The Attitudes and Learning Styles of Adult Learners to E-Instruction of the Spanish Language

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The Attitudes and Learning Styles of Adult Learners to E-Instruction of the Spanish Language

Brian James Santos

M.A.E., Secondary Education - Foreign Language, Truman State University, 2006
B.A., Psychology and Spanish, Truman State University, 2005

A Dissertation Submitted to The Graduate School at the University of Missouri-St. Louis in partial fulfillment of the requirements for the degree Doctor of Education with an emphasis in Educational Practice

May 2019

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Acknowledgements

I would like to acknowledge my adviser, Dr. Paulette Isaac-Savage, for her unwavering support in the completion of this task. Thank you to Steve Willott, the rest of my colleagues, and my students at Francis Howell North High School for their advice and never-ending encouragement for me to finish graduate school. Thank you to Dr. Wil Cruz for helping me see this project to the end. Lastly, I express my gratitude to my loving parents, Andrés and Conchita, for shaping me into the man I am today.

I dedicate this project to my big brothers Kevin and Andy. They teach me kindness, patience, gratitude, and compassion on a daily basis -- virtues I needed through my teaching career and graduate studies. Muchísimas gracias a todos.
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Abstract

This study investigated the relationship between adult learner attitudes toward technology and learning style. A sample of community college Spanish students in a Midwestern city in the United States was surveyed to determine (a) an attitude score toward Spanish E-Instruction based on the Lukow ATUTS (Attitudes toward Using Technology Survey) and (b) a learning style measured by the Kolb LSI (Learning Style Inventory). The majority of participants (n = 151) were aged 18-29 (95%), used between one and five software programs on a daily basis (88%), spent at least 11 hours a week online (88%), and reported an "Accommodating" style of learning (28%). A Randomization Test for Difference of Means indicated learning styles did not differ significantly in their mean attitude toward technology (p = .063). Participants reported the use of online translators, language learning websites, and language learning games to best facilitate their achievement of course objectives. Additionally, participants reported a strong preference for language learning apps, hands-on activities, and real-world applications. The findings suggest adult educators should be cognizant of their students’ preferences for E-Instruction and language technology integration, thus giving insight into the most and least useful tools for students through the learning process.

Keywords: adult learners, Spanish instruction, E-Instruction, attitudes, learning styles
CHAPTER I: INTRODUCTION

The United States is a melting pot of cultures with a rich linguistic diversity, and the variety of languages in business, arts, and humanities is growing. Languages such as Mandarin and German have dominated the settings of commerce (Shoshan, 2015). Italian, German, and French are all examples of languages used in the Fine Arts. An influx of immigration into the United States demands increased Foreign Language education, especially in the realm of the Spanish language. For adult learners, the knowledge of Spanish is also a catalyst for job opportunities. American businesses are hiring more bilingual employees since they are able to communicate with a wider range of clientele (Shoshan, 2015). This is one reason Spanish education is important.

There are both social and educational benefits to learning Spanish. Speaking Spanish enables an American to communicate with the most prevalent minority group in the United States (Brown & Eisterhold, 2004). Spanish is the second most spoken language in the United States, with almost 37 million native speakers; and the second most spoken language in the world, with more than 400 million native speakers (U.S. Census Bureau, 2010). Finally, being able to speak Spanish is a cognitive ability that challenges and enriches the brain (Martinez Flor, Juan, & Guerra, 2003). For these and other reasons, there is an increase in the number of people studying or wanting to study Spanish (National Center for Higher Education, 2011). A greater number of people are realizing the importance of studying Spanish later in life (National Center for Higher Education, 2003).

With the increase of Spanish language students, teachers must seek meaningful and creative ways to reach a variety of learners. One method to be explored is E-
Instruction. E-Instruction is the computer-enabled transfer of skills and knowledge, utilizing applications such as web-based learning (Jung, 2011). Technology is changing the face of higher education just as it has already changed how students conduct research, how administrators communicate, and how professors teach. Communication is nearly instantaneous with social media like Twitter and Facebook; online library databases like JSTOR and WorldCat are expediting the research process; and educators are teaching more students over greater areas than ever before using conferencing technology like Skype and Yugma. Between the academic years of 2007-08 and 2008-09, distance and online education enrollment at community colleges increased by 22% (Miller, 2010). This includes an increase in the number of adults enrolled in Spanish courses. Self-guided language software, television programs on Spanish language channels, and interaction with Spanish speakers in the community are all methods of improving Spanish language skills for adult learners. One increasingly viable option for adult learners studying Spanish is enrolling in college classes that include a computer-based component. Spanish is a challenging subject for an e-learner because it requires multi-media undertakings. Spanish E-Instruction often requires students to do phonological modeling, listen to authentic dialogues and create intermittent compositions. Two questions persist: a) How can learners most effectively utilize technology in Foreign Language education? and b) How can an instructor best format the technology to the students’ benefit?

The interest in learning Spanish is inarguable. While Spanish course enrollment between 2009 and 2015 was down by 8.2%, enrollment in U.S. higher education institutions stood at more than 790,000 students (see Table 1). In fact, total enrollments in
Spanish courses surpassed enrollments in all other languages combined, 790,756 to 771,423 (MLA, 2015).

Table 1.1

*Enrollment of Foreign Language at Higher Education Institutions – Abridged Table*

<table>
<thead>
<tr>
<th>Language</th>
<th>Enrollments</th>
<th>Percentage of all enrollments</th>
<th>Percent change since 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Spanish</td>
<td>790,756</td>
<td>50.5%</td>
<td>-8.2%</td>
</tr>
<tr>
<td>2. French</td>
<td>197,757</td>
<td>12.7%</td>
<td>-8.1%</td>
</tr>
<tr>
<td>3. Amer Sign Lang</td>
<td>109,577</td>
<td>7.0%</td>
<td>+19.0%</td>
</tr>
<tr>
<td>4. German</td>
<td>86,700</td>
<td>5.56%</td>
<td>-9.3%</td>
</tr>
<tr>
<td>5. Italian</td>
<td>71,285</td>
<td>4.56%</td>
<td>-11.3%</td>
</tr>
</tbody>
</table>


According to the National Center for Higher Education (2014) or the NCHE, there was a general increase in university enrollment among adults over the time span of 2003 to 2013, from 16.9 million to 20.4 million. The NCHE also reports that post-secondary enrollment for students aged 35 and older has increased through recent decades (756 in 1970, 2,942 in 2000 and 3,446 in 2015). The reasons behind this increase in enrollment could be a desire to become more marketable in the job-seeking world, or an increased interest due to availability, especially through distance education.

In addition, enrollment in distance education is also on the rise; there was a 3.9% increase between 2015 and 2016, and 28% of higher education students who now take at least one distance education course (Online Learning Consortium, 2016). Of the nearly six million students that take distance education courses, more than half are taking all of their courses at a distance.
Background of the Study

There are inherent difficulties in learning a foreign language as an adult. According to Second Language Acquisition theory (Lee & Van Patten, 2003), the learning of a foreign language after the critical period of about 11 years of age results in a number of difficulties. These difficulties include (a) lack of native-speaker fluency (Davis, 1995; Lee & Van Patten, 2003), (b) accentuation problems (Davis, 1995), (c) an inability to hear phonological differences in native and non-native speakers (Furnborough & Truman, 2009), and (d) de-emphasis on form (Murphy, 2005). These challenges will be more fully explained in Chapter Two.

These difficulties can be exacerbated for many adult learners because of their lack of familiarity with E-Instruction technology. Prensky (2001) used the term “digital immigrants” to describe older adult learners while young adult learners are more likely to be "digital natives." Digital immigrants oftentimes have more trouble with technology than digital natives. The growing prevalence of E-Instruction Foreign Language courses (Jaschik, 2009; Miller, 2010; NCES, 2011) creates an opportunity for adult learners to move from immigrant status to native ones. One of the ways to determine if that transition has already happened is to analyze the attitude toward technology among those adults.

Lukow (2002) was the first to examine adult learner attitudes toward technology. Using a sample of adult learners in the recreation department of a southern United States university, she examined whether learners felt that e-mail, Powerpoint, and Internet resources positively or negatively facilitated course objectives. Additionally, Cox (2004) examined the relationship between doctorate of education students’ attitudes toward
technology (using Lukow’s survey) and learning style, based on Kolb’s (1984) Learning Style Inventory. Neither study showed significant findings for the populations in their studies.

The current study will differ from the studies of Lukow (2002) and Cox (2004) in a number of ways. The ATUTS Questionnaire was originally used in Lukow’s study from 2002 and has not been administered since Cox’s study in 2004. Since then, technology has proliferated and changed. More adult learners could indicate a higher technology attitude score in the current study, as opposed to 14 years ago.

Furthermore, instructional delivery in the Spanish classroom has changed (Shield & Kukulska-Hulme, 2006). Many Spanish teachers are experimenting with the use of blogs, texting, and GoogleVoice activities with their students, aiding in speaking and listening practice opportunities. These technologies were not as accessible in 2004 as they are now.

Lukow (2002) studied adult learners enrolled in higher education classes to determine attitude scores toward technology, while Cox (2004) determined attitude scores toward technology and learning styles. In each study, there were no significant findings between ATUTS score and the LSI learning style in their respective studies. Cox (2004) suggested, “a study could be performed using another graduate population with different characteristics” (p. 55). The current study aimed at adult learners specifically enrolled in college Spanish classes with the hope that new results would show different findings than Lukow and Cox. This study was conducted in hopes of enhancing our understanding of the two, because of advancements in technologies in the past decade and a half.
Statement of the Problem

There is a lack of research on E-Instruction as an effective means of instructional delivery specifically among Spanish L2 adult learners. It is not clear if attitudes toward the use of technology of students enrolled in college Spanish courses differ based on their learning style preference. It is also unclear if attitudes toward technology in college Spanish courses differ for Kolb’s four categories of learning styles.

Purpose, Research Questions, and Hypotheses

The purposes of this study were to determine the attitudes of adult learners enrolled in college Spanish classes and to identify any differences in attitudes based on learning styles.

The two research questions for this study were: (a) What are students’ attitudes toward the use of technology in Spanish community college courses? and (b) Do attitudes toward the use of technology in Spanish community college courses differ for Kolb’s four categories of students’ learning styles?

The first hypothesis was that there was a significant relationship between participants’ attitude score toward Spanish E-Instruction and learning style. Lukow (2002) and Cox (2008) reported no relationship between attitude and learning style in their studies, but they used participants in different content areas. The second hypothesis was that middle adult and older adult learners have a negative attitude toward Spanish E-Instruction. Most middle adult and older adult learners are considered “digital immigrants” (Prensky, 2001) who went through school with a limited amount of technology and have had to learn and develop technology skills at a later age. Young
adult learners are more likely to be considered “digital natives” (Prensky, 2001) who have learned and developed technology skills during their educational careers.

**Significance of the Study**

The trend of online instruction is becoming increasingly popular (NCHE, 2011). Additionally, while literature exists detailing the efficacy of online and distance instruction in general (Boettcher & Conrad, 2010; Miller, 2001), there is a lack of previous knowledge regarding the content area of Spanish. Spanish E-Learning is different from the E-Learning of other subject areas, in that Spanish E-Instruction often requires students to model phonological sounds and listen to authentic dialogues—skills rarely utilized in traditional E-Instruction (Williamson, 2013).

Another reason this study is paramount is that online course enrollment in general is projected to increase over the next decade (Friedman, 2016). It is foreseeable that more students will want to take Spanish courses in a convenient, online format. By analyzing which E-Instruction methods are the most effective, teachers may be able to enhance the online learning experience and atmosphere.

This study added to the current literature about learning style and attitudes. The results and conclusions of this research were compared to the works of Lukow (2002) and Cox (2004) and enhanced the generalizability of those studies. Any correlations between the results of the learning style and technology attitude surveys would possibly encourage teachers to use these surveys when planning how to teach their courses.

This study could also inform teachers about the technology choices that students prefer or not prefer. Knowing the “appropriate technology choices based on learning style will serve to produce more desirable learning outcomes” (Lukow, 2002). Teaching
students based on their learning styles significantly increases their achievement level (Dunn, Deckinger, Withers & Katzenstein, 1990). Thus, the use of technologies that match students’ preferred style of learning may have a positive impact on educational outcomes.

**Conceptual Framework**

There are two conceptual frameworks for the study: the Andragogical Process Model and the Concept-Oriented Approach of language learning. Knowles (1980, 1984) conceptualized the Andragogical Process Model, a foundation for the theory and practice of adult education. Because of its importance in the field of andragogy, the Process Model was used instead of other models. The tenets of the model are (a) as a person matures, his or her self-concept moves from a dependent learner to a self-directing one, (b) adults accumulate life experience and draw from this during the learning process, (c) an adult’s readiness to learn relates to his or her social roles, (d) an adult is more problem-centered than subject-centered, (e) internal motivation is more potent than external motivation, and (f) adults need to know why they are learning something for it to be meaningful to them. This model best fit the participants in the study because adult language learners demonstrate each of the tenets of the model, especially regarding internal motivation and the need to know why they are learning for it to be meaningful to them. (Brown, 2017; Stevens, 2014).

