English (33.3%) and six participants spoke English only (66.6%).<sup>24</sup> The languages listed by the participants were French and American Sign Language. As for the number of years taking Spanish as a second language, the Control group reported that 50% had taken it for more than four years and 50% reported that they had taken it for less than four years. As for the Experiment group 44.4% reported that they had taken it for more than four years and 55.5% reported that they had taken it for less than four years.<sup>25</sup>

## 1.2. Materials

This study proceeded in applying five instruments. The instruments were a pre-assessment vocabulary test, a background questionnaire, Mobile phones and text-messages, paper and pencil, and a final vocabulary assessment.

The first Instrument was a pre-assessment vocabulary test.<sup>26</sup> This vocabulary test contained vocabulary words from the *Hola Amigos* 7th Edition Spanish text book by Jarvis, Lebreo and Mena-Ayllón. A total of 92 Spanish vocabulary words<sup>27</sup> were chosen from lessons one through twelve that were contained in the text's vocabulary lists. Vocabulary words initially contained nouns, verbs and adjectives, accented and non-accented words that were analyzed.

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<sup>23</sup> Graphics of First Language Spoken can be seen in Appendix E.

<sup>24</sup> Graphics of Other Languages Spoken can be seen in Appendix F.

<sup>25</sup> Graphics of Years of Taking Spanish as a Second Language can be seen in Appendix G.

<sup>26</sup> Pre-assessment test can be seen in Appendix H.

<sup>27</sup> Vocabulary word list can be seen in Appendix I.

After revisions, the use of adjectives and accented words in Spanish were deleted, these last because not all the subjects had a smart phone or a phone whose keyboard contained accented vowels. The final list of vocabulary words contained nouns and verbs and none of the words had a written accent mark. Six vocabulary words were chosen from lessons one through eleven and twenty six vocabulary words were chosen only from lesson twelve since lesson twelve was the target vocabulary list to be used in the case study. In this pre-assessment test subjects were given three answers regarding word knowledge. The three possible options were: *I know the word*, *have an idea* or *I don't know the word*. The pre-assessment test answers were tallied for both the Experiment group and the Control group. All the *I have an idea*, and *I don't know this word* answers were taken into consideration, and all the ones marked *I know this word* were automatically disregarded. Out of the *I don't know this word* pool, the twelve highest rated unknown words were the ones chosen to be used in the case study.

The background questionnaire<sup>28</sup> was divided into two parts. The first part included questions regarding students' basic information and past and present knowledge of Spanish as a second language or any other languages. The second part included questions regarding mobile phone and text-messaging usage.

The third instrument used, were all the mobile phones owned by the Experiment group in the case study in which the subjects received the vocabulary word pertinent to each day.

The fourth instrument was the paper and pencil used by the Control group. Paper worksheets<sup>29</sup> based on a week of class schedule were created with vocabulary words pertinent to each day.

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<sup>28</sup> The background questionnaire can be seen in Appendix J.

<sup>29</sup> Paper work sheet can be seen in Appendix K.

The final instrument was the final vocabulary assessment.<sup>30</sup> The final assessment was a written assessment that both the Experiment group and Control group were supposed to take but due to external factors only the Control group was able to take on paper. The Experiment group took their test through the use of text-message.

### 1.3. Procedures

Case-study began the ninth of November when the Experiment group and Control group were approached. Case study was explained in detail and questions regarding the case study were answered. The subjects in the Experiment group and Control group signed a consent form to be part of the case study. The Case study began the twelfth of November, 2013.

The Experiment group had a one hour class period from twelve o'clock to twelve fifty on Mondays, Tuesdays, Wednesdays and Fridays. The Control group had a two hour class period from six o'clock to seven forty five on Mondays and Wednesdays. For the following five weeks the subjects received their Spanish class and their vocabulary words for lesson 12. Each subject from the Experiment group and the Control group were also assigned a code number so that subject identity could remain confidential. The code number for each subject was the last four digits in the subjects' university ID number. It was also established that if any two subjects had the same four digits then a fifth digit would have to be provided but in this case study none of the code numbers were the same.

Subjects in the Experiment group and Control group completed the pre-assessment test and background questionnaire on Monday the twelfth of November. Words were randomly placed in the pre-assessment test where students had to mark each word with an X in the space that they considered stated their knowledge of the Spanish vocabulary word. The Experiment

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<sup>30</sup> Vocabulary assessment can be seen in Appendix L.

group and the Control group took the pre-assessment test. After the subjects took the pre-assessment test the chosen words for the case study were:

<b>English</b>	<b>Spanish</b>	<b>English</b>	<b>Spanish</b>
Bell boy	El botones	Peruvian	El peruano
Shower	La ducha	Toilet	El inodoro
Price	El precio	Sink	El lavabo
Brochure	El folleto	Elevator	El ascensor
Luxury	El lujo	Double bed	La cama doble
Magazine stand	El puesto de revistas	To seem	Parecer

All the Spanish vocabulary words that were nouns used the singular article before it (el / la).

The background questionnaire was divided into two parts. The first part contained questions about general information regarding the subjects such as school year during the time of this case study, the subjects age and gender, the amount of time that the subject had taken Spanish previous to the case study, place where subject had taken Spanish, what is the subjects native language, what other language could the subject speak and why the subject decided to learn Spanish as a second language. The second part of the background questionnaire contained several questions regarding technology information. This information was important to determine if the subject owned a cell phone, if the cell phone was a smart phone, how often the subject used the phone, when the subject used the cell phone, and what the subject used the cell

phone for. Two final and important questions were if the subject received text-messages without an extra charge and if they thought that receiving Spanish vocabulary words by text-message could be helpful.

The Experiment and Control group were approached during the weeks of the twelfth and the nineteenth of November in order to allow the subjects complete the pre-assessment and the background questionnaire. On the twenty-sixth of November, the Experiment group started receiving a text-message every class day with a lesson 12 vocabulary word(s) in English. The subject then had to translate the word(s) into Spanish and use the Spanish vocabulary word(s) in a sentence and return the text-message. Translations and sentences were checked and corrected if necessary. The Control group started the experiment on Monday the twenty-sixth of November as well. Every class day subjects received a worksheet with two or more words in English. The subject had to translate the vocabulary word to Spanish and then write a sentence with it. Worksheets were handed back the following day. Translations and sentences were checked and corrected if necessary. Worksheets were returned the following class day.

The experiment ended on Wednesday the fifth of December for the Control group. They took the Final Vocabulary assessment in the classroom. This assessment contained twelve vocabulary words that the subject had to translate from English to Spanish. The Experiment group was supposed to take their Final Vocabulary assessment on Friday the seventh of December in a paper based form too, but due to reasons out of my control it was not possible. Instead, the Experiment group received two last texts that day. The first text-message contained an apology asking the participants to please answer one last text that resembled their written Final assessment in text-message format. This text also asked the subjects to abstain from using any other source to answer the text-message. The second text-message was the Final assessment

in text-message format where subjects from the Experiment group, like subjects in the Control group, had to translate twelve vocabulary words from English to Spanish. In this experiment group a total of fourteen subjects signed consent forms, one was not taken into consideration because of his Latino background, and after the text-message assessment, nine was the total of subjects in the experiment group. In the control group a total of twelve consent forms were signed and only ten subjects took the final assessment.

For the purpose of this case study it was an advantage that subjects were learning their Spanish vocabulary words through text-message. Otherwise, it would have not been possible for subjects to take their final assessment. The use of text-messaging served as the perfect means to conclude this case study.

## CHAPTER 7

### Results

#### 1. Findings

Several statistical analyses such as T-tests and One-way-ANOVA were conducted to answer the research question and hypotheses in this study.

Use of Vocabulary in less than three hours

I found that push media did not allow subjects to use vocabulary words in less than three hours (180 minutes). On average it took subjects  $298 \pm 501.35$  minutes. Variation was high among test subjects ranging from 4 minutes to 19 hours. (table 1)

**Table 1. Average Time Chart of Response Time by Word - Experiment group**

Word	Minutes in average	Hours
Price/Shower	401.75	6 hours 41 minutes
Bellhop	336.45	5 hours 36 minutes
Brochure	213.25	3 hours 33 minutes
Magazine Stand	181.23	3 hours 1 minute
Peruvian	283.08	4 hours 43 minutes
Toilet/Sink	277.3	4 hours 37 minutes
Elevator	151.1	2 hours 31 minutes
Double-bed	167.5	2 hours 47 minutes
Luxury/To seem	91.22	1 hour 31 minutes
Final Assessment	298	4 hours 58 minutes
Average	240.09	4 hours 0 minutes

