The Use of Technology to Enhance The Learning Experience of ESL Students.

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Abstract

The growing numbers of ELLs (English language learners) makes the search for new effective and efficient instructional methods a priority. While several teaching methods and tools are used to help ELLs succeed in becoming proficient English speakers, technology has gained substantial attention due to the abundance of new technology tools, which are helping us, achieve more in less time and also due to our increasingly connected world. Tablets and apps are changing the nature of English language instruction. The purpose of this study is to investigate how technology tools helped ELLs become more proficient in English. Studies reviews and summaries of research published on the topic of technology tools and English language acquisition, specially focusing on the efficiency and effectiveness of technology tools in helping ELLs acquire English language will be scrutinized. Theories of second language acquisition will be used to better understand how Krashen's (1982) comprehensive input theory delivered using new technology provides learners with comprehensible materials leading to acquiring faster the language. Overall, from the current review of literature, I conclude that technology is an effective and efficient tool in helping ELLs become proficient in English. While there are several benefits, of using technology to enhance ELLs learning skills, quantitative data from various studies shows that factors such as costs and trainings are of great importance in assessing how efficient technology tools are. Thus, I will also explore relevant challenges to using technology for English language instruction.

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Chapter One

The problem

In our increasingly diversified and interconnected world, the English language has become the leading communication vehicle (Tsedal, 2012), allowing people from different parts of the world to conduct business without having to use multiple languages and therefore avoiding the complex and bureaucratic process of multiple language translation. In addition to the necessity of conducting business in a single language, immigration on a local level also contributes to the need to rethink the way the English language is taught to speakers of other languages. In the United States, the shift in demography due to immigration and population growth makes finding efficient ways of teaching English to English language learners (ELLs) a high priority. For example, according to Echevarría, Vogt, and Short (2013), the years 1998-99 to 2008-09 saw an increase of 51% in the ELLs population in the pre-k-12 enrollment nationwide.

While there are different ways of helping ELLs become proficient in English, technology is of critical importance in this area because of the growing interest both from the public and schools institutions across the country and because of the possibilities it offers compared to traditional teaching method implemented for years in classrooms (Gottlieb, 2006). We are living in a world of advanced technology and most learners are exposed to these new technologies at a young age. The use of technologies will not only allow learners to quickly master new language skills through exposure to a variety of new technologies, but also, the excitement that comes with these new medium can motivate learners for an extended period of time. While technology, when properly applied can be engaging and produce fast learning results, as outlined in the study conducted by Xiao and Jones(1995), one must

realize that new technology tools are not as perfect as they are portrayed to be . Winkle and Goertler (2008) study point to limits of technology tools such as ownership and accessibility, students' level of ability to perform computer-based tasks, and finally students' personal and academic use of multimedia tools. Analyzing these shortcomings will inform this study.

The purpose of this study is to discover how technology can help ELLs become more fluent in English. The terms ELLs (English language learners) and ESL (English as a second language) will be used alternatively to designate the same population. Although I will use these terms interchangeably, some authors distinguish between them. For example, Echevarría, Vogt, and Short (2013) referred to ELLs as children and adults who are learning English as a second language and vice versa, while they define ESL as a program to teach students English as a second language.

This study will review research on traditional methods of teaching ELLs, then compare and contrast these methods to new technology tools used to teach English to ELLs. Data collection will primarily focus on documents analysis obtained using ERIC and EBSCOHOST database (McMillan, 2012). Key terms such as computer, mobile device, ESL and learning skills, instructional technology and technology enhanced learning will be helpful in yielding valuable data. Using research data, this study will focus on how language acquisition theories when properly applied through differentiated learning and enriching technology based environment, will help ELLs attain success.

Among the existing theoretical framework, Krashen's (1982) language acquisition theory studied extensively the correlation between comprehensive input and language acquisition of ELLs. The input Hypothesis outlined by Krashen (1982) specified that language is acquired only when students receive input that is slightly above their current knowledge