The Concept-Oriented Approach to Second Language Acquisition (SLA) theory is the secondary conceptual framework for this study. This approach emphasizes “how learners make form-meaning mappings based on the input they receive” (Chapelle, 2009, p. 743). The theoretical perspectives of SLA are divided into four categories: cognitive...
linguistic, psycholinguistic, human learning, and language in social context. Concept-Oriented falls under the cognitive-linguistic perspective, which analyzes the internal mechanisms of language learning. The Concept-Oriented Approach to SLA was chosen because it gives “a basis for sequencing the teaching of form-function mappings in individualized learning,” (Chapelle, 2009, p. 744), and the participants in my study use technology to enrich and supplement their classroom learning. They use technology to create meaning of the vocabulary and grammar that are taught in class.

The Concept-Oriented Approach is also called the Function-to-Form approach; this approach isolates one function, meaning, or concept and examines how it is expressed (Bardovi-Harlig, 2007). The first priority is making the concept functional in language output; the second priority is the form. The priority is being conversational in language before being grammatically correct. This connects to the theoretical framework of the Andragogical Model. Knowles (1980) stated that adults want to use their new learning right away in a real world context; this supports the need for Concept-Oriented learning because the priority is language functionality over form. A more general discussion on Second Language Acquisition theory is discussed in the literature review.

**Delimitations**

A number of boundaries were set in this study to narrow the scope. Using convenience sampling, the participants were adult learners, operationally defined as age 18 and up. The time of the study was limited to participants enrolled in a Spanish course sometime between May and December of 2018. The courses took place in community colleges. The courses were at any level of beginning, intermediate or advanced Spanish.
Only participants studying in the large Midwestern metro area were included. Finally, the participants were native speakers of English or Spanish.

The Spanish courses that were included were those that used E-Instruction in some fashion. This included courses with a completely online format, a blended (part face-to-face and part online) format, and a face-to-face format, provided that the teacher utilizes and expects students to use technological component(s) to enhance the course. These components could have included Voicethreads, blogs, videos, or audio recordings.

Definitions of Terms

**Adult learner** is one who assumes responsibility for learning and the use of resources to attain personal growth (Billings & Halstead, 2005) and is at least 18 years old. There are distinctions among the realm of adult learners, as indicated by Erikson’s (1959) stages of psychosocial development: young adult learners (age range: 18-39 years), middle adult learners (age range: 40-64 years) and older adult learners (age range: 65+ years). Adult learners can also be called “non-traditional students,” and may share these characteristics: full-time employed with part-time school enrollment, having a dependent to support (whether married or single parent status), needing flexibility in academic and professional advisement, needing acknowledgment of work and life experiences, and being constrained by time limitations (Stevens, 2014).

**Andragogy** is the field of teaching adults and is the counterpart of pedagogy, the teaching of children. According to Knowles (1984), andragogy is an educational philosophy that identifies adults as self-directed learners; these adults are motivated to learn information that can be readily adapted. These adult learners bring accumulated life experiences to the learning environment.
Attitudes are the assessments of a person’s feelings, beliefs, or behavior; they are predispositions or tendencies to respond positively or negatively towards a certain idea, object, person, or situation (Henderson, Morris, & Fitz-Gibbon, 1978). Attitude influences an individual’s choice of action and his or her responses to challenges, motivations, and rewards. In this study, attitudes were either positive or negative, and were measured toward perception of E-Instruction. These attitudes were measured in the middle of the semester of the Spanish course.

Digital immigrants is another term coined by Prensky (2001). This term refers to traditionalists who struggle with the prolific use of technology in daily living. For my study, I include middle adults and older adults under this umbrella since they are more likely to fit this description.

Digital natives is a term coined by Prensky (2001) and refers to a generation of students who depend on technology and are fluent in acquiring information instantly and using many technological tools for everyday living and communication. For my study, I put young adult learners under this term since they more likely fit this group.

E-Learning or E-Instruction, as mentioned previously, is the transfer of skills and knowledge (and in this study, toward Spanish language) through the computer, utilizing applications such as web-based learning, virtual education opportunities, and digital collaboration (Jung, 2011). Distance (completely online), blended course and face-to-face courses, as long as technology is embedded into the classroom, are considered forms of E-Learning.
Organization of the Study

While Chapter One provided an introduction to this study, Chapter Two provides a review of relevant literature related to Adult Learning, Second Language Acquisition, and Community College Teaching. Chapter Three presents the methodology and instrumentation to the study, while Chapter Four talks about its results. Finally, Chapter Five presents a discussion of the study and provides suggestions for further research.

Summary

As technology continues to proliferate in modern society, Foreign Language instructors are compelled to find the most effective ways to teach through E-Learning. This study explored the relationship between attitudes toward using technology and learning styles among adult learners of Spanish at the community college level. While there is existing literature regarding technology attitudes and learning styles with recreation and higher education students (Lukow, 2002; Cox; 2004), there is a research gap regarding the analysis of this relationship with students of the Spanish language. The framework of the Andragogical Process (Knowles, 1980) shows how adults learn a foreign language with real world application. The Concept-Oriented Approach (Bardovi-Harlig, 2007) to second language learning explains how adult learners emphasize function over form. The way that adult learners interact with technology determines whether they fit into the coined categories of digital natives or digital immigrants (Prensky, 2001). The forthcoming chapter gives a review of relevant literature, followed by chapters on Method, Results, and Summary.
CHAPTER II: REVIEW OF RELEVANT LITERATURE

This chapter will start with a discussion on adult learners, specifically on the Andragogical model, adult learners of Spanish, adult learner attitudes, and learning styles. Next, there is a discussion on Second Language Acquisition (SLA), with an overview of SLA theories and a discussion on the connection between SLA and technology. Finally, there is a discussion on community college education and how Spanish is currently being taught there.

Adult Learners

Andragogy, the science of adult learner education, is worth examining since the population of older adults is increasing (Wolf, 2009). This section will first provide some background information on the adult learner, delve into andragogic theory, and then explain characteristics of the adult learner of Spanish since these are the participants in the proposed research. This is followed by a review of adult learner attitudes and learning styles.

There is an impending growth in the number of older persons in the United States. According to the U.S. Department of Labor (2008), the over-65 population is projected to be 21.1% in the year 2030. About 13% of the American population is currently over the age of 65. It is likely that employers will turn to the older adult population to fill in the gap of possible labor shortages in skilled and managerial occupations. Thus, there is a need to know how to teach this group of learners.

The success of adult learners hinges upon a sense of enjoyment and the internal feeling of learning goals being accomplished (Coleman & Furnborough, 2009). Adult learners enjoy being creative and draw from life experience in creating skits and
compositions (Davis, 1995). Furthermore, adult learners need to understand the relevance of why they are learning something (Kim & Frick, 2011). These are all statements that harkened two of the assumptions of the Andragogical Process Model of Knowles (1980, 1984): internal motivation is more potent than external motivation, and adults need to know why they are learning something for it to be meaningful to them.

The conceptual framework on this study hinges on Knowles’ (1980, 1984) assumptions regarding andragogy. The matrix that outlines this conceptual framework (Table 2.1) connects to how adults learn language, especially #6 Motivation to Learn; Brown (2017) mentions that adult learners have intrinsic value in learning a language and the personal payoff is more important than external. Furthermore, with adult learners, the orientation to learning according to Knowles (1980, 1984) is problem-based. Adult learners thrive in problem-solving scenarios and participate in conversation simulations. (Stevens, 2014).

Table 2.1
*Core Adult Learning Principles in the Andragogical Model Process*

<table>
<thead>
<tr>
<th>1. Learner’s Need to Know</th>
<th>Why</th>
<th>What</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Self-Concept of the learner</td>
<td>Autonomous</td>
<td>Self-directing</td>
</tr>
<tr>
<td>3. Prior experience</td>
<td>Resources</td>
<td>Mental models</td>
</tr>
<tr>
<td>4. Readiness to learn</td>
<td>Life related</td>
<td>Developmental task</td>
</tr>
<tr>
<td>5. Orientation to learning</td>
<td>Problem centered</td>
<td>Contextual</td>
</tr>
<tr>
<td>6. Motivation to learn</td>
<td>Intrinsic value</td>
<td>Personal payoff</td>
</tr>
</tbody>
</table>

*Note: Reprinted from (Knowles, 1980, 1984)*

The framework reflects the purpose of the study in that adult learners follow these assumptions when learning Spanish. For adult learners to learn Spanish effectively, they need to know why they are using it; it must be self-directed and they must use prior knowledge in their learning. Additionally, an adult learner must balance life obligations
other than school, see the value of the course content and be intrinsically motivated to succeed.

Adults enroll in continuing education courses for a number of reasons. Manheimer, Snodgrass and Moskow-McKenzie (1995) categorize motivational factors as either expressive or instrumental. Expressive motivators include learning for its own sake, while instrumental motives are those that are directed toward some further outcome or external objective. Sometimes the two may overlap; for instance, an older learner of Spanish may exhibit expressive motivation by a love of languages, a desire to read a Spanish writer in the original language, or show instrumental motivation by wanting to use Spanish on a vacation to Madrid.

Additionally, Manheimer et al. (1995) report that motivational factors such as fear of cognitive decline, a desire for intellectual stimulation, and a desire for clear instrumental goals keep older adult learners in education. “These would be reflected in such courses as how to take care of a frail spouse, manage one’s budget, learn word processing in order to obtain a part-time job, or prepare for the realtor’s exam” (Manheimer, et al., 1995, p. 21).

The Andragogical model. Knowles (1980) accumulated a list of assumptions of the adult learner. The four assumptions were (a) as a person matures, his or her self-concept moves from a dependent learner to a self-directing one, (b) adults accumulate life experience and draw from it during the learning process, (c) an adult’s readiness to learn relates to their social role, and (d) an adult is more problem-centered than subject-centered. In a later study, Knowles (1984) purported two more assumptions: that (e) internal motivation is more potent than external motivation, and (f) adults need to know
why they are learning something for it to be meaningful to them. These assumptions drive the framework of my study.

Modern adult learning is affected by changes in demographics, the prevalence of globalization, and the advent of technology (Merriam, 2009). Teachers of adult learners teach to people who are living a lot longer, as well as a population of learners that come from a multitude of ethnic backgrounds. This is also a time period where learning is made more convenient because of easier access to technology, communication, and information.

**Adult learners of Spanish.** More and more adults are choosing to enroll in Spanish classes. Drew, Duval, and Cyr (2015) point out, “in a nation in which Spanish speakers comprise an increasing proportion of the population, the economic and social benefits of bilingualism are both practical and profound” (p. 31). While there is no data to indicate how many adult learners are currently enrolled in Spanish courses, in 2015, MLA reported 50.6% of post-secondary students or about 790,000 students out of approximately 1.5 million who take a foreign language choose Spanish.

Adult learners of L2 have “access to the full range of semantic concepts from their previous linguistic and cognitive experience” (Bardovi-Harlig, 2007, p.55). There is a correlation between bilingualism and the offset of age-related cognitive losses. Bialystok, Craik, Klein, and Viswanathan (2004) showed that bilingual middle adult and older adult participants performed better on repetition, or “Simon,” memory tasks. Participants also answered back more rapidly to conditions that placed greater demands on working memory. Cox (2017) reported that older bilinguals had distinct advantages at language learning over monolinguals, especially in the realm of explicit grammar
instruction. There are other challenges that affect an adult learner trying to learn Spanish, such as slower fluid intelligence and weaker pronunciation, which are addressed later in this literature review.

Adult Learner Attitudes

Adults pursue college courses for a number of reasons. Stevens (2014) found that the most commonly reported reasons were increased earning potential, self-satisfaction of increasing their educational acumen, a desire to finish a previously interrupted degree and being an example for children. With the right teaching environment, adult learner attitudes tend to be positive. As one can expect, adult learner attitudes can be correlated with how the learner perceives he/she is doing in class. Adult learners who feel they are performing well have higher student satisfaction scores and positive self-efficacy (Kuo & Belland, 2016). Motivation for learning an L2 is linked to a higher level of proficiency (Martinsen, Alvord, & Tanner, 2014). Adult learner attitudes are also positive when instructional strategies are tailored to their level of workplace experiences or have real world contexts (Brown, 2017; Stevens, 2014).