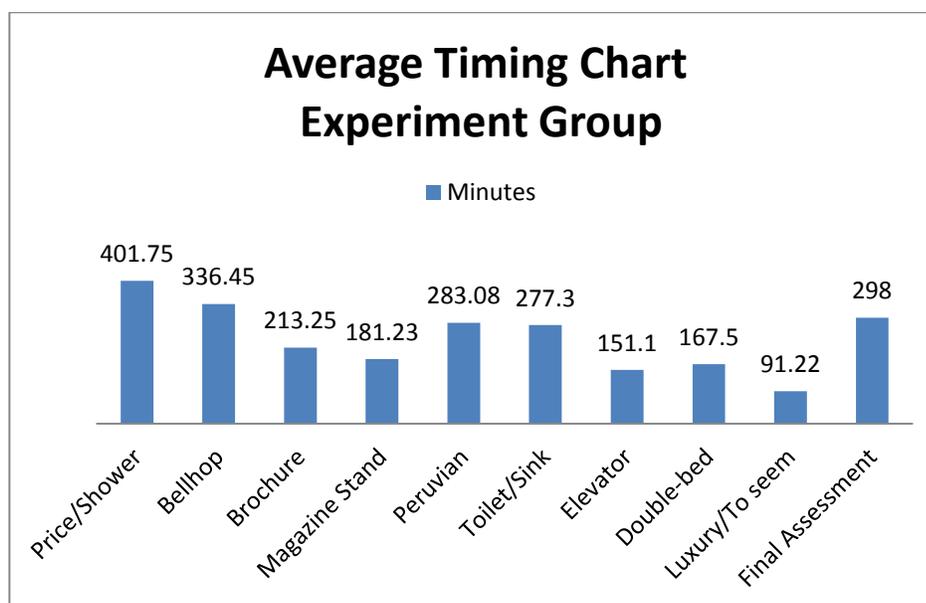


Figure 1. *Average Time Chart of Vocabulary Words. Words Used in the Study (n = 12) and the Final Assessment (n = 1).*

Experiment group has 30% above in test results

The Experiment group scored on average 68.78% and the Control group scored on average 42.6%. The Experiment group is 26.18% higher than the Control group which is near the hypothesized 30%. The results are slightly lower than the hypothesized 30%, however the scores are significantly higher in the Experiment group ( $p=0.008$ ).

Significant Difference in Spanish Vocabulary learning between groups

I examined individual subjects across the Control ( $n=10$ ) and the Experiment groups ( $n=9$ ) using a One-way-ANOVA. The score results of subjects in the Experiment group and score of subjects in the Control group were taken into consideration. The average scores of the Experiment group were significantly higher than the Control group ( $24.7\% \pm 8.0$  and  $15.4\% \pm$

7.60, respectively) ( $F_{1,17} = 6.85, p=0.018$ ). Overall the Experiment group scored 9.3% higher than the Control group (Figure 1).

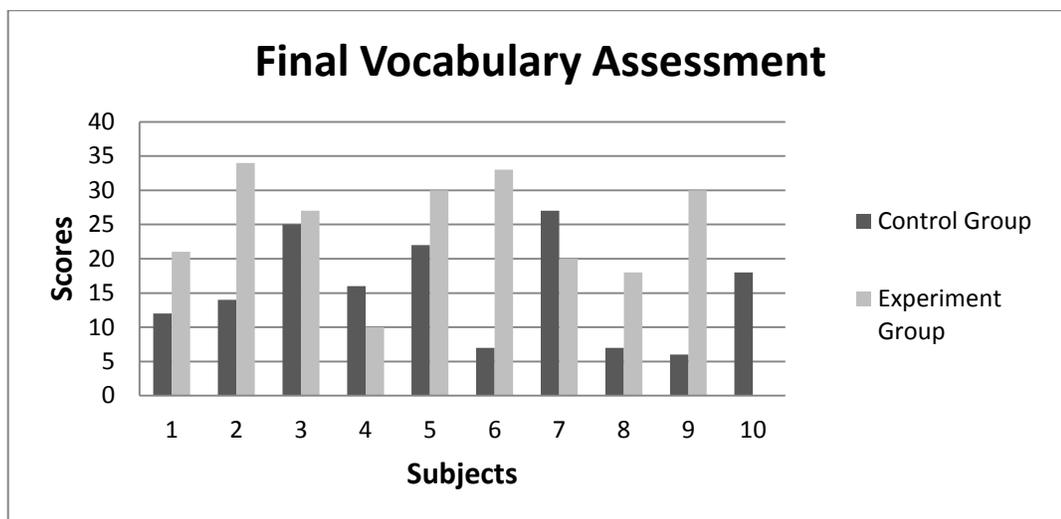


Figure 2. Final Vocabulary Assessment Scores of Control (light bars) and Experiment (dark bars) for 10 Subjects.

**Table 2. One-way-ANOVA Final Vocabulary Assessment**

ANOVA

<i>Source of</i>						
<i>Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between			416.570760	6.84913668	0.01803	4.45132
Groups	416.5707602	1	2	3	1	2
Within			60.8209150			
Groups	1033.955556	17	3			
Total	1450.526316	18				

The results of the statistical analysis [  $F(1,17) = 6.8491, p = 0.018$ ] indicated that Spanish vocabulary learnt with the use of Mobile Learning through text-messaging resulted in a better learning and acquisition of the words than other learning methods.

To further quantify if our significant results were driven by a single factor, I examined the Age, School Year, and Number of Previous years of Spanish classes taken, to see if they influenced test results. I found that there was no significant effect of age ( $F(5, 13) = 1.85, p = 0.127$ ), School years ( $F(5, 13) = 2.8, p = 0.064$ ), and Previous Spanish classes ( $F(7, 11) = 2.94, p = 0.054$ ).

**Table 3. Age of Subjects**

**One – way – ANOVA to determine the influence of the Subjects Age**

Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	603.526	5	120.705	1.853	.172
Within Groups	847.000	13	65.154		
Total	1450.526	18			

**Table 4. School Year of Subjects****One – way – ANOVA to determine the influence of the Subjects School****year**

Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	749.804	5	149.961	2.782	.064
Within Groups	700.722	13	53.902		
Total	1450.526	18			

## CHAPTER 8

### Conclusions

Previous chapters have talked about how much education and technology have changed in the past years and how the two of them have learned to co-work in a globalized world. Second language learning is an important part of this globalized era and thanks to the constant advances in technology SLA can be fun and easy. Vocabulary acquisition is an important part of SLA and teachers can no longer rely on students acquiring the needed vocabulary just through interaction with the language. As a language teacher, I took on the journey of keeping up with the development of technological innovation in the Second Language Learning field. I conducted and concluded this case study with the desire to prove that Spanish Vocabulary Learning could be done effectively and that it would be an enjoyable activity not due to random chance, but instead due to the use of Mobile Learning through the use of text-messaging. Data collection and statistical analysis helped to demonstrate that the use of text-message in Spanish Vocabulary teaching and learning is more effective than a traditional vocabulary learning technique. Therefore, I can conclude that text-messaging through mobile phones can be used to learn Spanish vocabulary as an effective means.

Due to the research question that was proposed for this case study several hypotheses were also taken into consideration in order to reach my conclusion. One of the hypothesis looked into subjects having a text-message response time of less than three hours. This hypothesis was not supported due to an analysis of the response time of every text-message. On average subjects took four hours to respond, which is a difference of one hour. Text-message response ranged approximately from four minutes to nineteen hours. Text-messages were averaged by day. Six hours and forty-one minutes was the longest response time, and this average response time took

place on the first day the case study began. I can also conclude that this was because subjects were still not familiarized with the method. I can support this conclusion stating that the shortest average response time was one hour and thirty-one minutes which took place the last day of the case study and we can see a decrease in the time of response as the case study reached its end.

A second hypothesis stated that the Experiment group would have a thirty percent above test results in contrast to the Control group. This hypothesis was also not supported since the Experiment group scored approximately a final average of sixty-nine percent and the Control group scored approximately an average of forty-three percent in the final vocabulary evaluation. These scores averaged approximately a total of twenty-six percent difference which was only a four percent difference; nonetheless, they did not meet the hypothesized difference.

A third and final hypothesis stated that there would be a significant difference in Spanish Vocabulary learning between the groups. This hypothesis was also the most relevant in this case study in order to answer the research question. This hypothesis was supported. Scores were analyzed across and between them. The Experiment group had approximately an average of twenty-five percent and the Control group approximately an average of fifteen percent. The scores of the Experiment group were higher almost by ten percent which allowed me to conclude that the use of text-messaging resulted in a better learning and acquisition of the vocabulary words than the paper-pencil based task.

Three important factors were additionally analyzed in order to determine if these last results were affected by them. The first factor to be analyzed was age, the second factor to be analyzed was School Year, and the third factor to be analyzed was the Number of Previous years of Spanish classes taken. Statistical analysis demonstrated that none of them affected the results, allowing us to say that these results can be highly supported. This is also convincing evidence

that text-messaging is an effective tool in vocabulary teaching and learning that can be a useful pedagogical tool.

It is important to acknowledge that the statistical tests used in this research to verify the effectiveness of text-messaging were limited by the small sample size and the time that this case study lasted. There is always a possibility that the results may have been affected by other factors that were out of my control, such as the subjects individual study habits, and the uncontrolled nature of text-messaging. However, because it is the only available information regarding Spanish vocabulary teaching and learning through text-messaging, it cannot be compared or contrasted to any other study, but can serve as relevant ground to guide other researchers until more detailed data can be collected and analyzed.

Among other observations it was interesting to find out that the subjects:

- Despite being very motivated to take a second language in high-school, it was not the place with highest average of subjects, but instead they were evenly distributed between elementary school and the university.<sup>31</sup>
- Only four subjects knew a third language.<sup>32</sup>
- All owned a mobile device<sup>33</sup> and most of them owned a smart phone.<sup>34</sup>
- All said they use their cell phone every day<sup>35</sup> and most of them said they most commonly used their cell phone during leisure time, between classes and traveling,<sup>36</sup> but this answer could be biased.
- All said they have free text-messages<sup>37</sup> and they always text-message.<sup>38</sup>

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<sup>31</sup> Graphics of Place of studies can be seen in appendix N.