Adult learners seem to have certain needs and preferences toward learning. Stevens (2014) asserts non-traditional learners have a list of needs to be successful: (a) a breadth of information about their educational options, (b) flexible financial arrangements, (c) institutional flexibility in curricular and support services, (d) academic and motivational advising supportive of their life and career goals, and (e) recognition of experience and work-based learning already obtained. Brown (2017) reports that adult learners prefer the use of problem-based learning centers, because they stimulate “higher order learning” when equated to traditional pedagogical practices.
Research regarding adult learners and attitudes to technology is scarce (Cox, 2004; Liu, 2017; Lukow, 2002). In his study, Liu (2017) reported this research is paramount because technology is so accessible to adult learners, who are often challenged with demands of work, travel, and family obligations. In reviewing the small number of studies that analyze adult attitudes with technology, Liu (2017) surmised that constructs of user attitudes toward E-Learning should include affective, cognitive, behavioral, and social perspectives, while attitudes toward computer and Internet-related technologies separate into affective, cognitive, and behavioral measurements. Stevens (2014) showed that only 1 in 4 participants saw technology as a deterrent to attending school. Furthermore, 89% of participants strongly agreed or agreed that online courses are favorable and 80% liked the use of technology because it was a vehicle for social network communication.

Learning Styles

The term learning style is defined as “the way in which [a] person is programmed to learn most effectively, i.e., to receive, understand, remember, and be able to use the new information” (Reinert as cited by Kaminska, 2014, p. 3). Knowles, Holton, and Swanson (2005) define learning style to include “cognitive, affective, and psychomotor/physiological dimensions” and “characteristics of instruction and instructional settings along with learning” (p. 213). This study utilized the learning styles of adults according to Kolb (1981).

There are a number of terms used by Kolb (1981) in his Learning Style Inventory (LSI) that are relevant to this project. The LSI describes both a set of learning styles as well as cycle of learning, or a learning process. Figure 2.1 below shows the quadrants of
experiential learning that indicate learning style stages (in bold) and learning processes (located within the quadrants).

Figure 2.1

Model of Experiential Learning

<table>
<thead>
<tr>
<th>Type of Learner</th>
<th>Learner Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>The learner prefers to learn through symbolic understanding of information.</td>
</tr>
<tr>
<td>Concrete</td>
<td>The learner prefers to learn through immediate experience that he or she can see, hear, or touch.</td>
</tr>
<tr>
<td>Active</td>
<td>The learner prefers to learn by external manipulation of tools or materials, and by participation in hands-on activities.</td>
</tr>
<tr>
<td>Reflective</td>
<td>The learner prefers to learn by thinking about and manipulating ideas internally.</td>
</tr>
</tbody>
</table>


The LSI scores indicate that an adult learner prefers one of four stages of a learning cycle. These stages are (a) concrete experience, (b) reflective observation, (c) abstract
conceptualization, and (d) active experimentation. Table 2.3 defines these stages of the learning cycle according to Kolb (1984).

Table 2.3
*Stages of the Learning Cycle*

<table>
<thead>
<tr>
<th>Learning Cycle Stage</th>
<th>Description of that Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Experience (CE)</td>
<td>Learning from feeling: learning from experience, relying on feelings and involvement with others.</td>
</tr>
<tr>
<td>Reflective Observation (RO)</td>
<td>Learning by watching and listening: careful observation, viewing issues from different viewpoints.</td>
</tr>
<tr>
<td>Abstract Conceptualization (AC)</td>
<td>Learning by thinking: analyzing, developing theories and ideas, systematic planning.</td>
</tr>
<tr>
<td>Active Experimentation (AE)</td>
<td>Learning by doing: influencing others through action, taking risks, getting things done.</td>
</tr>
</tbody>
</table>


The two learning stages with highest scores are combined. This combination determines a student’s preferred learning style out of four possible learning styles, as described in Table 2.4 below.

Table 2.4
*Summary of the Styles of the Learning Process*

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>Attributes of Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergers – AC and AE</td>
<td>These learners prefer making decisions regarding real world problem solving and practical applications.</td>
</tr>
<tr>
<td>Divergers – CE and RO</td>
<td>These learners prefer viewing situations from different points of view. They are imaginative and sensitive to feelings.</td>
</tr>
<tr>
<td>Assimilators – AC and RO</td>
<td>These learners prefer abstract concepts and creating theoretical models. They are good at putting information into logical form.</td>
</tr>
<tr>
<td>Accommodators – CE and AE</td>
<td>These learners prefer hands-on experience, taking risks, working with others, and implementing.</td>
</tr>
</tbody>
</table>

There are a number of criticisms of learning style and online learning research. Santo (2006) enumerates the criticisms as (a) the vagueness in the construct “learning style,” (b) the fact that the instruments are self-reported, (c) there are mixed results in previous literature between learning style and online learning, and (d) the difficulty of comparing different studies when online learning is operationally defined in different ways.

Growth in the adult population in the United States indicates the importance of examining the science of andragogy, or adult learner education. Adult learners of Spanish are successful when learning is enjoyable and has a real-world relevancy (Williamson, 2013). They enroll in Spanish classes because of both external (the desire to interact comfortably in another country) and internal (learning for its own sake) reasons. Kolb (1984) created a model that defines adult learner types, such as active, concrete, active, and reflective learners.

**Second Language Acquisition**

The acquisition of a second language is a complex phenomenon. In this next section of the literature review, the main tenets of Second Language Acquisition (SLA) are discussed, followed by a discussion of E-Learning versus traditional courses. A discussion on Spanish E-Instruction follows, specifically in terms of instructional design, language learning websites, communicative competencies, and factors that bring success. Finally, the specific challenges to an adult learner learning Spanish through E-Instruction are discussed, including pronunciation, continuity, and motivation.

**Overview of SLA.** Second Language Acquisition (SLA) is the scientific discipline devoted to the learning of a second language (L2). Krashen and Terrell (1983)
explain that language acquisition is an unconscious process developed through using language meaningfully and naturally, and children acquire their native languages this way. Lee and Van Patten (2003) explain SLA involves the creation of an implicit, or unconscious, linguistic system, where the L2 acquisition is possible with lots of comprehensible input. Older learners study foreign languages with the tenet that language learning involves consciously learning or discovering rules about a language.

Krashen and Terrell (1983) also developed five different hypotheses for SLA that language teachers today still use. They are (a) acquisition/learning hypothesis, (b) monitor hypothesis, (c) natural order hypothesis, (d) input hypothesis, and (e) affective filter hypothesis. Acquisition/learning hypothesis indicates that the only way to competence in an L2 is the unconscious process of practicing and using language meaningfully -- not through the study of rules. The monitor hypothesis indicates that conscious learning operates only as a monitor or editor that checks or repairs the output of what has been acquired, while the natural order hypothesis indicates grammatical structures are acquired in a predictable order and it does little good to try to learn them in another order. The input hypothesis says that people acquire language best from messages that are just slightly beyond their current competence. Finally, the affective filter hypothesis explains that the learner’s emotional state can act as a filter that impedes or blocks input necessary to acquisition.

Chapelle (2009) likewise grouped theoretical perspectives of SLA, and did so into four categories: cognitive linguistic, psycholinguistic, human learning, and language in social context. The cognitive linguistic categories (Universal Grammar, Autonomous Induction Theory, and Concept-Oriented) focus on the learner’s internal linguistic
mechanisms, while the psycholinguistic approach (processability theory, input processing, and interactionist) emphasizes the learner’s grammar, form-meaning mappings, and tasks. General human learning perspective (associative-cognitive and skill acquisition) is a more experiential approach to language learning, while social context perspective (sociocultural, language socialization, conversation analysis, systemic-functional, and complexity theory) focuses on the context and communities of the language learner.

Furthermore, Krashen and Terrell (1995) were the first ones to identify the five stages of SLA. They are pre-production, early production, speech emergence, intermediate fluency, and advanced fluency; these stages are predictable for all language learners. Table 2.5 below briefly summarizes these findings.

**Table 2.5**

*The Stages of Second Language Acquisition*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Characteristics of the student</th>
<th>Teacher prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-production</td>
<td>Minimal comprehension without scaffolds, lack of verbalization, head nods of yes/no, and draws and points</td>
<td>Show me. . .</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Circle the . .</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Where is . . ?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Who has . . ?</td>
</tr>
<tr>
<td>Early production</td>
<td>Limited comprehension without support, uses present tense verbs, produces one or two word answers, participates using key words and/or familiar phrases</td>
<td>Yes/no questions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Either/or questions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Who, what, and how many questions.</td>
</tr>
<tr>
<td>Speech emergence</td>
<td>Good comprehension, can produce simple sentences, makes grammatical and pronunciation errors</td>
<td>Why . . ?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How . . ?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain . . ?</td>
</tr>
<tr>
<td>Intermediate fluency</td>
<td>Excellent comprehension with few grammatical errors</td>
<td>What would happen if . . .?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Why do you think . . ?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Questions requiring more than a one-sentence response.</td>
</tr>
</tbody>
</table>
Advanced fluency | Near-native level of speech | Decide if . . . ? | Retell . . . ?
--- | --- | --- | ---

*Note.* Summarized from Krashen and Terrrell (1983).

**SLA and Technology.** Foreign language instruction has benefitted greatly with the evolution of the tape recorder, videocassette, CD player, DVD, interactive whiteboards, and mobile apps; Kern (2006) indicated, “Rapid evolution of communication technologies has changed language pedagogy and language use, enabling new forms of discourse, new forms of authorship, and new ways to create and participate in communities” (p. 183).

Technology is most useful in a foreign language classroom when language is presented in a number of different ways or modes (Mayer, 2001; Pachler, et al., 2014). Students benefit most when vocabulary is presented with image, sound, and the word simultaneously (Pachler, et al., 2014). Smith and Conti (2016) explained that L2 technology integration is best when (a) images are used to facilitate vocabulary recall, (b) videos are captioned for better processing of information, (c) online interactive language exercises are free of redundant information, (d) grammar and vocabulary presentations (i.e. PowerPoint) are simplistic as to not overwhelm the learner, and (e) multimedia information is related to previously learned material.

Technology, however, can be a deterrent to teaching and learning. Moore (2006) researched Spanish public school teachers’ use of technology in the teaching of culture using a self-reported questionnaire. The results indicated that teachers showed a preference for “simpler” technologies like television and video recorders, because of a lack of time to learn new technologies and resources. Furthermore, teachers preferred to teach grammar and vocabulary over culture, as well as develop reading and writing skills,
to prepare their students for the required departmental tests. Smith and Conti (2016) warn against “using technology for technology’s sake” and that technology could be, at times, “unnecessarily time-consuming and unproductive” (p. 283). One story that comes to mind from my own teaching is when I spent two hours before school one day creating a Jeopardy review game for my Spanish 3 class. The questions in the game reviewed every component of the upcoming test, and I was confident my students would enjoy the realism of the game board, the funny names of the categories, and the integration of the Final Jeopardy music that I had meticulously downloaded and embedded. When it came time for my students to play the game, I plugged in my flash drive into my computer and I found out the file had inexplicably corrupted and would not open. I had lost the game, and for an alternative lesson plan I had to ask any of the questions I remembered, and students would just raise their hand when they knew the answer. I had wasted valuable instructional time trying to recover the lost file.

Technology also can have its drawbacks. The temptation of using the Internet inappropriately pervades any activity that grants online access. As a classroom teacher, I constantly have to battle for students’ attention from social media when they have their cell phones out. Furthermore, social isolation and superficial tools can distract students from learning objectives (Smith and Conti, 2016). This has also been validated in my experience teaching teenagers; whenever I assign the creation of Prezi or Google Slide presentations, I will have students who obsess with the color scheme, animation, and transitions. These are not the language and learning objectives and I often have to redirect their attention.
Implications for my study. It is obvious that technology plays an important part of language acquisition. While the adult learner subgroup increases in national Spanish class enrollment, the majority of research deals with language acquisition in children. Adult learners can respond positively or negatively to technology when they are in a Spanish class. My study proposed that these attitudes to technology can influence their style of learning. The goal of this study was to provide a framework for adult learning that involves technology which may reshape current practices by educators.

E-Learning vs. Traditional Courses

Technology has affected modern adult learning. With the Internet, access to information is much quicker and easier and learning is not a process that just stops; instead, as humans we learn new things as we age, either consciously or unconsciously. Learning is a continuous process, based on what we know from our past. We are active learners.

Learning occurs in formal and non-formal settings. Formal settings include a classroom, workshop, or conference. A situation where one is assigned a grade is considered a formal learning setting (Livingstone, 2001). Non-formal settings include short-term and voluntary learning situations, such as pastimes or hobbies. Community-based learning is a non-formal setting centered around social action. Indigenous learning is another non-formal setting where people share information through fine arts or stories or dance. Finally, online learning, like distance education, has become more popular and occurs in both formal and non-formal settings. The proliferation of information technologies and exponential increases in the production of information have created greater opportunities for informal learning for people in all lifestyles (Livingstone, 2001).
With the proliferation of worldwide technology comes the caveat that not all information is reliable. Whitson and Amstutz (1997) purport a number of strategies in compensating for information and technology misinformation. They suggest that adult educators should confer with those who teach information access skills, like librarians and computer specialists. Furthermore, they suggest that educators should focus on developing their students’ higher-level thinking skills to analyze the validity of the information gathered in the World Wide Web. Finally, adult educators should be aware that access to information and research should be accessible to people of all levels of socioeconomic status.