<sup>32</sup> Graphics for Other Languages Spoken can be seen in appendix O.

<sup>33</sup> Graphics for Own a Cell Phone can be seen in appendix P.

<sup>34</sup> Graphics for Own a Smart Phone can be seen in appendix Q.

<sup>35</sup> Graphics can be seen in appendix R.

<sup>36</sup> Graphics can be seen in appendix S.

A very interesting observation is that the last question in the background information questionnaire asked both the Experiment group and the Control group if they thought that receiving Spanish Vocabulary words by text-message would be helpful in their Spanish class and a one-hundred percent said yes. I believe that the idea of learning vocabulary words through text-messaging gave the subjects a new and technologically exciting way to acquire words in Spanish.

Text-messaging is now part of a foreign language pedagogical trend, and the future of education advances hand in hand with technology. Molebash(1999) in his article “Technology and Education: Current and Future Trends” states that we have moved into the age of information, that the roll of education is to educate our future generations on emerging technologies and deepen on how the role of teachers will also change from a role of transmitting to a role of facilitating. Most importantly and to conclude this research I will cite Molebash when he says that “We must always keep in mind that a good driver doesn’t watch the car’s hood while they are monitoring down the road. Instead, a good driver carefully watches the road ahead, looking for the obstacles and challenges that lie before them. It is time that education quits watching its hood and starts looking at the road ahead”.

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<sup>37</sup> Graphics for Free text-messages can be seen in appendix T.

<sup>38</sup> Graphics for How often can be seen in appendix U.

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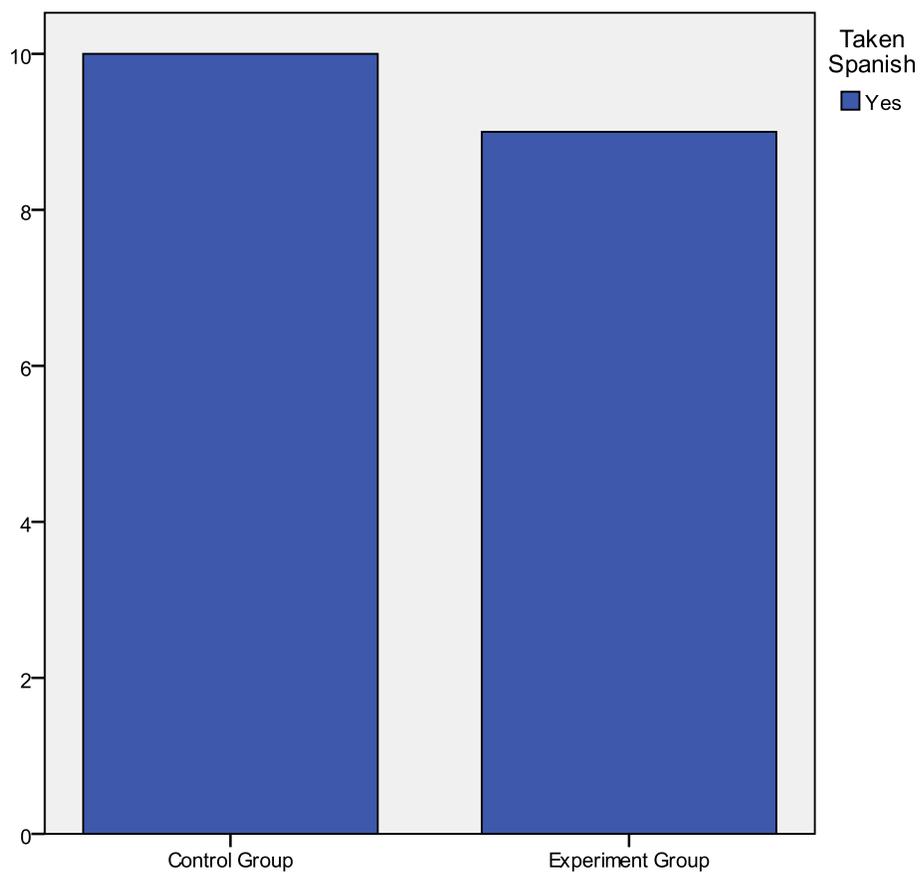
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## APPENDICES

## APPENDIX A

## Previous Knowledge of Spanish Language

	Taken Spanish	
	Yes	No
	Count	Count
Control group	10	0
Experiment group	9	0



## APPENDIX B

## Classes in the Fall Semester

**Elementary Spanish - 66168 - SPAN 140B - 001**

<i>Scheduled Meeting Times</i>						
Type	Time	Days	Where	Date Range	Schedule Type	Instructors
Class	9:00 am - 9:50 am	MWF	Neckers 0218	Aug 20, 2012 - Dec 14, 2012	Lecture	Flavia Melisa A Velasquez Herrera (P) 
Class	9:00 am - 9:50 am	R	Engineering, A Wing 0308	Aug 20, 2012 - Dec 14, 2012	Lecture	Flavia Melisa A Velasquez Herrera (P) 

**Elementary Spanish - 66169 - SPAN 140B - 002**

<i>Scheduled Meeting Times</i>						
Type	Time	Days	Where	Date Range	Schedule Type	Instructors
Class	12:00 pm - 12:50 pm	MTWF	Faner Hall 1228	Aug 20, 2012 - Dec 14, 2012	Lecture	Diana Patricia Pacheco Montoya (P) 

**Elementary Spanish - 66170 - SPAN 140B - 003**

<i>Scheduled Meeting Times</i>						
Type	Time	Days	Where	Date Range	Schedule Type	Instructors
Class	2:00 pm - 2:50 pm	MWF	Faner Hall 2205	Aug 20, 2012 - Dec 14, 2012	Lecture	Alejandra Carolina Zavala Gomez (P) 
Class	2:00 pm - 2:50 pm	R	Agriculture 0168	Aug 20, 2012 - Dec 14, 2012	Lecture	Alejandra Carolina Zavala Gomez (P) 

**Elementary Spanish - 66171 - SPAN 140B - 004**

<i>Scheduled Meeting Times</i>						
Type	Time	Days	Where	Date Range	Schedule Type	Instructors
Class	6:00 pm - 7:45 pm	MW	Faner Hall 1226	Aug 20, 2012 - Dec 14, 2012	Lecture	Diana Patricia Pacheco Montoya (P) 

**Elementary Spanish - 68202 - SPAN 140B - 005**

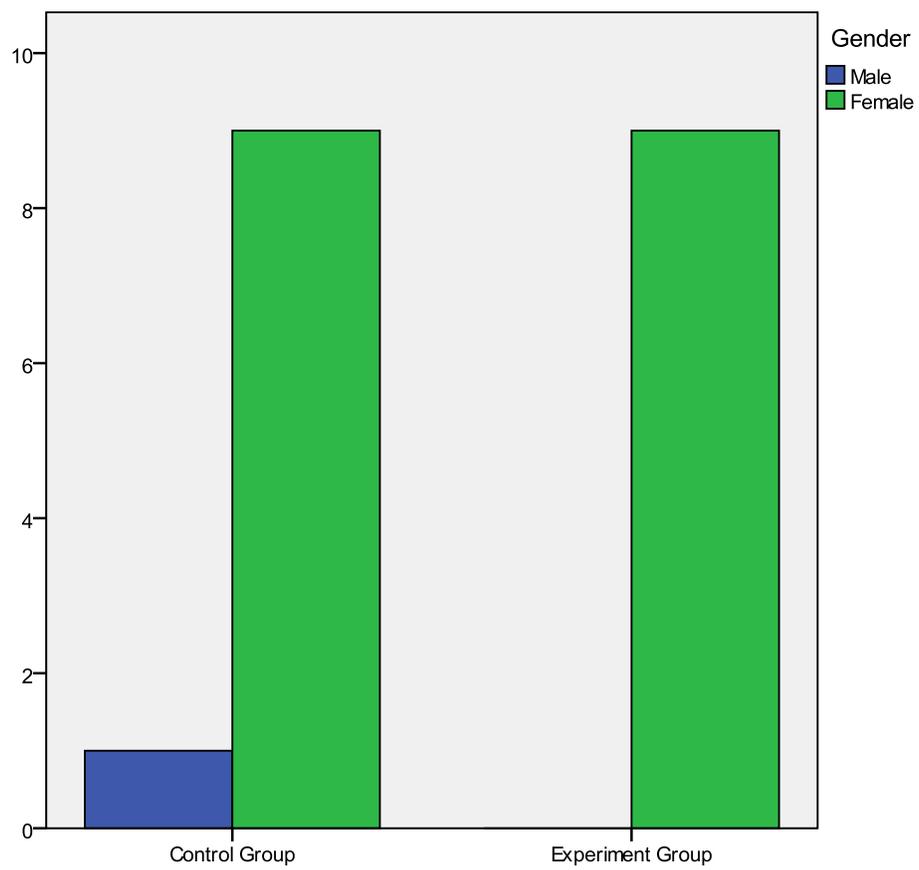
<i>Scheduled Meeting Times</i>						
Type	Time	Days	Where	Date Range	Schedule Type	Instructors
Class	3:35 pm - 5:30 pm	TR	Faner Hall 2073	Aug 20, 2012 - Dec 14, 2012	Lecture	Estefania Maria Salgado (P) 

**Elementary Spanish - 67895 - SPAN 140B - 950**

<i>Scheduled Meeting Times</i>						
Type	Time	Days	Where	Date Range	Schedule Type	Instructors
Class	TBA		Off-Campus 62901	Aug 20, 2012 - Dec 14, 2012	Lecture	Dimitrios H Karayiannis (P) 

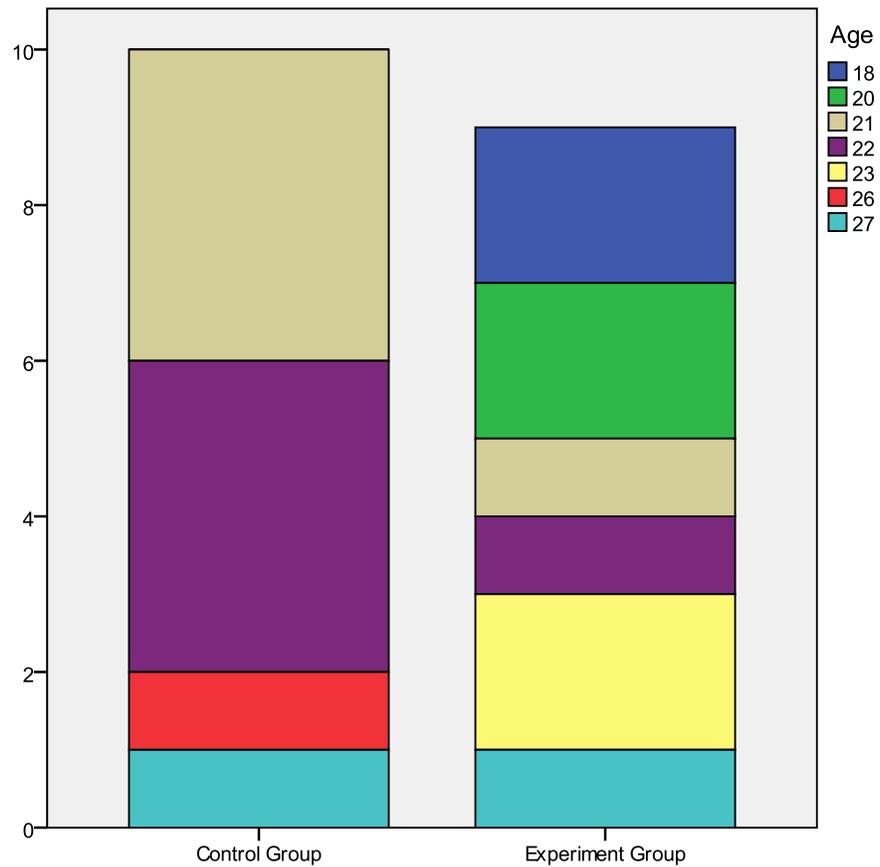
**APPENDIX C****Male and Female Participants**

Gender	Control group	Experiment group
	Count	Count
Male	1	0
Female	9	9
Total	10	9



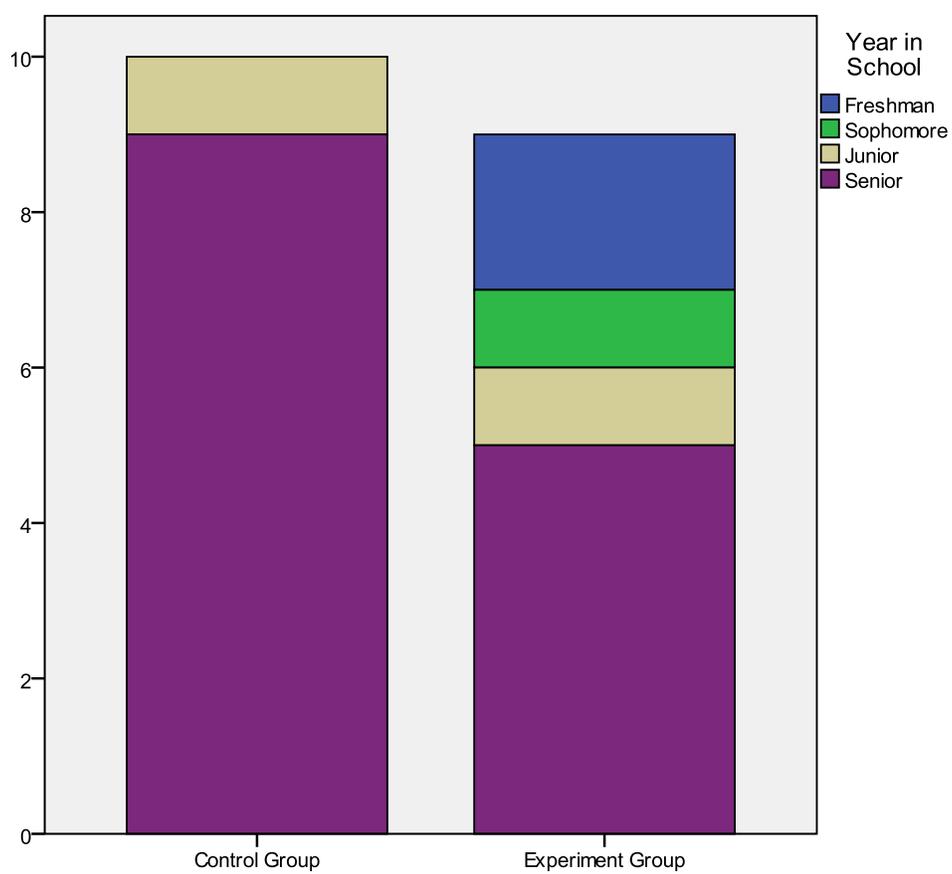
**APPENDIX D****Participants Age**

Age	Control group	Experiment group
	Count	Count
18	0	2
20	0	2
21	4	1
22	4	1
23	0	2
26	1	0
27	1	1
Total	10	9



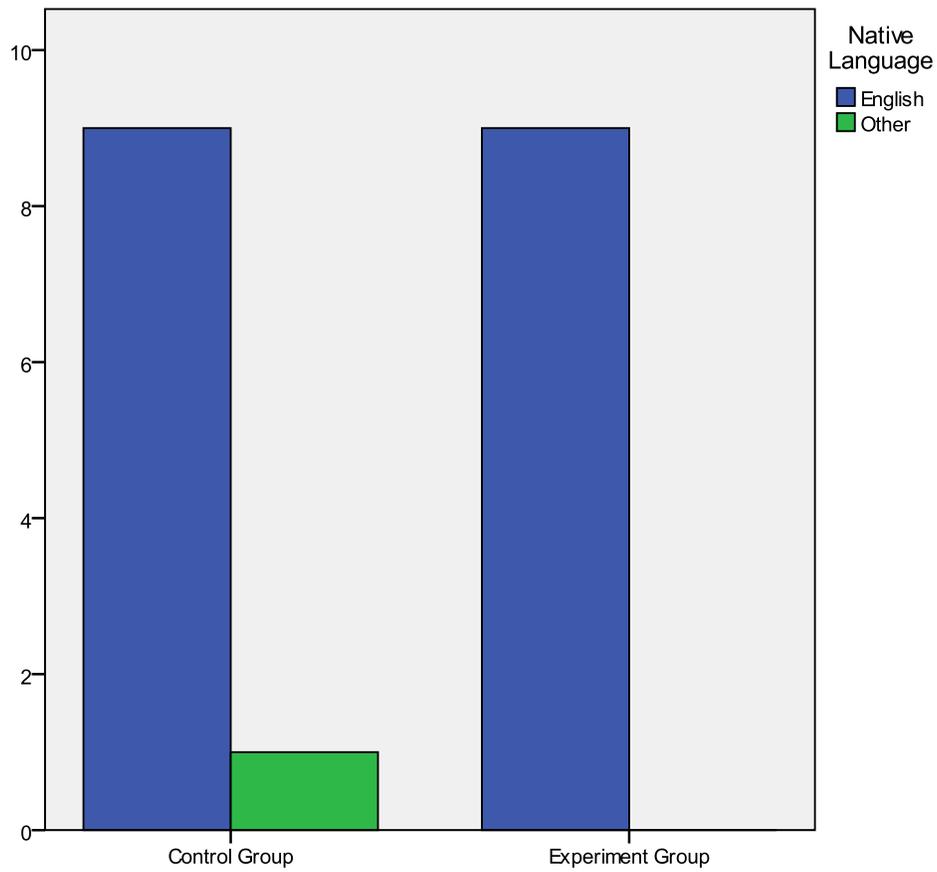
**APPENDIX E****School Year**

Year in School	Freshman	Sophomore	Junior	Senior
	Count	Count	Count	Count
Control group	0	0	1	9
Experiment group	2	1	1	5