E-Instruction encompasses any use of technology in an instructional space. Boettcher and Conrad (2010) conducted a study on the 10 best practices for teaching online. Among them, they explain that effective educators are present in the course site; create a supportive online course community; share a set of clear expectations; and use a variety of large group, small group, and individual work experiences. Furthermore, they report that successful online educators use both synchronous and asynchronous activities, ask for informal feedback early in the term, prepare discussion posts that invite responses, focus on content resources, combine core concept learning, and, finally, plan a good closing activity for the course.

Miller (2001) conducted a study in which humanistic philosophy, developed by the ideas of Carl Rogers, was applied to an E-Instruction course. His findings enumerated the most effective humanistic methods in an E-Instruction course. Effective instructors were the ones who: (a) emphasized learner’s interests, (b) connected those interests with course objectives, (c) supported collaborative learning and learner control, (d) implement
objectives developed by learners and teacher) featured self-evaluation, and (e) featured ancillary materials. These factors will become more important as adult E-Instruction continues to increase in popularity.

**Spanish E-Instruction**

For this study, Spanish E-Instruction is operationally defined as the study of Spanish with a technological component, whether it is in instructional delivery or student output. Previous literature addressed Spanish E-Instruction in a number of ways, including instructional design, learning a language through a website, communicative competencies, and factors that brought success. The factors that brought on success were analyzed in E-Instruction and classroom environments.

**Instructional design.** There are numerous studies of completely online Spanish courses where the instructor’s role is to create a website; provide translation, grammar, and vocabulary exercises; assign compositions and readings; and/or assign on-demand video and audio activities (Beaven & Alvarez, 2004; Jung, 2011; Kartal & Uzun, 2010; Shield & Kukulska, 2006). Sometimes a part-online, part-face-to-face course is designed, where students interact with the instructor through the Internet but also attend assigned meeting or tutoring sessions (Furnborough & Truman, 2009; Kim, 2009). This type of design is also called blended or hybrid course in the literature.

Adult learners deemphasize grammar and focus more on *perceived relevance* and usability of instruction; a number of studies report that adults learn the best when they understand not only what they are learning, but also *why* they are learning it (Boettcher & Conrad, 2010; Coleman & Furnborough, 2009; Davis, 1995). In Davis’ (1995) case study of 20 adult Spanish learners ages 25-65 in Maryland, students reported that they were
taking Spanish for travel and self-enjoyment. Though the course reviewed a number of
grammar conventions and verb tenses, the students were only comfortable using the
present tense. Their learning focused on usability and function; the students were highly
motivated to focus on language production activities like skits and compositions. Kim’s
(2009) study of American adult learner professionals of varying industries who took self-
directed e-courses in both academic and workplace settings also showed a similar trend.
The goal was to understand the motivational challenges adult learners face during the
learning process in a self-directed, E-Learning environment. Motivation was linked to a
number of factors, including authentic and interactive activities such as animations and
simulations.

**Language learning websites.** This study fills in the research gap of adult learner
studies as they relate to Spanish E-Instruction. A number of studies have been conducted
addressing the medium of distance Spanish E-Instruction, but not necessarily for adult
learners. Language learning websites must include cultural emphasis, instructor
feedback, and language use opportunities (Kartal & Uzun, 2010; Kim, 2009; Shield &
Kukulska, 2006). Language learning websites should focus not only on language
structures, but also on culture. Additionally, feedback encourages motivation, and
students who receive feedback want to practice their skills immediately and often.

In a qualitative study, Shield and Kukulska-Hulme (2006) researched the
discipline-specific factors in the usability of French and Spanish E-Learning websites in a
sample pool of 22 participants from the United Kingdom. Technology-enhanced
language learning (TELL), computer-aided/assisted language learning (CALL),
computer-mediated communication (CMC), and word-processing and research tools were
utilized. The results of the study revealed that students did not use course websites regularly due to lack of time, and traditional materials like worksheets were sufficient. Students would use the website only for cultural research, to check for submission dates for assignments, and to discover whether new course materials had been dispatched.

Similarly, Kartal and Uzun (2010) analyzed websites of teachers that taught French at a Turkish university. In their semi-structured interviews of 14 students, they reported that most effective learning occurred when websites were updated regularly, the target audience was clearly stated, and there were opportunities for individual and autonomous learning. E-Instruction should include a variety of learner feedback opportunities, download/upload opportunities, ease of website exploration, tests, educational games, textual materials, exercises and activities, and pedagogical guidance and explanation.

Communicative competencies. Communicative competence is an umbrella term that describes how well a person knows the rules for speaking in a culture (Brown & Eisterhold, 2004). These rules include how to start and end a conversation, how to address another person, how to indicate comprehension, and rules about inflection, stress, intonation, and pause. Palomino and Ragsdale (2015) indicate, “the idea of communicative language teaching is that grammar, pronunciation, and vocabulary are not taught in a vacuum, but rather are applied in meaningful communication to complete tasks” (p. 42). Communicative competence is linked to culture in that in order for one to communicate in a foreign culture, one must adhere to the guidelines of communication (Martinez Flor, Juan, & Guerra, 2003).
Beaven and Alvarez (2004) performed a study on cultural (as opposed to just communicative) competence achieved through translation analysis. In their study conducted in the United Kingdom, 14 advanced Spanish student volunteers were interviewed about their online class, where they had to read texts, identify translation difficulties, propose solutions, and negotiate with other students. The teacher created a website and wrote translation exercises with the goal of developing intercultural competence. This intercultural competence was enhanced because students had to examine and compare the attitudes and values of the Spanish-speaking world with their own.

**Factors that brought success.** As previously indicated in the Miller (2001) study, there are a number of factors that indicate the success of an adult learner in the E-Instruction context. Feelings of success and enjoyment, level of education, technology competence, and previous knowledge of Spanish were reported to be the most instrumental to successful completion of Spanish E-Instruction courses (Coleman & Furnborough, 2009; Jung, 2011; Kim & Frick, 2011). In the quantitative study conducted by Jung (2011), a population of 299 students who had taken a variety of e-courses were surveyed to ascertain the factors of high quality E-Learning. Among the seven dimensions for a high quality e-course were the perceived quality of instruction and learning and previous enrollment in another online class. The other five dimensions were teacher-student interaction, staff support, institutional credibility, learner support, and feedback to learning tasks.

Other studies show that when compared to face-to-face instruction, an online interface was just as effective. In a quantitative study conducted by Coleman and
Furnborough (2009), 563 participants were surveyed to find out the learner characteristics and learning outcomes for adult distance beginner Spanish students. These participants had a sense of success related to enjoyment and achieving goals; and, when compared to face-to-face instruction, online instruction was perceived to be just as effective.

**Challenges to Adult Learner Spanish E-Instruction**

Adult learners face a number of barriers to participation in adult education. The two most common obstacles are lack of time and lack of money (Merriam, et al., 2007). According to Heimstra (1993), additional barriers include inadequate transportation, low self-concept, negative stereotypes regarding the elderly and learning, and lack of awareness of learning opportunities.

Ageism, or the “systematic stereotyping and pervasive negative view of older persons” (Merriam, et al., 2007, p. 69), could be a barrier as well. Older adult learners wonder if they have what it takes to “keep up” with the younger students in class. According to Wolf (2009), there are a number of stereotypes that prevent older adult learners from entering higher education institutions; an older learner can be assumed to “lack energy, motivation, or the ability to learn new tasks” (p. 54). This statement is reminiscent of the adage *you can’t teach an old dog new tricks*.

Older adult learners can face a number of biological barriers with learning. Memory can affect an adult learner’s ability to learn (Merriam, et al., 2007). Fluid intelligence, or the ability to recall things or capture new tasks quickly, slows down, as does plasticity, or the ability for people to change and yet maintain durability as they age. In as similar fashion, Williamson (2013) enumerated some of the development issues with adult learners. She stated that these are “issues that the adult instructor will need to
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consider when dealing with older students” (para. 16); these are physiological changes such as slower speed and reaction time, a diminished visual acuity, a lesser ability to differentiate sounds, but also a higher intellectual functioning.

Even though there is little research on adults learning Spanish through an E-Instruction medium, there are studies on adults learning a foreign language. There are a number of challenges that adult learners face when learning a foreign language, including pronunciation, continuity, and motivation.

**Pronunciation.** The ability to achieve a native-like accent for an adult learner of Spanish is difficult, according to Second Language Acquisition theory (Lee & VanPatten, 2003). The acquisition of an accent is compounded even more if a learner only uses the E-Instruction medium. The theory states that a person’s language development skills are optimal around the age of 11, often called the “critical period.” Adults learning an L2 (second language) often do not acquire a native-like fluency and must work harder at pronunciation than a person learning a language before the critical period. Pronunciation can also be affected by phonetic context, style variation, first language phonology transfer, and experience abroad (Barrios, Jiang, & Idsardi, 2016; Martinsen, Alvord, & Tanner, 2014). In a case study of teaching Spanish to 20 American adults on a once-a-week basis, Davis (1995) reported high satisfaction of the course from the students but pronunciation was poor. This was especially problematic when coupled with the fact that the adult learners could not hear the difference between their voice and the voices of the native speakers in listening activities (Davis, 1995; Furnborough & Truman, 2009).

**Continuity.** Another limitation of an e-instructed Spanish course for adults is the limited amount of contact hours. Davis (1995) reported that his instruction to beginning
adult learners of Spanish was very restricted by the 77 hours of interaction that he and his
students had together and the variable number of hours the learners used in independently
practicing Spanish at home. In contrast, a face-to-face college Spanish instruction course
would be about 3-6 hours a week for 20 weeks. Villar and Alegre (2007) assessed 162
professors for their preferences of online professional development. The professors
desired more contact hours and a 24-hour accessible online system. The trend of feedback
/interaction correlating with E-Instruction satisfaction was also reported in Furnborough
and Truman (2009), Kartal and Uzun (2010), and Shield and Kukulska-Hulme (2006).

Motivation. There is a research gap because we know what works and does not
work with E-Learning and L2 learning, but there is a shortage of research that
specifically studies E-Learning and L2 learning for adults. A major factor in successfully
completing an e-course is self-directed learning, or learning in which individuals have
primary responsibility for planning, implementing, and even evaluating their effort
(Knowles, 1980). Kim and Frick (2011) sought the motivational influences among 368
adult learners from corporate settings and higher education with online learning
experience. Their findings showed that low motivation to begin self-directed E-Learning
(SDEL) was linked to the lack of perceived relevance, low reported technology
competence, and older age. Sometimes language learners can be too overwhelmed to
communicate in an L2. Segalowitz et al. (2004) reported that “learners may become
overwhelmed and/or discouraged at later stages [of language learning] when they cannot
meet the cognitive and linguistic demands of communicating more natural and complex
situations” (p.15).
**Strategies.** Instructors of adult learners can utilize a number of strategies. Merriam, et al. (2007) suggest that an educator can provide both verbal and written cues to accommodate students with vision or hearing loss. Employing mnemonics and other rehearsal strategies could assist in fluid intelligence and plasticity deterioration. Since older adults need to know why they are learning something, an emphasis should be placed on immediately applying the new material as soon as possible. Williamson (2013) says because of the “experience and more defined conceptions on various subjects of the adult learner,” the teacher may have to “incorporate more ‘real life’ issues in his/her teaching repertoire” (para. 30). This could include role playing, scenario practice, or skits. The learning atmosphere should be cooperative, relaxed, full of courtesy and cooperation.

In summary, Second Language Acquisition is the gaining of a second language through a plethora of language input and opportunities for language output. Advances in technology has made L2 learning more convenient and ubiquitous. Effective Spanish E-Instruction utilizes sound instructional design, fun language websites, and proper communicative competencies. Adult learner SLA is inhibited by both biological (e.g. pronunciation) and intrinsic (e.g. lack of motivation) factors. These are factors that should be taken into consideration within formal educational institutions, such as the community college.

**Community College Education**

The last section of the literature review discusses the makeup of community college students, followed by information on instructional strategies in teaching Spanish
at the community college level. A discussion ensues if the current format of community college meets the needs of the community college Spanish learner.