**APPENDIX F****First Language Spoken**

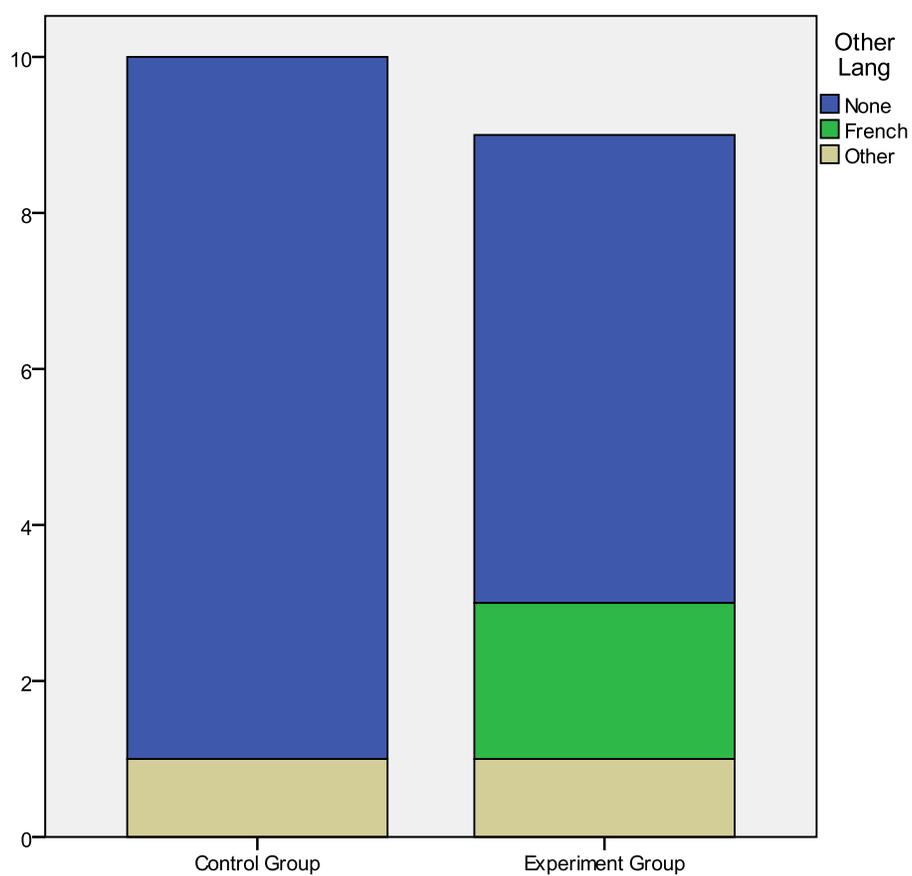
Native Language	Control group	Experiment group
	Count	Count
English	9	9
Other	1	0



## APPENDIX G

## Other Languages Spoken

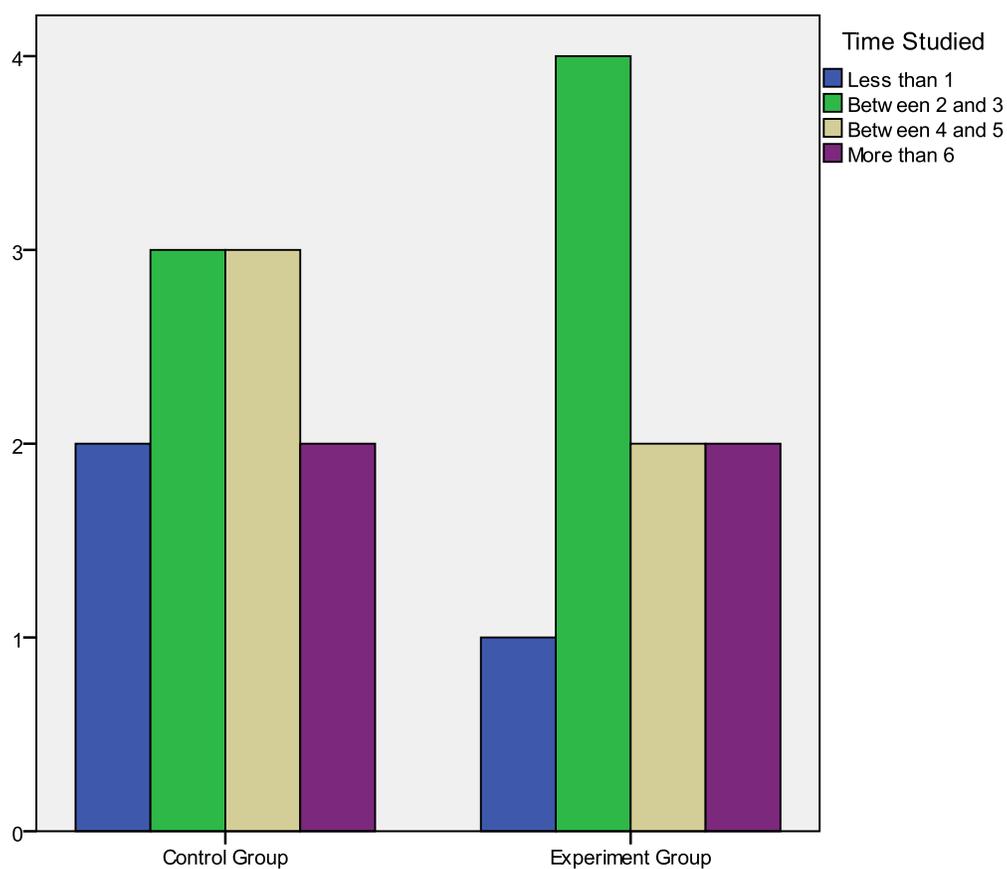
Other Lang	Control Group	Experiment Group
	Count	Count
None	9	6
French	0	2
Other	1	1



## APPENDIX H

### Years of Taking Spanish as a Second Language

Years	Time Studied			
	Less than 1	Between 2 and 3	Between 4 and 5	More than 6
	Count	Count	Count	Count
Control group	2	3	3	2
Experiment group	1	4	2	2



## APPENDIX I

### Vocabulary Pre assessment

**Write down your Code Number (not your name):** \_\_\_\_\_

**Instructions:** Read the following list of Spanish vocabulary words. Mark with an X in the space provided to determine your knowledge of the word.

	<b>I know this word</b>	<b>I have an idea</b>	<b>I don't know this word</b>
1. la biblioteca			
2. la chica			
3. la puerta			
4. el aire acondicionado			
5. el botones			
6. hablar			
7. el dinero			
8. el lunes			
9. la cama			
10. la cama chica			
11. beber			
12. la comida			
13. la casa			
14. la tienda de regalos			
15. la ducha			
16. bailar			
17. la fiesta			
18. la novia			
19. el precio			
20. el folleto			

### Vocabulary Pre assessment

**Instructions:** Read the following list of Spanish vocabulary words. Mark with an X in the space provided to determine your knowledge of the word.

	<b>I know this word</b>	<b>I have an idea</b>	<b>I don't know this word</b>
21. pagar			
22. el almuerzo			
23. el huevo			
24. el lugar			
25. el lujo			
26. cocinar			
27. el aguacate			
28. las fresas			
29. el puesto de revistas			
30. la persona			
31. nadar			
32. el cine			
33. el fin de semana			
34. el piso			
35. el peruano			
36. pescar			
37. la cesta			
38. el lago			
39. el televisor			
40. la vista al mar			

### Vocabulary Pre assessment

**Instructions:** Read the following list of Spanish vocabulary words. Mark with an X in the space provided to determine your knowledge of the word.

	<b>I know this word</b>	<b>I have an idea</b>	<b>I don't know this word</b>
41. gastar			
42. la camisa			
43. los pantalones			
44. el inodoro			
45. el lavabo			
46. firmar			
47. la carta			
48. la cuenta			
49. el ascensor			
50. la cama doble			
51. viajar			
52. el paquete			
53. la pastilla			
54. el turista			
55. privado			
56. la ventana			
57. la clase			
58. la calle			
59. acordarse			
60. la leche			

### Vocabulary Pre assessment

**Instructions:** Read the following list of Spanish vocabulary words. Mark with an X in the space provided to determine your knowledge of the word.

	<b>I know this word</b>	<b>I have an idea</b>	<b>I don't know this word</b>
61. la noche			
62. la tarde			
63. ayudar			
64. el cuarto			
65. el hermano			
66. el plato			
67. parecer			
68. la torta			
69. el abuelo			
70. el pescado			
71. el pollo			
72. la fruta			
73. mostrar			
74. el apio			
75. la langosta			
76. la carne			
77. el florero			
78. la semana			
79. el teatro			
80. la fogata			

### Vocabulary Pre assessment

**Instructions:** Read the following list of Spanish vocabulary words. Mark with an X in the space provided to determine your knowledge of the word.

	<b>I know this word</b>	<b>I have an idea</b>	<b>I don't know this word</b>
81. la escopeta			
82. la estrella			
83. la falda			
84. el zapato			
85. la tienda			
86. la estampilla			
87. el saldo			
88. el coche			
89. el pasaje			
90. el viaje			
91. la maleta			
92. el padrino			

## APPENDIX J

### Vocabulary word list

**There are 92 words in total taken from the vocabulary word lists that are in the *Hola Amigos 7th Edition* text book. This is the book that the SPAN 140 B students use in their class.**

LECCIÓN 1. *La biblioteca / la chica / la puerta/ la ventana / la clase / la calle* (6)

LECCIÓN 2. *Hablar / el dinero / el lunes / la leche / la noche / la tarde* (6)

LECCIÓN 3. *Beber / la comida / la casa / el cuarto/ el hermano / el plato* (6)

LECCIÓN 4. *Bailar / la fiesta / la novia / la torta / el abuelo / el padrino* (6)

LECCIÓN 5. *Pagar / el almuerzo / el huevo / el pescado / el pollo / la fruta* (6)

LECCIÓN 6. *Cocinar / el aguacate / las fresas / el apio / la langosta / la carne* (6)

LECCION 7. *Nadar / el cine / el fin de semana / el florero / la semana / el teatro* (6)

LECCIÓN 8. *Pescar / la cesta /el lago / la fogata / la escopeta / la estrella* (6)