Choosing a community college education is a popular decision. In the fall of 2014, 42% of all undergraduate students in the nation and 25% of full-time undergraduate students in the nation were enrolled in a community college, about 7.2 million students (Ma & Baum, 2016). Students in community colleges tend to be older than undergraduates overall; in 2011-12, about 20% of undergraduate students in the public and private nonprofit four-year sectors were 25 or older, compared to 44% in the public two-year sector and 59% in the for-profit sector (Ma & Baum, 2016). Ma and Baum (2016) also report that among full-time lower level undergraduate students in 2011-12, about 10% were 25 or older in the public four-year and private nonprofit four-year sectors, compared to 35% in the public two-year sector and 58% in the for-profit sector.

Students enrolled at a community college can enroll in a number of programs and courses, including foreign languages. A typical foreign language program at a community college comprises of elementary, intermediate, and advanced coursework, ranging from introductory courses all the way up to examining literature, history, and culture. Foreign language usually fits into the degree plan as an elective, which is useful for a number of different career paths. At a majority of four-year institutions, four semesters of a foreign language is as a Bachelor of Arts prerequisite and two semesters is a Bachelor of Science prerequisite. As noted earlier, Spanish remains the most popular foreign language taken at U.S. community college institutions.
Teaching Spanish at a Community College

About 33% of introductory and intermediate enrollments in Spanish are taken in two-year colleges (Fechter, 2010). The typical community college Spanish course focuses on communicative competencies, development, pronunciation practice, and cultural perspectives (Drew, Duval, & Cyr, 2015; Palomino & Ragsdale, 2015). Palomino and Ragsdale (2015) indicate classes often have 22-25 students per class. In addition, the classes have access to the Internet, public libraries, and bookstores, and include an online study module component. Furthermore, out-of-class audio reinforcement is used. Lastly, Spanish courses allow for cultural engagement and are generally 16 weeks in length, with 2-3 hours of instruction per week. Drew, Duval, and Cyr (2015) indicate that a Spanish course consists of daily attendance of on-campus language class, a language lab, or an online module. Furthermore, classes are often enhanced with the use of language CDs for listening practice and the watching of Spanish telenovelas, or soap operas, for language practice. Bachelor and Bachelor (2016) gave students play money to give to the instructor whenever they met the daily “I-can” statements and lesson objectives.

Fechter (2010) describes the need to assess the specific needs and challenges of community college educators to be “critical.” There are needs for program coherence, a consistent measurement tool of proficiency levels, common assessments and outcomes, and individualized help for native and heritage speakers. These are important considerations because the community college sector comprises nearly half of the U.S. undergraduate student population and one-third of Spanish students.

Community college education continues to thrive in the United States and Spanish remains to be the most studied language in higher institutions (MLA, 2015). The typical
Spanish classroom in a community college focuses on communication and culture and utilizes technology such as listening CDs or a language lab (Drew, Duval, & Cyr, 2015). While community college enrollment as a whole increases, the needs and challenges of its Foreign Language programs are not always addressed.

**Summary**

Measuring adult learner attitudes toward Spanish E-Instruction may help improve adult learning of Spanish E-Instruction at large. The framework for this study stems from Knowles’ (1980, 1984) Andragogic Process Model, which states six assumptions of the adult learner. The body of research shows that the proliferation of technology is a reality and more adults than ever are taking the opportunities to learn a new language due to convenience, the opportunities for business ventures, or personal self-enjoyment. The factors that point toward success in the E-Instruction medium include abundant instructor feedback, the perceived usability of the instructional content, and a sense of enjoyment. There are a number of limitations to the adult learner in a Spanish E-Instruction course. This includes a struggle for native-like fluency and pronunciation, a poor amount of instructional continuity, and a fight for motivation. Previous studies suggest that there is a weak correlation between certain learning styles and technology attitudes with different populations. However, there is a gap in the literature in that this relationship for adult learners of Spanish has never been researched. Community college settings continue to be a popular place to learn Spanish among adult learners.
CHAPTER III: METHOD

This chapter begins with the hypotheses, variables, and research questions of the study. Then a discussion ensues of the participants and instruments. Finally, there is a discussion on the data collection and data analysis of the study.

Hypotheses

The first hypothesis was that there was a significant relationship between participants’ attitude score toward Spanish E-Instruction and learning style. Lukow (2002) and Cox (2008) reported no relationship between attitude and learning style in their studies, but they used participants in different content areas.

The second hypothesis of my study was that middle adult and older adult learners have a negative attitude toward Spanish E-Instruction. Most middle adult and older adult learners are considered “digital immigrants” (Prensky, 2001) who went through school with a limited amount of technology and have had to learn and develop technology skills at a later age. Young adult learners are more likely to be considered “digital natives” (Prensky, 2001) who have learned and developed technology skills during their educational careers.

Variables

The independent variable was learning style. There were the four types of learning styles according to Kolb (Diverging, Assimilating, Converging, and Accommodating). The dependent variable was the attitude toward the use of the technology. The instrument used indicated each participant had an attitude score in the range from -60 to 60, with -60 implying that technology generally distracted from
achievement of course objectives and 60 indicating technology generally facilitated achievement of course objectives.

**Research Questions**

The research questions were: (a) What are students’ attitudes toward the use of technology in Spanish community college courses? and (b) Do attitudes toward the use of technology in Spanish community college courses differ for Kolb’s four categories of students’ learning styles?

**Participants**

Participants were recruited through convenience sampling. The three community college professors were acquaintances of the researcher through a state association for Foreign Language teaching professionals. They agreed to allow the researcher to use their students for the study. The researcher came into the classes of these community college professors reading off a message to recruit participants (Appendix A) and distributed the surveys to the classes.

The participants were enrolled in a Spanish class at community colleges in a large metropolitan area of the United States during the academic school year of 2018-2019. The instructors of these classes used language-learning technology (YouTube videos, VoiceThreads, DuoLingo, etc.) as a vehicle of instruction throughout the class. Participants were enrolled in either beginning or intermediate Spanish courses. Furthermore, participants who reported Spanish as their first or second language were included in the study.

Data were collected at three different community colleges in a large metropolitan area in the Midwestern United States. Institution A was a community college in a
suburban area. The population of the community college was 6,822 students in the fall of 2018. Within the student population, females accounted for 56% and males accounted for 44%, non-traditional (age 22 or higher) students accounted for 35%, and non-Caucasians were at 19% for the fall of 2018. According to the course catalog, there were five sections of Arabic, 10 sections of French, seven sections of German, and 11 sections of Spanish. This institution offered two Spanish elective courses: Spanish for Business and Topics in Culture, along with the traditional elementary and intermediate Spanish courses. Surveys were distributed to two sections of Spanish 102 (second semester Spanish) and two sections of Spanish 201 (third semester of Spanish). Seventy-one participants took the surveys at this institution.

Institution B, situated in an urban area, had 8,207 students enrolled during the fall of 2018. The Spanish courses offered were Spanish 101 and Spanish 102. The surveys were administered to one section of Spanish 101 and one section of Spanish 102. There were 38 participants from this school in the data.

Institution C was a community college in a suburban area. The total enrollment for the institution was 12,000 students during the fall of 2018. This school offered four different Spanish courses that semester: Spanish 101, 102, 201, and 202. Surveys were given to two classes of Spanish 101. There were 42 participants from this school in the data.

Institutions B and C were in the same system of community colleges. Within this system, females accounted for 61% and males accounted for 39%, non-traditional (age 22 or higher) students accounted for 36%, and non-Caucasians were at 39% for the fall of 2018. Also within this community college system, there were two sections of Chinese,
four sections of French, four sections of German, two sections of Italian, two sections of Japanese, one section of Russian, and four sections of Spanish.

The majority of participants of the study were female (62%), Caucasian (72%), high school graduates (93%), undergraduate students (93%), in the age range of 18-29 (95%) (see Table 3.1). The most popular motivations for taking the courses were to receive a certificate or degree (49%), personal enjoyment (37%), and to enhance job skills (35%) (Note: participants could select more than one option). The majority of respondents had studied Spanish previously (89%), either in middle school, high school, and/or college. Full demographic information is below.

Table 3.1

Demographic Information of the Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>58</td>
<td>(38%)</td>
</tr>
<tr>
<td>Female</td>
<td>93</td>
<td>(62%)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>108</td>
<td>(71.5%)</td>
</tr>
<tr>
<td>African-American/Black</td>
<td>13</td>
<td>(8.6%)</td>
</tr>
<tr>
<td>Latino</td>
<td>18</td>
<td>(11.9%)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>14</td>
<td>(9.3%)</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Educational Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Graduate</td>
<td>141</td>
<td>(93.4%)</td>
</tr>
<tr>
<td>Associate or Equivalent</td>
<td>9</td>
<td>(6.0%)</td>
</tr>
<tr>
<td>Bachelors or Equivalent</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young Adult (18-39)</td>
<td>145</td>
<td>(96.0%)</td>
</tr>
<tr>
<td>Mid Adult (40-64)</td>
<td>2</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Older Adult (65+)</td>
<td>4</td>
<td>(2.6%)</td>
</tr>
</tbody>
</table>
### Status

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergrad</td>
<td>140</td>
<td>(92.7%)</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>(6.0%)</td>
</tr>
<tr>
<td>Working Professional</td>
<td>2</td>
<td>(1.3%)</td>
</tr>
</tbody>
</table>

### Motivation for taking the Course

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Receive a Certificate/Degree</td>
<td>72</td>
<td>(47.7%)</td>
</tr>
<tr>
<td>Personal Enjoyment</td>
<td>54</td>
<td>(35.8%)</td>
</tr>
<tr>
<td>Enhance my Job Skills</td>
<td>53</td>
<td>(35.0%)</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>(4.0%)</td>
</tr>
</tbody>
</table>

### Self-Reported Technology

Expertise on 1-4 scale

<table>
<thead>
<tr>
<th>Expertise Level</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 (Most Expertise)</td>
<td>108</td>
<td>(71.5%)</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>(8.6%)</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>(11.9%)</td>
</tr>
<tr>
<td>1 (Lowest Expertise)</td>
<td>12</td>
<td>(7.9%)</td>
</tr>
</tbody>
</table>

### Primary Language if not English

<table>
<thead>
<tr>
<th>Language</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>5</td>
<td>(3.3%)</td>
</tr>
<tr>
<td>Telugu</td>
<td>2</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Arabic</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>French</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>Italian</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
</tbody>
</table>

### Knowledge of Other Languages other than English or Spanish

<table>
<thead>
<tr>
<th>Language</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>6</td>
<td>(4.0%)</td>
</tr>
<tr>
<td>ASL</td>
<td>4</td>
<td>(2.6%)</td>
</tr>
<tr>
<td>Mandarin Chinese</td>
<td>2</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Tegulu</td>
<td>2</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Arabic</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>Farsi</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>Hindi</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>Japanese</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>Korean</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
<tr>
<td>Nepali</td>
<td>1</td>
<td>(0.7%)</td>
</tr>
</tbody>
</table>

### Previous enrollment in Spanish

<table>
<thead>
<tr>
<th>Enrollment status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>134</td>
<td>(88.7%)</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>(11.3%)</td>
</tr>
</tbody>
</table>

*Notes. n=151. Participants could select more than one option on the ethnicity and “motivation for taking the course” questions.*
Instruments

Attitudes toward using technology were measured using a modified version of the Lukow Attitudes Toward the Use of Technology Survey (ATUTS), and learning styles were measured using the Kolb Learning Style Inventory (LSI). Both instruments were chosen because of their use in the foundational studies and previous literature (Cox, 2004; Cox, 2008; Lukow, 2002).

The ATUTS assesses the comfort level and learning outcomes of participants regarding the use of different types of technology. Composite scores on the ATUTS range from -60 (a negative attitude toward technology) to +60 (a positive attitude toward technology). The ATUTS was modified with permission (see Appendix B). Because the original instrument was from 2002, it needed to be modified to fit the current realities of the Spanish classroom. A pilot group of students and teachers of the Spanish language were asked for the technologies that were most used in the modern classroom; results were then compared to the original survey. As a result, five of the statements from the original survey were modified. The term “class listserv” changed to “language applications/programs.” The term “Internet (ex. IUCAT, Knowledge Base)” changed to “online dictionaries/translator.” The term “interactive CD-ROM” switched to “language learning games.” The term “on-line course evaluations” was replaced with “language learning websites.” The term “DVD” was modified to “movies and instructional videos.” Finally, an open-ended question was added: “What would make Spanish instruction with technology more interesting and engaging for you?” The question allowed participants to answer with their own voice and add depth and context to the survey results.
Since the ATUTS was modified, a pilot study was conducted to test the instrument and practice the survey distribution process. Test-retest reliability was measured on the pilot group by giving the same test twice and correlating scores from time 1 with time 2. The resulting correlations were at .91. Content validity was achieved by asking the pilot group of students and teachers if the technologies listed on the survey represented what was used in class.

The LSI is a 12-item survey and asks a series of questions about how and where participants do their best learning. The results of the LSI show a participant fits into one of four learning styles: Diverging, Assimilating, Converging, and Accommodating. Due to the restraints indicated in the author’s Consent of Use agreement (Appendix C) and Conditional Use Agreement document (Appendix D), this dissertation cannot provide the exact questions of the LSI, nor explain how the instrument is scored.

The LSI has demonstrated a high degree of reliability in previous literature with coefficient alpha reliabilities ranging from .81 to .87 for the four learning styles (Willcoxson & Prosser, 1996). Furthermore, the LSI has also shown adequate construct and predictive validity of the four factors forming two bipolar dimensions (Loo, 1999; Willcoxson & Prosser, 1996).

**Data Collection**

Participants received a packet that included a study information sheet (Appendix E), a demographic questionnaire (Appendix F), the Lukow ATUTS (Appendix G), and the Kolb LSI. Each packet had a number on the top right hand corner. The packet number was on each page of the packet to ensure that responses were kept together and compared
appropriately. Surveys were given to each participant at the start of the class period. The completion of both instruments took about 15 minutes.

The study adhered to all ethical considerations defined by the University of Missouri-St. Louis’ Institutional Review Board (See Appendix H). Participants were informed of the purpose of the study, the disclosure that they could stop the study at any time, and the possible risks in taking the questionnaires. These risks included feelings of discomfort that may have come from the personal nature of the questions.

After data were collected, a power analysis was utilized to estimate ideal sample sizes and utilize measures to ensure reliability of samples. The minimum sample sizes were calculated using a power analysis beginning with the sample sizes from Cox’s (2008) study. According to the power analysis, the minimum sample size for each learning style group was 26.67.

**Data Analysis**

Data analyses were conducted using the information gathered on the Lukow ATUS and the Kolb LSI. Not every survey was used; 18 were not because they were not correctly completed. The number 151 represents the number of people who completed the surveys correctly.

The first data analysis answered the first research question, “What are the attitudes toward the use of technology among adult students enrolled in community college Spanish courses?” Descriptive data were gathered from Lukow’s ATUTS. On a similar token, a descriptive analysis was used to describe the data from Kolb’s LSI. A discussion on how each instrument is scored follows.
The version that was used of the Lukow ATUTS can be found in Appendix D. In this survey, respondents decided for each technology on a scale between -5 and 5, with -5 indicating that the technology distracted from the acquiring the course objective, to positive 5, indicating that the technology facilitated in acquiring the course objective. In order to obtain the overall of score the ATUTS, the score for each of the 12 items was added. This summation was a score between -60 and 60 and indicated how the respondents felt about the technology as a whole in their Spanish class.

In accordance with the Approval Statement to use the Kolb LSI (Appendix G), Conditional Use Agreement (Appendix H), the instrument and the detailed method for calculating each participant’s learning style cannot be included in this document. However, the determination of learning style (Accommodating, Diverging, Assimilating, or Converging) came from the way participants responded to statements on the survey regarding learning through Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation.

The next analysis answered the second research question, “Do the attitudes toward the use of technology in community college Spanish courses differ for student’s learning styles?” A one-way analysis of variance (ANOVA) with a .05 level of significance (standard for educational research) was performed on learning styles to discover differences in the participant’s attitudes toward the use of technology. The independent variable was learning style, which has four categories: Diverging, Assimilating, Converging, and Accommodating. The dependent variable was the attitude toward use of technology (a score of -60 to 60).
Summary

This chapter discussed the hypotheses, variables, research questions, participants, instruments, data collection, and data analysis of the study. Students enrolled in Spanish courses at a community college were given the Attitudes toward Using Technology Survey to measure their attitudes about how their teacher used technology in class. Participants then filled out the Learning Style Inventory to determine their learning style. A one-way ANOVA determined whether technology attitudes differed for learning style. The next chapter discusses the participant demographics, the technology attitude survey results, and the learning style inventory results.
CHAPTER IV: RESULTS

This chapter provides the results of the data analyses. The research examined the attitudes toward the use of technology and the learning styles of students who were studying Spanish in a community college. Additionally, the research explored the differences in students’ attitudes based on their individual learning styles. Attitudes toward the use of technology were measured using Lukow’s Attitude toward the Use of Technology Survey (ATUTS) and learning styles were measured using the Kolb Learning Style Inventory (LSI).

Software and Internet Usage

In terms of technology, there was a split between those reporting how many software programs were used on a daily basis, but 88% of respondents used between 1 and 5 software programs on a daily basis (see Table 4.1). Furthermore, the number of hours spent on the Internet in a week also varied widely, but 88% reported they spend 11 or more hours per week online (see Table 4.2).

Table 4.1

Daily Use of Software Programs

<table>
<thead>
<tr>
<th>Number of programs</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-2</td>
<td>72</td>
<td>48</td>
</tr>
<tr>
<td>3-5</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>6-9</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>10 or more</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Note. n = 151

Table 4.2

Internet Usage per Week

<table>
<thead>
<tr>
<th>Hours</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>18</td>
<td>12</td>
</tr>
</tbody>
</table>
One of the questions on the survey was one of self-reported technology expertise. On a scale of 1-4, with 4 indicating that the participant was extremely comfortable with technology and 1 indicating that they were extremely uncomfortable, most participants gave themselves a score of 3 (60%), followed by a score of 4 (26%), a score of 2 (12%) and then a score of 1 (3%).

One of the modified questions to the ATUT survey was question #13: “What would make Spanish instruction with technology more interesting and engaging for you?” Table 4.3 has a summary of the respondents’ answers.

Table 4.3

| Ideas to make Spanish Instruction with Technology more Interesting and Engaging |
|-------------------------------|-----|-----|
| Method                        | n   | %   |
| Utilization of language learning app | 41  | 27  |
| Hands-on technology activities  | 29  | 18  |
| Desire for real-world application | 25  | 17  |
| Gamification                  | 15  | 10  |
| Preference for no technology   | 5   | 3   |
| Others                        | 5   | 3   |

**Attitudes toward Technology**

Participants rated on a scale between -5 and 5 how they felt about specific technologies. A -5 indicated that the technology generally distracted them from achieving the objectives of a course, while 5 indicated that the technology generally facilitated their achievement of the objectives of a course. The results are summarized in Table 4.4.
Table 4.4

Attitude Scores toward Specific Technologies

<table>
<thead>
<tr>
<th>Technology</th>
<th>Mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online dictionaries/translators</td>
<td>3.21</td>
</tr>
<tr>
<td>Language learning websites</td>
<td>2.61</td>
</tr>
<tr>
<td>Language learning games</td>
<td>2.60</td>
</tr>
<tr>
<td>Online quizzes</td>
<td>2.32</td>
</tr>
<tr>
<td>Multimedia (e.g. PowerPoint or Google Slide presentations)</td>
<td>2.23</td>
</tr>
<tr>
<td>Movies and instructional videos</td>
<td>2.17</td>
</tr>
<tr>
<td>Language applications/programs</td>
<td>2.14</td>
</tr>
<tr>
<td>Course website</td>
<td>1.96</td>
</tr>
<tr>
<td>Music</td>
<td>1.89</td>
</tr>
<tr>
<td>E-mail</td>
<td>1.66</td>
</tr>
<tr>
<td>Internet sites used by professor in lecture</td>
<td>1.63</td>
</tr>
<tr>
<td>Class discussion forums</td>
<td>1.58</td>
</tr>
</tbody>
</table>

Note. Attitude scores ranged from -5 to 5.

As indicated from the table, participants viewed the following specific technologies most positively: online dictionaries/translators, language learning websites, and language learning games. The technologies with the lowest attitude scores were class discussion forums, Internet sites used by professor in lecture, and e-mail. None of the technologies listed on the survey had a negative attitude score. Community college Spanish students should use technology because mean attitude scores were positive, meaning technology facilitated achievement of course objectives.

Attitudes toward Technology vs. Learning Style

A One-Way Analysis of Variance (ANOVA) was used to examine whether students’ attitudes toward the use of technology varied according to their learning style. The independent variable represented the four learning styles according to Kolb (Diverging, Assimilating, Converging, and Accommodating). The dependent variable was the attitude toward the use of the technology, with a range from -60 to 60, with -60
indicating that technology generally distracted from achievement of course objectives and indicating technology generally facilitated achievement of course objectives. Table 4.5 identifies the means, standard deviations, and minimum and maximum attitude score for each of the four learning styles. Respondents with the Accommodating learning style had the most favorable attitude toward the use of technology ($M = 29$). Respondents with Assimilating learning style had, on average, the lowest attitude toward the use of technology ($M = 20.4$).

Table 4.5

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>f</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodating</td>
<td>42</td>
<td>29</td>
<td>10.5</td>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>Assimilating</td>
<td>34</td>
<td>20.4</td>
<td>21.3</td>
<td>-49</td>
<td>51</td>
</tr>
<tr>
<td>Converging</td>
<td>38</td>
<td>25.1</td>
<td>13.2</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Diverging</td>
<td>37</td>
<td>28.5</td>
<td>14.7</td>
<td>-5</td>
<td>53</td>
</tr>
</tbody>
</table>

The first hypothesis of my study was that there was a significant relationship between participants’ attitude score toward Spanish E-Instruction and learning style. An alpha level of .05 (standard for educational research) was used for all analyses. The test for homogeneity of variance was significant [$Levene (3, 147) = 4.34$, $p= 0.005$] indicating that this assumption underlying the application of ANOVA was not met. Thus, a Randomization Test for Difference of Means was conducted. The test revealed a statistically non-significant main effect [$F (3, 147) = 2.44$, $p = .063$] (Note: $p = .063$ is a simulated p-value based on 10,000 randomization samples). This indicated that the four groups (learning styles) did not differ significantly in their mean attitude toward technology (see Table 4.6). Therefore, since the p-value (0.063) is greater than alpha
(0.05), there is no significant evidence that at least one mean attitude score is different from the other mean attitude scores.

Table 4.6

*Analysis of Variance for Learning Style for Original Sample*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>1679.37</td>
<td>3</td>
<td>559.76</td>
<td>2.44</td>
</tr>
<tr>
<td>Within</td>
<td>33774.62</td>
<td>147</td>
<td>229.76</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35453.89</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The second hypothesis of the study, stating that the “digital immigrants” (middle and older adult learners) would have a lower attitude score toward using technology than “digital natives,” young adult learners, could not be sufficiently addressed -- the sample size was too low. Only six participants in the study were of non-young adult learner age. Two students were mid-adult learners (age 40-64) and four were older adult learners (age 65+). Their attitude scores were all positive, ranging from 15-38. In Chapter Five is a discussion of the possibility of different parameters and populations in further research so this hypothesis could be better examined.

**Summary**

This study had 151 participants, who were students enrolled in nine different Spanish classes in three different community colleges within the metro area of a large city in the Midwestern United States. The majority of participants were female (62%), Caucasian (72%), high school graduates (93%), undergraduate students (93%), in the age range of 18-29 (95%). The majority of participants also used between one and five software programs on a daily basis (88%), spending at least 11 hours a week online (88%).
The attitude toward technology scores ranged from -49 to 55 among all participants and the Accommodating learning style was the most common. All the mean attitude scores were positive, however, indicating that community college Spanish students should use technology because technology facilitates the achievement of course objectives. A Randomization Test for Difference of Means indicated a p-value (0.063) greater than the alpha (0.05). Therefore, hypothesis one was not supported because there was no significant evidence of at least one learning style mean that was different from the others. The second hypothesis could not be addressed because of the small number of mid and older adult learners among participants. In the following chapter, there is a discussion on the study implications and suggestions for future research.
CHAPTER V: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This chapter summarizes the study, reviews the methodology and limitations, and then presents major findings. The findings pertained to learning and attitude, Spanish classes, software, Internet usage, and technology and learning. Implications for action and recommendations for further research are provided. The chapter ends with a commentary on the importance of building relationships in the classroom to meet the technology needs of all students.

Summary of the Study

The two research questions for this study were: (a) What are students’ attitudes toward the use of technology in Spanish community college courses? and (b) Do attitudes toward the use of technology in Spanish community college courses differ for Kolb’s four categories of students’ learning styles? One hundred and fifty-one community college students of the Spanish language in three different institutions in the St. Louis metro area were surveyed using two instruments. The instruments were the Lukow Attitudes toward Using Technology Survey (ATUTS) and the Kolb Learning Style Inventory (LSI). A number of technology tools were suggested in improving the Spanish classroom of the participants’ classes. However, there were no significant difference of mean attitude scores by learning style according to a Randomization Test of Means analysis and a one-way Analysis of Variance.