LECCIÓN 9. *Gastar / la camisa /los pantalones / la falda/el zapato / la tienda* (6)

LECCIÓN 10. *Firmar / la carta / la cuenta / la estampilla / el saldo / el coche* (6)

LECCIÓN 11. *Viajar / el paquete / la pastilla / el pasaje / el viaje / la maleta* (6)

LECCIÓN 12. *Acordarse / ayudar / parecer / mostrar / el aire acondicionado / el botones / la cama / la cama chica /la tienda de regalos/ la ducha / el precio / el folleto / el lugar / el lujo / el puesto de revistas / la persona / el piso / el peruano / el televisor / la vista a mar / el inodoro / el lavabo / el ascensor / la cama doble / el turista / privado / (26)*

**APPENDIX K****STUDY SURVEY****Code Number:** \_\_\_\_\_**SPANISH CLASS****Instructions:** Please, circle or respond to questions.**1. Year in School:**      Freshman      Sophomore      Junior      Senior**2. Age:**\_\_\_\_\_**3. Gender:**      Male      Female**4. Have you taken Spanish class before?**

\_\_\_\_\_

**5. How long have you studied Spanish?**

\_\_\_\_\_

**6. Where have you studied Spanish?**

\_\_\_\_\_

**7. What is your Native Language?**

\_\_\_\_\_

**8. What other Languages do you speak?**

\_\_\_\_\_

**9. Why did you choose to study Spanish as a Second Language?**

\_\_\_\_\_

## TECHNOLOGY

**Instructions:** Please read the questions and circle the answer(s) that best respond it.

1. Do you own a cell phone?

Yes                      No

2. Is it a Smart Phone?

Yes                      No

3. How often do you use your phone?

Every day                      3 – 5 times a week  
1-2 times a week              Rarely

4. When do you use your phone?

On the way to class                      In between classes  
In class                                      Traveling  
Leisure

5. What do you use you cell phone for?

Calls                                      Text Messaging  
Music                                      Internet  
Extra tools (games, alarm, stop watch, calendar, etc.)

6. How often do you Text-message?

Always                                      Regularly  
Sometimes                                  Never

7. Do you receive and send text-messages without an extra charge?

Yes                      No

8. Do you think receiving Spanish Vocabulary words by text-message would be helpful for your Spanish class?

Yes                      No

**APPENDIX L****Vocabulary Words Lección 12**

**Code Number:** \_\_\_\_\_ **Date:** 11 / 19 / 12

**Instructions:** Translate the following words to Spanish and write a sentence with it.

1. bellhop-
2. shower-
3. price-
4. brochure-

**Case Study by Flavia Velásquez**

**Vocabulary Words Lección 12**

**Code Number:** \_\_\_\_\_ **Date:** 11 / 28 / 12

**Instructions:** Translate the following words to Spanish and write a sentence with it.

1. toilet-
2. sink-
3. elevator
4. double bed-

**Case Study by Flavia Velásquez**

**Vocabulary Words Lección 12**

**Code Number:** \_\_\_\_\_ **Date:** 11 / 28 / 12

**Instructions:** Translate the following words to Spanish and write a sentence with it.

1. Peruvian-
  
  
  
  
  
  
  
  
  
  
2. magazine stand-

**Case Study by Flavia Velásquez**

**Vocabulary Words Lección 12**

**Code Number:** \_\_\_\_\_ **Date:** 11 / 28 / 12

**Instructions:** Translate the following words to Spanish and write a sentence with it.

1. luxury-
  
  
  
  
  
  
  
  
  
  
2. to seem-

**Case Study by Flavia Velásquez**

**APPENDIX M****Spanish Vocabulary Words Assessment**

Code Number: \_\_\_\_\_ Date: 12 / 07 / 12

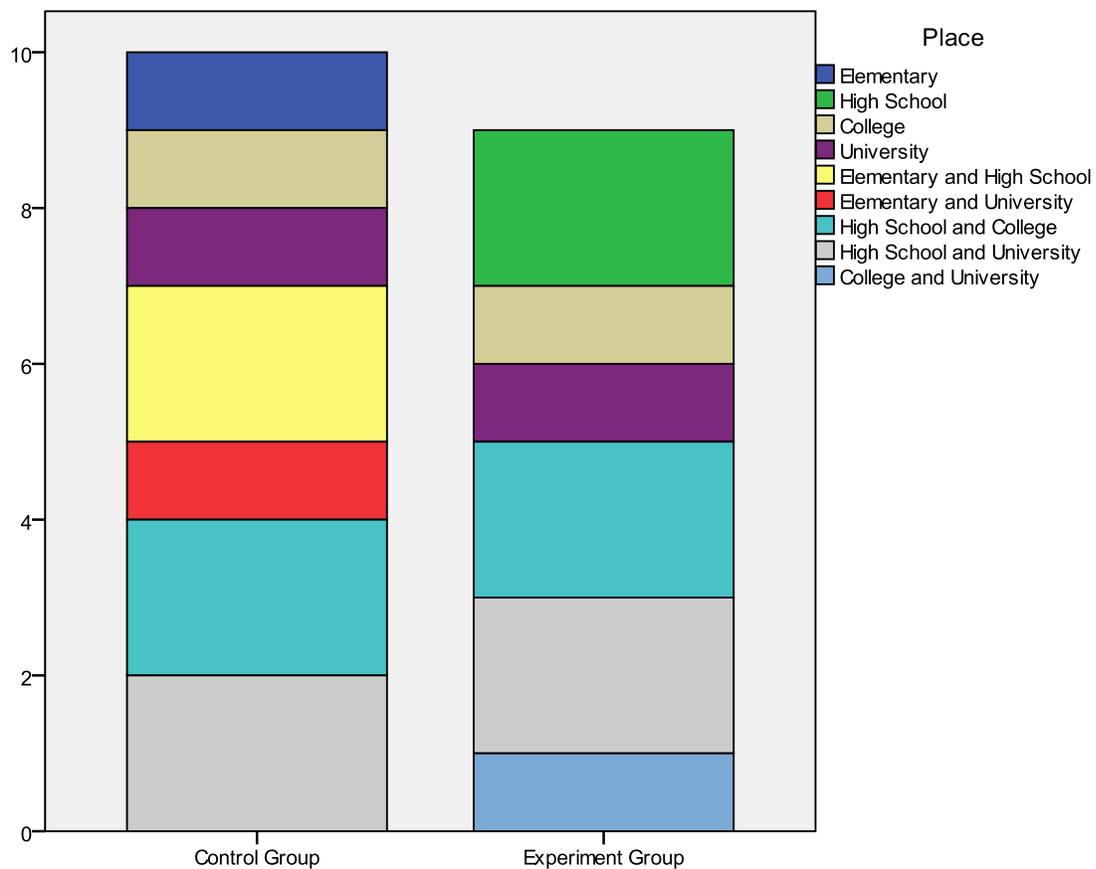
**Instructions:** translate the following words from English to Spanish. When writing the word in Spanish, please write the article.

1. To seem \_\_\_\_\_
2. Double bed \_\_\_\_\_
3. Toilet \_\_\_\_\_
4. Magazine stand \_\_\_\_\_
5. Bellhop \_\_\_\_\_
6. Price \_\_\_\_\_
7. Shower \_\_\_\_\_
8. Brochure \_\_\_\_\_
9. Peruvian \_\_\_\_\_
10. Elevator \_\_\_\_\_
11. Luxury \_\_\_\_\_
12. Sink \_\_\_\_\_

## APPENDIX N

## Place Where You Have Taken Spanish

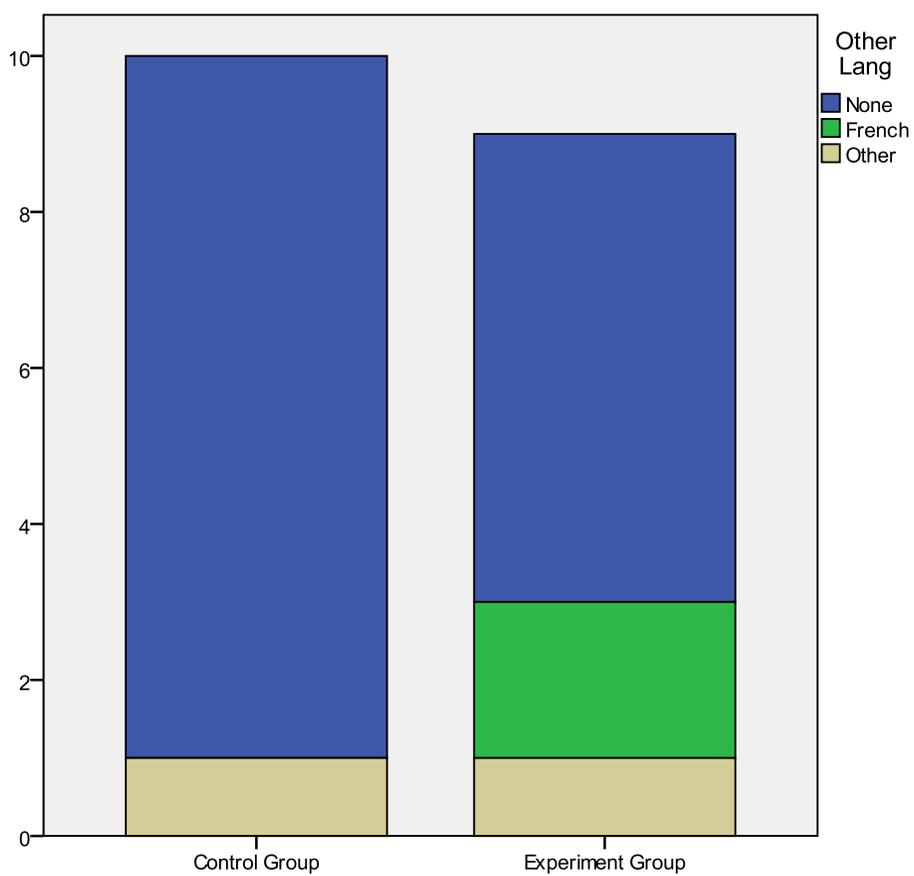
Place	Control group	Experiment group
	Count	Count
Elementary	1	0
High School	0	2
College	1	1
University	1	1
Elementary and High School	2	0
Elementary and University	1	0
High School and College	2	2
High School and University	2	2
College and University	0	1