There was a connection between the theoretical framework of the Andragogical Model with Concept-Oriented theory of Second Language Acquisition. The results of the study supported Concept-Oriented theory. Function to form, where communicative competencies take precedence over attention to exact grammatical accuracy, was evident
in the respondents’ desire for being able to speak the language and having real world application. A desire for so many students to use language learning apps like Mango or DuoLingo show they want to practice interpersonal communication without getting caught in the prescriptive grammatical rules.

**Review of the Methodology and Limitations**

There were some limitations with the study. The results were limited to participants’ self-reported technology attitudes and learning styles and only give a snapshot of how the participant is feeling at that given moment. The reliability of this data is contingent on how the participants were feeling at the time of taking the questionnaire. In terms of sample size, the sample pool was students in three community college institutions in one large metropolitan area in the Midwestern United States, which may have limited generalizability if this study were to be replicated in non-community college settings or area of the world. With survey research, there is the possibility of outliers in the data. For example, there may have been tech-savvy adults or youth that do not do well with technology in the study. Furthermore, I am a young, tech-savvy Spanish teacher who feels that attitude and learning style can be measured on paper-based questionnaires, but it is unclear if this would be a reliable method for all participants. Lastly, convenience sampling was used and the participants in the study were volunteers who do not necessarily represent the population of adult learners everywhere.

**Major Findings**

Five major findings emerged from the study. They centered around learning and attitude, Spanish classes, software, Internet usage, and technology and learning.
Learning and attitude. There was no significant difference of means between learning style and attitude score, according to the Randomization of Means test that was presented in Chapter IV. The conditions for a one-way Analysis of Variance were not met because the data failed Levene’s test for homogeneity. However, when run, the ANOVA did yield a p-value of .06, which was greater than the .05 alpha used in standard educational research. Perhaps the Levene test failed due to the number of outliers in the data. For instance, the range in attitude scores for the Assimilating learning style ranged from -49 to 51. In fact, there was a wide range in attitude scores for all learning styles: Divergent (-5 to 53), Converging (0 to 50), and Accommodating (2 to 55). Cox (2008) did not report this phenomenon in his study. If the outliers were eliminated, perhaps the Randomization of Means test would have had different results.

The ANOVA and subsequent Randomization Means test showed no significant evidence that at least one mean attitude score is different from the other mean attitude scores. These non-significant results supported Lukow’s (2002) contention that no matter how students prefer to learn, they may have been previously exposed to sufficient levels of technology, and possibly developed their attitude toward technology well before they entered the Spanish community college classroom.

Another possible explanation for the non-significant results comes from Cox (2008). He indicated that the courses in his study (Higher and Adult Education programs) may have attracted students who are already similar in their attitudes toward technology, and their learning style. This could have happened to the community college Spanish students in the current study.
The most popular learning style reported from the LSI was the Accommodating learning style \( (f = 42) \). The Accommodators also reported the highest mean attitude score (29) from the ATUTS. The fact that the Accommodating learning style was the most prevalent meant that these participants prefer hands-on experience, taking risks, working with others, and implementing their new learning quickly. Cox (2004), in his study with adult students in higher education, has found that Assimilating learning style to be most prevalent in adult learners, who are ones that like to think in abstract concepts and thoughts. The Assimilating learning style was the least popular in my study \( (f = 34) \) had also had the lowest mean on the ATUTS (20.4). Perhaps this means that language learners prefer to use their new information quickly and readily, instead of thinking of language in abstract concepts. The technology attitude score of the participants who reported a Diverging learning style (28.5) was very close to those who reported an Accommodating learning style (29). One explanation of this similarity is both these learning styles are people-oriented -- diverging learners tend to be interested in people and see situations from many perspectives, while accommodating learners are also at ease with people and rely on them for information (Kolb, 1984).

**Spanish classes.** While some of the students I surveyed were in second-semester Spanish classes or higher, the far majority reported that they had taken Spanish in middle or high school as well. This may indicate that the students either were not successful the first time around or did not retain their Spanish. This finding supports Caplan’s (2018) notion that language retention is so poor in the United States after high school.

Among the participants, 88% had previously studied a foreign language. Many participants reported studying Spanish in middle or high school. In fact, one of the
researcher’s former students was a participant in the study, taking a Spanish 102 course. The re-enrollment in Spanish class could be due to a variety of reasons. One possible explanation is that students are trying to fulfill the transfer requirement of two semesters of a foreign language by taking the language that they had studied in high school, whether or not they were successful at it.

The bulk of adults who were taking the Spanish course were young adults. In fact, in the study’s sample of 151 participants, only six were aged 30 or older. This could have been because of a number of factors including a requirement for undergraduates to attain an elementary proficiency in a foreign language for a Bachelor of Science degree and an intermediate proficiency in a foreign language for a Bachelor of Arts degree. Another requirement could be that transfer to a four-year institution required at least two semesters of a foreign language at a community college.

While there were few older adults enrolled in Spanish courses for this study, older adults are quite capable of learning a new language. In an interview with the radio station WBUR (2018), Marty Abbott of the American Council for Teaching for Foreign Languages affirms:

You're never too old to start learning a language. We have a number of senior citizens interested in learning a language, because we know from the research that it wards off the degeneration of the brain, some of the Alzheimer's diseases. So we have a number of senior citizens eager to learn languages for that reason. But we also know that no matter when you start, you can be a successful language learner. What happens with the younger children is that they still have the ability to be sound like a native speaker in another language. ... It's definitely a matter of
time on task, so the earlier you start and the longer you stay with that language, 
the more proficient you become. (para. 7).

**Software.** Eighty-three percent of participants reported using 1-5 software 
programs daily. Since most of the participants were young adults, this supports Prensky’s 
(2001) idea that young adults are “digital natives.” We do not know, however, if this 
usage of software programs is for educational purposes or not. This indicates that 
students are using various types of technology on a daily basis, and Spanish teachers 
should be aware of this fact and should try to introduce applications and programs to help 
the technology-savvy student.

**Internet usage.** The findings show that most of the participants in the study were 
young adult learners and most used 1-5 software programs a week and most used the 
Internet 11 hours or more a week. The majority (86%) of participants reported using the 
Internet 11 hours a week or more. Prensky (2001) discussed that young adult learners are 
“digital natives” while middle and older adult learners could be considered “digital 
immigrants.” It seems that more young adult learners are digital natives and like to use 
their technology more of the time. We do not know if this high usage of Internet is for 
educational purposes or not, but teachers should incorporate an online instruction if their 
students spend so much time there.

**Technology and learning.** For the question “What technology would make 
learning Spanish more engaging or fun?” the most popular answers were to use the apps 
Kahoot and Quizlet. Kahoot, a cell phone multiple choice review game website is a 
popular pedagogical tool among high school classrooms. Quizlet, a flashcard website, is a 
favorite among high school classrooms and thus, community college classes as well. If
instructors are not currently using these tools, they should consider using them, since students report enjoying using them. I did not expect the survey result of 88% of participants being online 11 hours or more per week. The findings suggest that community college teachers should incorporate technology in language learning because their students are utilizing it all the time.

In terms of the Andragogical model, it seems that students who take foreign language would benefit from practice of real world speaking scenarios. There are many technological programs that can assist with that, such as the chatbots on the application called Duolingo. These chatbots can simulate conversation based on scenarios. For example, one could choose to simulate a conversation with a chatbot that is a waiter and you could practice ordering food at a restaurant. These chatbots help learners practice the vocabulary and grammar structures they have learned from a unit of study.

Implications for Action

Technology should be utilized in the Spanish classroom. The majority of students at any age appreciated technology when it reinforces vocabulary, grammar, and culture of a foreign language. The majority of participants were young adults and reported programs and apps like Quizlet and Kahoot helped facilitate course objectives. This aligns with Linda Egnatz’s (personal communication, October 25, 2018) beliefs about Generation Z and their inclination to learn through engaging technology and “swipe” if their attention is not held within eight seconds.

Technology can be viewed from two perspectives: (a) as a source of teaching resources, and (b) as a source of enhancing learning experiences (Smith & Conti, 2016). In terms of my own teaching of high school Spanish, I can attest that teaching is
enhanced greatly by technology. From a motivational standpoint, my students love using the website games of Kahoot, Quizlet Live and Conjuguemos to practice vocabulary and verb conjugations. I use YouTube videos to show what life is like in other countries since my students have not yet had the opportunities to travel. My students engage regularly in SMARTboard activities where they have to click and drag vocabulary words onto a picture.

In my experience, technology positively affects student learning, increases knowledge retention, and makes learning more fun. Though most of my students have never been to Europe, they are able to utilize Google Earth to explore through virtual reality the streets of Las Ramblas in Barcelona. Through Google Classroom, I am able to assign essays to my students, which they write using their mobile devices. This is key to those students who only have a cell phone and do not have access to a computer at home. Finally, through the Vocaroo website and QR codes, my students can dictate a speech into the computer, print out a QR code, and paste it onto a poster. I am then able to use my I-phone to scan the QR code and listen to my Spanish 4 students describe their ideal invention, or listen to my Spanish 1 student talk about his pet cat. The surprise and positivity that my students display when they scan their paper and hear their classmates’ voices are unmatched. None of these techniques are going to be found in a traditional textbook instructional delivery.

Students are on the Internet and using the Internet for long periods. According to the study data, 14.8% of participants were using the Internet 41 hours or more a week; more than half of the participants were using the Internet 20 hours a week or more. Instructors of Spanish need to accommodate learners through online learning
management modules and gamification (using game-design elements into education) websites to notice gains in learning.

On a personal note, as a high school teacher I knew my students were spending more and more time on the Internet than when I first started teaching in 2006. However, I could not have predicted that 14.8% of this sample of community college students were using the Internet 41 hours or more a week. While I will not change the course objectives for the classes I teach, I plan to incorporate more technologies into my pedagogy, take risks, and step outside my comfort zone.

**Recommendations for Further Research**

For further research, the most updated Kolb Learning Style, or the LSI 4.0 could be used instead. The 1984 version was utilized in this study to attempt to replicate the studies by Lukow (2002) and Cox (2004). The 2013 version does report to have higher test-retest reliability and similar internal reliability than the LSI from 1984 (Kolb & Kolb, 2013). The LSI 4.0 includes a personal assessment of the degree to which a person changes their style in different learning contexts. It also expands the amount of learning styles that the participant can have: Initiating, Experiencing, Imagining, Reflecting, Analyzing, Thinking, Deciding, Acting and Balancing. Finally, the updated LSI has a planning guide for learning and tips for application in work and personal life. Perhaps if used among the same population, a different learning style(s) would result, and this could affect the difference of means test between learning style and attitude score.

Another suggestion is to conduct the study with another group of community college students within a different metropolitan area. The results could be different if the study was conducted on the east or west coast, for example. In addition, conducting the
research in another area may produce more participants of a mid or older adult age. A more reliable investigation of the comparison between attitude scores between young and older adult learners would ensue.

Another variable that could be investigated further is language. While Spanish is the leading foreign language offered at American universities, French, ASL, German and Italian, which are the next most popular languages, could hold different results (MLA, 2015). The demographic of students taking those languages could also be different, thus producing different results.

Since this study focused on community college students, perhaps it could be conducted with students at 4-year institutions, similar to where Lukow (2002) and Cox (2008) did their studies. This research on a larger scale, at large universities, could produce different results. This study also surveyed elementary and intermediate Spanish students. At 4-year institutions, students can take classes beyond the elementary and intermediate level. The results could be different for upper-level students.

Finally, this study could be done with faculty instead of students. It would be interesting to see how language instructors perceive technology and what the instructors’ learning styles are. These data could be compared with the instructors’ students. If the instructors of the course reported a positive attitude score toward using technology, then perhaps the students would also report positive attitude scores. Alternatively, instructors who report negative scores toward using technology may also have students who report negative attitude scores toward using technology.
Conclusion

So often in education, we hear that successful relationships are the foundation to learning. I think of educator Dianne Azzarelli (personal communication, June 15, 2015) and her adage, “Significant learning comes from significant relationships.” Comer (1995) said, “Relationships are the foundation of all learning.” In the Spanish community college classroom, this is no different. From my visits to classrooms for this study, I noted which teachers knew their students the best, just from banter before class and how students interacted with the teacher and with each other. Whether or not a teacher needs to give the ATUTS or LSI is debatable; however, teachers need to know their students for the best teaching and learning to occur. As technology continues to proliferate, it is important for educators to note whether technology helps or hinders their students. I am confident that knowing how students feel about technology will help teachers better reach their students, and thus, better teach.

Summary

This chapter discussed the summary of the study, its major findings, implications for action, and suggestions for further research. The major findings included a non-statistically significant relationship between technology attitudes and learning style and a penchant for technology among young adult learners. Implications for action included the recommendation that Spanish instructors use or continue to use technology in their classes. For further research, the most updated Kolb LSI could be utilized, another language could be studied, or faculty members rather than students could be participants. Furthermore, surveys could be given to participants in a different geographical location or those who attend 4-year institutions instead of community colleges. As modern
technology continues to grow, educators must note the role technology plays in helping or hindering their students. Educators must also know how students feel about technology, perhaps through building positive relationships with students.
REFERENCES


Comer, J. (1995). Lecture given at Education Service Center, Region IV. Houston, TX.


ATTITUDES AND LEARNING STYLES OF ADULT LEARNERS


Appendix A

Message to Recruit Participants

Hello,

My name is Brian Santos and I’m a doctoral student in the College of Education at the University of Missouri-St. Louis. As part of my doctoral dissertation, I am surveying adult learners of their attitudes toward Spanish E-Instruction (the use of computers and other multi-media in a Spanish class) and their learning styles. The purpose of this study is to identify aspects of Spanish E-Instruction that help adult learners.

Would you please take 10-15 minutes to participate in my survey? This survey asks about your experiences with E-Learning in Spanish courses. Results of this study will help improve the quality of E-Learning courses for adult learners.

You are eligible to take this survey if you have taken a Spanish course that utilized technology as a method of instruction. Please do not hesitate to contact me via e-mail at bjszyb@umsl.edu should you have any questions about this survey.

Thanks in advance for your participation!

Best regards,

Brian J. Santos
University of Missouri – St. Louis
Appendix B

Approval for Use and Modification of the Attitudes toward Using Technology Survey

From: Lukow, Jennifer <jlukow@highpoint.edu>
Sent: Thursday, April 11, 2019 12:05 PM
To: SANTOS, BRIAN <bjszyb@mail.umsl.edu>
Subject: RE: Permission to use ATUTS survey

Brian,
Good afternoon! Of course – please feel free to modify it to fit the needs of your dissertation. I’d love to hear about the results when you’re finished.

Good luck!

Dr. Jenny Lukow | Chair, Event & Sport Management Department
Associate Professor, Sport Management
One University Parkway, High Point, NC 27268
Office: 336-841-9184 | Nido R. Qubein School of Communication

Choose to be extraordinary!

From: SANTOS, BRIAN
Sent: Thursday, April 11, 2019 1:00 PM
To: Lukow, Jennifer
Subject: Permission to use ATUTS survey

Hi Dr. Lukow,

My name is Brian Santos and I’m a doctoral student at the University of Missouri – St. Louis. I am researching studies on attitudes toward using technology and your instrument from 2002 came up. I believe you called this instrument the ATUTS (Attitudes toward Using Technology Survey).

I was wondering if I could have permission to 1) modify your instrument to reflect current educational technology in the foreign language classroom and 2) use this instrument in my dissertation study.

Please let me know! Thank you!
Brian
Appendix C

Approval for Use of the Kolb Learning Style Inventory

From: Business_Office <Business_Office@kornferry.com>
Sent: Wednesday, April 24, 2019 2:37 PM
To: Santos, Brian
Subject: RE: EBLS: Question from website

Hello Brian,

Congratulations! Your LSI research has been approved! Attached you will find the following documents:
- MCB200C - This is a copy of the LSI 3.1 test. You may print of copy this as needed for your research.
- MCB200D - The profile sheet contains the answer key for the test as well as the profiling graphs for plotting scores. This document may be produced as necessary for your research. The AC-CE score on the Learning Style Type Grid is obtained by subtracting the CE score from the AC score. Similarly, the AE-RO score is AE minus RO.

These files are for your data collection only. This permission does not extend to include a copy of the files in your research paper. It should be sufficient to source it.

We wish you luck with your research and look forward to hearing about your findings. Please send a completed copy of your research to business_office@kornferry.com

Please let me know if you have any questions.

Thanks,

Amy E. Keegan
Senior Manager Client Services
Korn Ferry
33 South Sixth Street
Suite 4900
Minneapolis MN 55402
USA
Appendix D

*Conditional Use Agreement for the Kolb Learning Style Inventory*

**CONDITIONAL USE AGREEMENT**

For good and valuable consideration, the receipt and legal sufficiency of which are hereby acknowledged, I hereby agree that the permission granted to me by the Korn Ferry Hay Group, Inc. ("KFHG") to receive and utilize the Learning Style Inventory ("LSI") is subject to the following conditions, all of which I hereby accept and acknowledge:

1. I will utilize the LSI for research purposes only and not for commercial gain.

2. I will pay to KFHG a fee per use of $3 for LSI3.1 online or $5 for LSI4 online. KFHG will invoice monthly, and I agree to pay such invoices within thirty (30) days of the date of invoice. **Paper-based assessments used for research purposes only are provided free of charge.**

3. The LSI, and all derivatives thereof, is and shall remain the exclusive property of KFHG; KFHG shall own all right, title and interest, including, without limitation, the copyright, in and to the LSI.

4. I will not modify or create works derivative of the LSI or permit others to do so. Furthermore, I understand that I am not permitted to reproduce the LSI for inclusion in my thesis/research publication.

5. I will provide KFHG with a copy of any research findings arising out of my use of the LSI and will cite KFHG in any of my publications relating thereto.

6. To translate the LSI, I need specific permission from KFHG. If permission is granted, I will use the translation for my research only, and I am not permitted to include this translation in my thesis/research publication.

7. KFHG will have no obligation to provide me with any scoring services for my use of the LSI other than the Algorithm used to score results.

8. KFHG will not be deemed to have made any representation or warranty, express or implied, in connection with the LSI, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

9. My rights under this Agreement are non-transferable and non-exclusive and will be limited to a period of two (2) years from the date of this Agreement.

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10. KFHG may immediately terminate this Agreement by giving written notice to me in the event I breach any of this Agreement’s terms or conditions.

11. This Agreement will be construed in accordance with the laws of Pennsylvania without recourse to its conflict of laws principles.

12. This Agreement may not be assigned by me without the prior written consent of KFHG.

13. Failure by KFHG to enforce any provisions of this Agreement will not be deemed a waiver of such provision, or any subsequent violation of the Agreement by me.

14. This is the entire agreement with KFHG pertaining to my receipt and use of the LSI, and only a written amendment signed by an authorized representative of KFHG can modify this Agreement.

Agreed and understood:

[Signature]

[Print Name]

[Date]

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Appendix E

Study Information Sheet

University of Missouri – St. Louis
Study Information Sheet
THE ATTITUDES AND LEARNING STYLES OF ADULT LEARNERS TO E-INSTRUCTION OF THE SPANISH LANGUAGE

You are invited to participate in a research study. The purpose of this study is to identify the attitudes and learning styles of adult learners to E-Instruction of the Spanish language.

INFORMATION
You’ll be asked to complete two surveys: 1) one on your attitudes toward educational technology and 2) one that discerns your style of learning. Each survey takes about five minutes to complete.

BENEFITS
The results of the study will help educators and instructional designers understand adult learner attitudes in a Spanish classroom context and to improve the quality of Spanish e-instruction.

CONFIDENTIALITY
Your responses will be kept confidential. No reference will be made in oral or written reports which could link you to the study. The survey data will be kept electronically and the databases will be destroyed by May 31, 2019.

CONTACT
If you have questions about the study or the procedure, you may contact the researcher, Brian Santos, through e-mail at bjszyb@umsl.edu or via telephone at (636) 851-4996, or his faculty advisor, Dr. Paulette Isaac-Savage at EPIsaac@umsl.edu.

If you feel that you have not been treated according to the descriptions in this form, or your rights as a participant have not been honored during the course of this project, you may contact the University of Missouri-St. Louis College of Education Institutional Review Board, One University Blvd, St. Louis, MO, 63121.

PARTICIPATION
Your participation in this study is voluntary; you may refuse to participate without penalty. If you decide not to participate, you may withdraw from the study at any time without penalty.
Appendix F

Demographic Questionnaire

1) Please indicate your gender. ___ Male ___ Female

2) Please indicate your age by selecting one of these age groups.
   ___ 17 or younger   ___ 40-49
   ___ 18-29          ___ 50-64
   ___ 30-39          ___ 65+

3) Please indicate your primary ethnic background.
   ___ Caucasian/White ___ Asian/Pacific Islander
   ___ African-American/Black ___ Native-American
   ___ Latino ___ Other

4) Please indicate your highest degree of education completed.
   ___ High school
   ___ Associate degree or equivalent
   ___ Bachelor’s degree or equivalent
   ___ Master’s degree or equivalent
   ___ Doctoral degree or equivalent

5) What is your status?
   ___ Student - Undergraduate
   ___ Student - Graduate
   ___ Working Professional
   ___ Other

6) How many hours per week do you use the Internet?
   ___ 1-10 hours        ___ 31-40 hours
   ___ 11-20 hours       ___ 41 hours or more
   ___ 21-30 hours

7) How many software programs (e.g. word processors, Web browsers) do you use on a daily basis?
   ___ None
   ___ 1-2
   ___ 3-5
   ___ 6-9
   ___ 10 or more
8) Which one of the following best describes your motivation for taking this Spanish course?
   ___ Personal enjoyment
   ___ To enhance my job skills
   ___ To receive a certificate/degree
   ___ To complete mandatory training for work
   ___ Other: ________________

9) On a scale of 1-4, what do you consider as your expertise toward technology in general?
   Low expertise 1 2 3 4 High expertise

10) What is your primary language? _______________________

11) Have you studied Spanish before taking this course?
    ___ Yes
    ___ No

11b) If so, for how many years and in what setting?
    __________________________________________________________________________

12) Are you a native Spanish speaker?
    ___ Yes ___ No

13) What level of Spanish class are you taking right now?
    ___ Beginning
    ___ Intermediate
    ___ Advanced

14) Do you speak any other languages other than English or Spanish? If so, what?
    __________________________________________________________________________
Appendix G

*Attitudes toward the Use of Technology Survey*

Below are statements that identify your attitude toward technology and how it influences your achievement of the objectives of a course. For each statement, circle only one response that best reflects your attitude toward the specified technology. Be sure to only consider the Spanish courses offered at your current learning institution as the basis for your responses. If you have never seen the specified technology used, place a check mark in the “Not Applicable” checkbox; for all other responses, use the following scale to guide you:

<table>
<thead>
<tr>
<th>Generally distracts me from achieving the objectives of the course.</th>
<th>Generally facilitates my achievement of the objectives of the course.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
</tr>
<tr>
<td>Undecided</td>
<td>Undecided</td>
</tr>
</tbody>
</table>

*Circle the number of your response.*

<table>
<thead>
<tr>
<th>1. E-mail</th>
<th>-5 -4 -3 -2 -1 0 1 2 3 4 5</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Language learning games</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>3. Class discussion forums</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>4. Online quizzes</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>5. Online dictionaries/translators</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>6. Course website</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>7. Internet sites used by professor in lecture</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>8. Language learning websites</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>9. Multimedia (e.g. PowerPoint or Google slide presentations)</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>10. Music</td>
<td>-5 -4 -3 -2 -1 0 1 2 3 4 5</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
11. Language applications/programs
-5 -4 -3 -2 -1 0 1 2 3 4 5 Not Applicable

12. Movies and instructional videos
-5 -4 -3 -2 -1 0 1 2 3 4 5 Not Applicable

Open-ended question:
13. What would make Spanish instruction with technology more interesting and engaging for you?
Appendix H

Approval for human research from the Institutional Review Board

Office of Research Administration

One University Boulevard
St. Louis, Missouri 63121-4499
Telephone: 314-516-5899
Fax: 314-516-6759
E-mail: ora@umsl.edu

DATE: October 31, 2018
TO: Brian Santos
FROM: University of Missouri-St. Louis IRB
PROJECT TITLE: [1327563-1] The Attitudes and Learning Styles of Adult Learners to E-Instruction of the Spanish Language
REFERENCE #: 
SUBMISSION TYPE: New Project
ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: October 31, 2018
REVIEW CATEGORY: Exemption category # 2

The chairperson of the University of Missouri-St. Louis IRB has APPROVED the above mentioned protocol for research involving human subjects and determined that the project qualifies for exemption from full committee review under Title 45 Code of Federal Regulations Part 46.101b. The time period for this approval expires one year from the date listed above. You must notify the University of Missouri-St. Louis IRB in advance of any proposed major changes in your approved protocol, e.g., addition of research sites or research instruments.

You must file an annual report with the committee. This report must indicate the starting date of the project and the number of subjects to date from start of project, or since last annual report, whichever is more recent.

Any consent or assent forms must be signed in duplicate and a copy provided to the subject. The principal investigator must retain the other copy of the signed consent form for at least three years following the completion of the research activity and they must be available for inspection if there is an official review of the UM-St. Louis human subjects research proceedings by the U.S. Department of Health and Human Services Office for Protection from Research Risks.

This action is officially recorded in the minutes of the committee.

If you have any questions, please contact Carl Bassi at 314-516-6029 or bassi@umsl.edu. Please include your project title and reference number in all correspondence with this committee.