## APPENDIX O

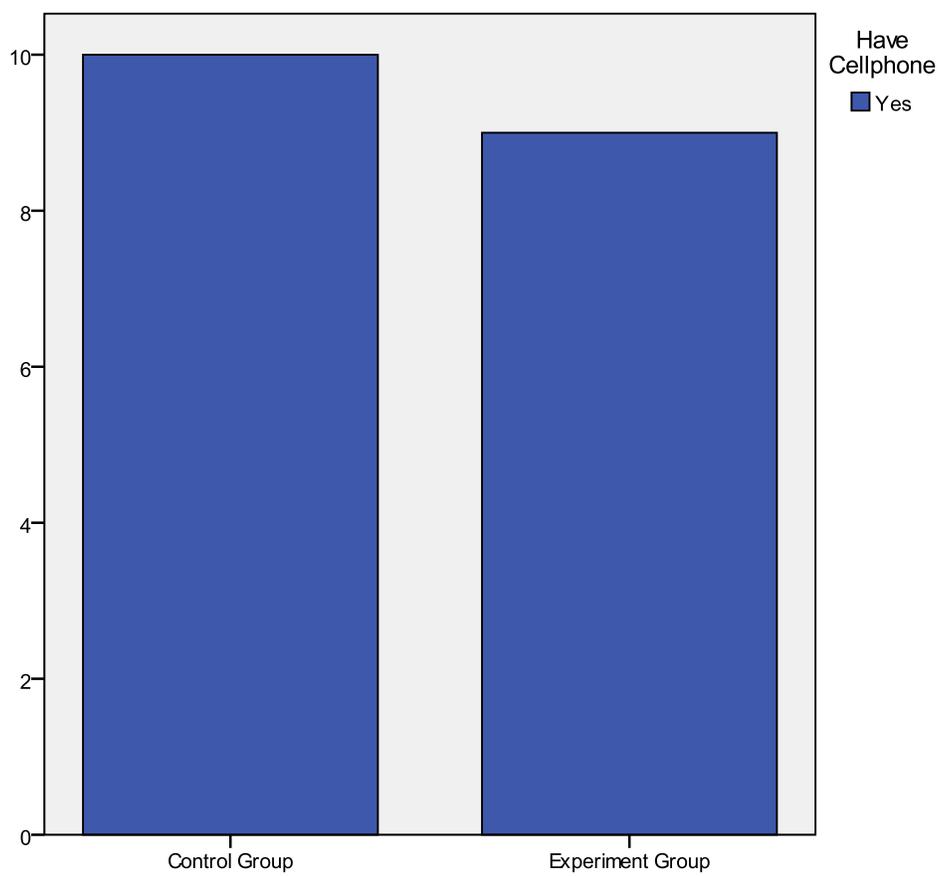
## Other Languages Spoken

Other Lang	Control group	Experiment group
	Count	Count
None	9	6
French	0	2
Other	1	1



**APPENDIX P****Own a Cell Phone**

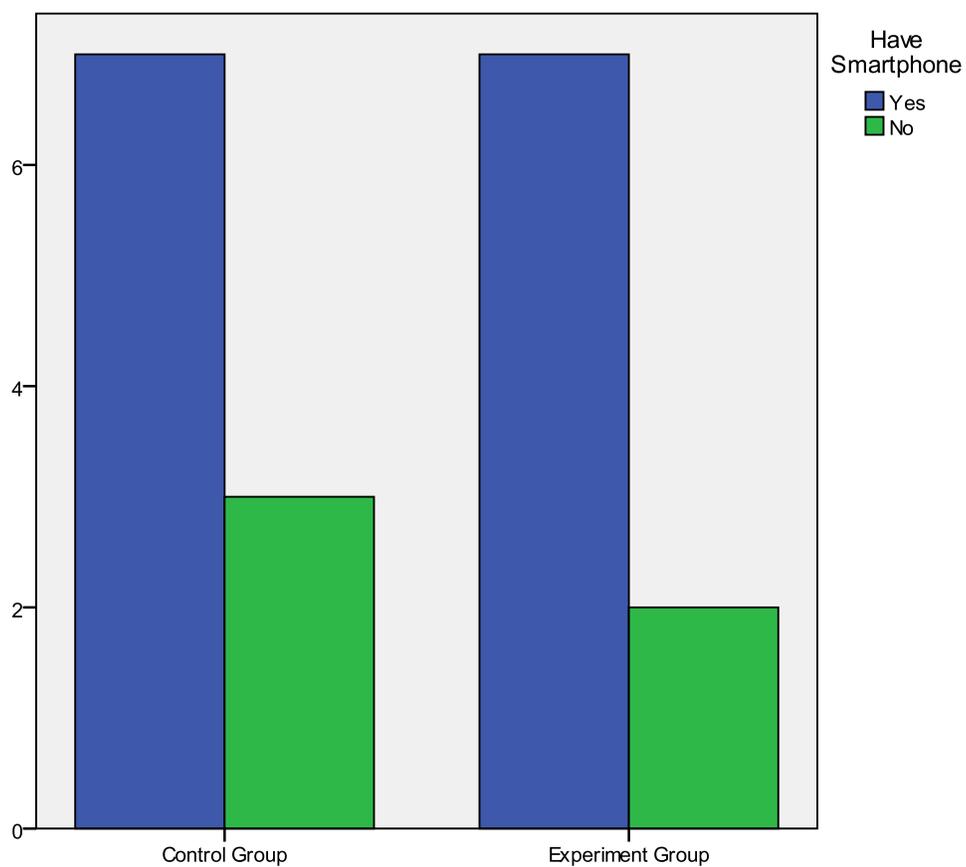
Own a Cell phone	Control group	Experiment group
	Count	count
Yes	10	9
No	0	0



## APPENDIX Q

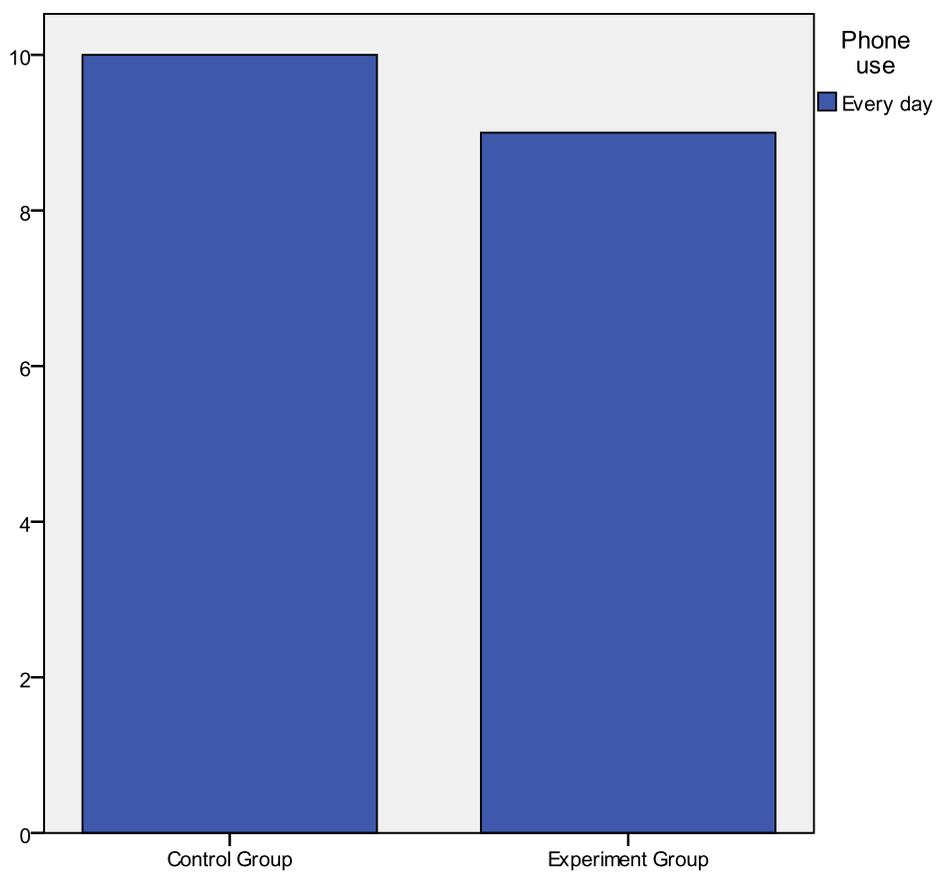
## Own a Smart Phone

Have Smart phone	Control group	Experiment group
	Count	Count
Yes	7	7
No	3	2



**APPENDIX R****Phone Use**

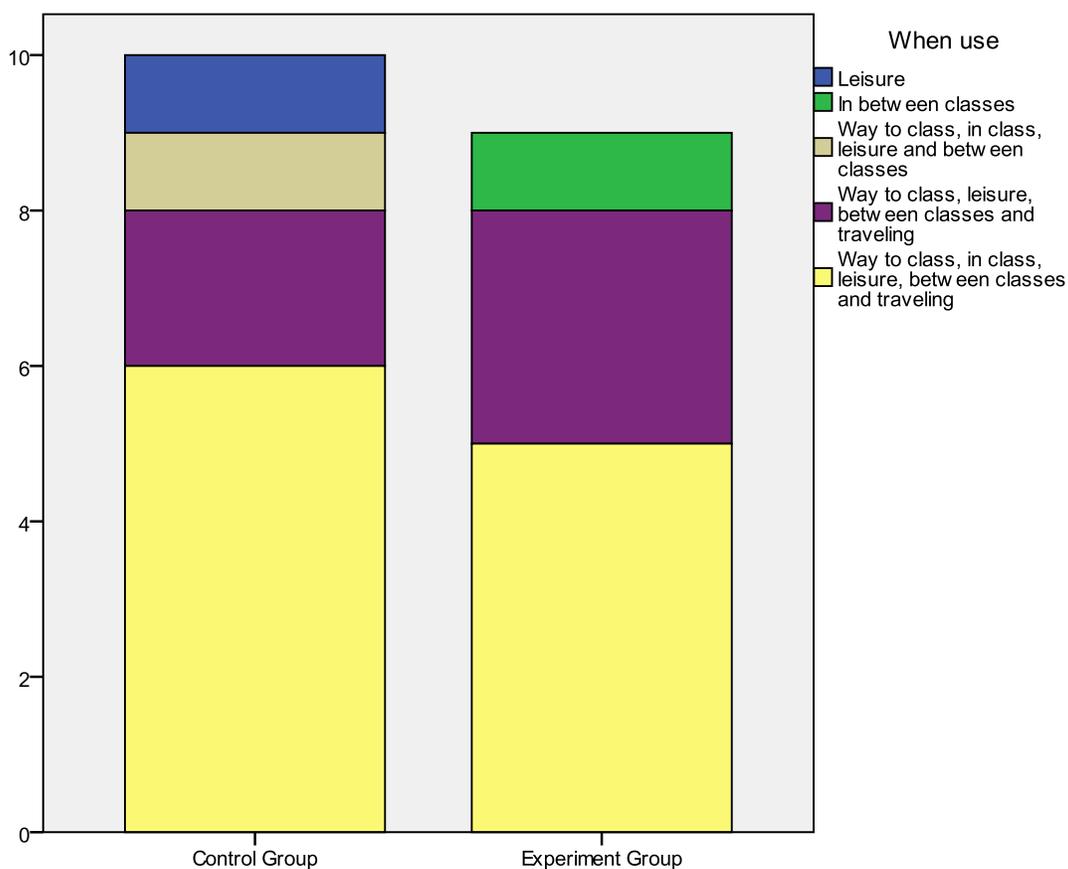
Phone use	Control group	Experiment group
	Count	Count
Every day	10	9
1-2 times a week	0	0
3-5 times a week	0	0
Rarely	0	0



## APPENDIX S

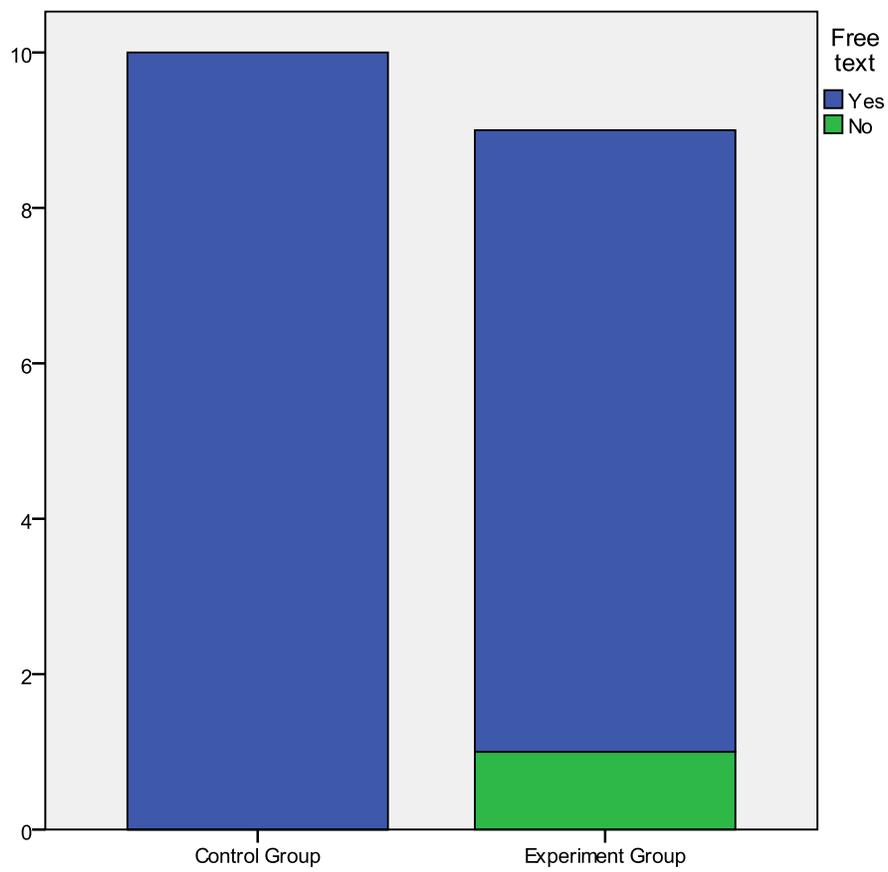
### When do You Use Your Cell Phone?

When use	Control group	Experiment group
	Count	Count
On the way to class	0	0
In class	0	0
Leisure	1	0
In between classes	0	1
Traveling	0	0
Way to class, in class, leisure and between classes	1	0
Way to class, leisure, between classes and traveling	2	3
Way to class, in class, leisure, between classes and traveling	6	5



**APPENDIX T****Do You Receive Free Text-messages?**

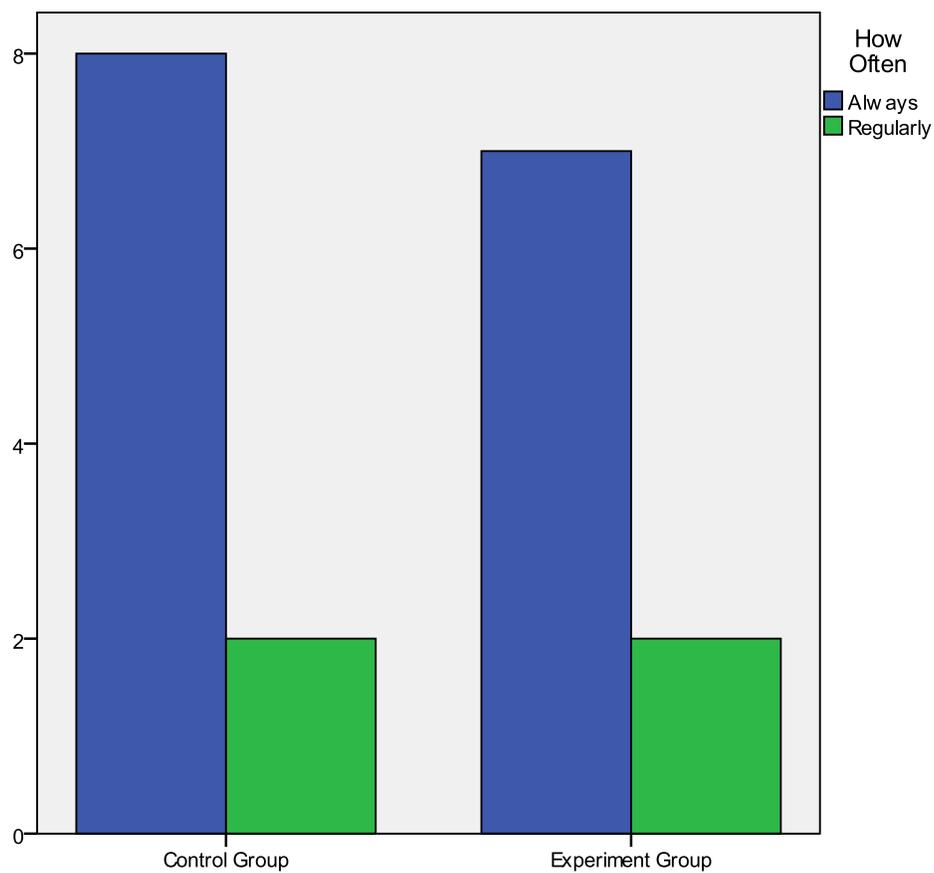
Free text	Control group	Experiment group
	Count	Count
Yes	10	8
No	0	1



## APPENDIX U

## How Often do You Text-message?

How Often	Control group	Experiment group
	Count	Count
Always	8	7
Sometimes	0	0
Regularly	2	2
Never	0	0



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Thesis Title:

Effectiveness of Text-Messaging in Spanish Vocabulary Teaching / Learning

Major Professor: Thomas Thibeault