level. He also emphasizes that comprehensive input occurs only when the learner affective filter, defined as the impact of learner's affective sentiments such as anxiety and boredom on their learning ability, is low. Typically, the higher your affective filter the less you are willing to learn. In order for ELL learners to be proficient in the target language, the language acquisition process should not only emphasize comprehensive input, but the input should also be rich: "the presentation of this input, moreover, should be done in a way that does not put the acquirer 'on *the defensive',*" (Krashen, 1982, p 125). By referring to a learner, being on the "defensive," Krashen's theory explains how a high affective filter can block comprehensive input from reaching the brains and therefore hindering the language acquisition process. His theory emphasizes the importance of negative emotions, passive moods, low motivation, low self-esteem and anxiety in preventive learning to occur. Krashen (1982) research has lead to subsequent studies on the need to create a motivating learning environment. Using technology tools as a way of enhancing ELLs language acquisition by providing a rich and comprehensive input will be relevant in motivating ELLs. Research by Echevarría, Vogt and Short (2013) on Sheltered Instruction Observation Protocol (SIOP) widely implemented by school districts throughout all 50 States and in dozens of countries worldwide, provides a continuum of Krashen (1982)'s comprehensive input theory. SIOP is based on differentiated instruction methods and scaffolding. According to Echevarría, Vogt and Short (2013), scaffolding methods such as independent practice, comprehensive input and modeling are key to motivating students to attain success. The use of creative computer-based technology tools such as assistive technology to motivate learners with severe reading disabilities to overcome their disabilities is an example of technology tools used as comprehensive input method. Technology tools such as Skype will help bridge the cultural

gap that exists among learners from different background by linking classrooms across the globe. By doing, so we are achieving not only a social function but we are also maintaining a positive learning environment that emphases cultural diversity: “we can transform any curriculum to confront racism, sexism, classism, ethnocentrism, disability, or xenophobia.” (Clayton, 2003, p 179). Research on character education championed by Lickona (1991) offers an interesting perspective in educating students and teachers in key moral values in a learning environment that fosters teamwork as does online learning communities by uniting students and teachers from different background who work together to achieve projects that benefit their communities.

The purpose of this study is to find out how technology can be used to help ELLs become more proficient in English. With the growing number of language programs relying heavily on technology tools to make language learning more comprehensible to a wide range of learners (Winkle & Goertler, 2008) and using a theoretical approach that emphasizes comprehensive and rich input, this study will demonstrate that technology tools are a great asset in helping ELLs achieve success in learning English.

Chapter Two

Development of the issue in published literature

Understanding and improving the language acquisition process of English language learners requires a background knowledge on how second language acquisition works. An analysis of language acquisition theories will refer us back to the developmental learning stages extensively studied by Vygotsky (1931) and Piaget (1962). These developmental theories provide us with a better picture of learning and the language acquisition process.

Both Piaget (1926) and Vygotsky (1978) emphasized the role of the social context in the knowledge construction process. This process, also known as constructivism, emphasizes the importance of peer interaction in cognitive development. In Piaget's perception, cognitive structures evolve by resolving cognitive conflict generated during peer interaction. Online peer learning, part of the new technology tools focusing on online community fits in Piaget's constructivist theory. Also as stated by Echevarría, Vogt, and Short (2013), a learners' ability to interact with their immediate environment (including the use of technology), as advocated by Piaget and Vygotsky, will lead to better learning abilities.

While constructivism emphasizes peer interaction as a way of achieving cognitive development, theories of second language acquisition developed by Krashen (1982) and differentiated instruction embedded in Echevarría, Vogt, and Short's (2013) SIOP (Sheltered Instruction Observation Protocol) model, emphasizes a different type of social interaction in acquiring second language. Both Krashen (1982) and Echevarría, Vogt, and Short (2013) stress the importance of using differentiated instruction including but not limited to technology to improve ELLs' motivation and increase their achievement rate. Krashen's

(1982) theory revolves around the idea that in order for a learner to acquire a language, he should be exposed to rich and comprehensive input, and the input has to take place in a low filter environment. Krashen (1982) defines the low filter environment as affective factors such as anxiety and boredom that prevent a learner from acquiring the language.

The theoretical framework of SLA (second language acquisition), which is centered on successful methods allowing the acquisition and mastering of a second language, provides insight on how to successfully acquire a language. For the purpose of this study, learners' internal motivation and interest for new learning tools will be examined in light of traditional teaching practices (those that do not integrate digital technology) and existing teaching practices. This area of research answers questions such as: "What motivates students to be successful in learning English?" and "Are technology tools parts of the rich learning environment?"

As Rodriguez and Bellanca (2007) stated: "Piaget introduced the concept that the teacher's major role is the creation of a rich learning environment appropriate to the student's cognitive development." (p. 17). In line with that statement and in the same process of investigating elements that allow learners to be successful in acquiring a second language, analyzing the importance of teaching methods is essential. Furthermore, analyzing second language acquisition theories developed by Krashen (1982) will shed light on factors influencing second language learners in their language acquisition journey.

Krashen (1982) touches on the importance of a motivating learning environment as a way of increasing English language learners acquisition rate. To be motivated, learners should be in an environment conducive to learning. Krashen (1982) provides us with the logic behind this requirement. He makes a distinction between acquisition and learning as these two

concepts have different meaning. While acquisition is a subconscious process by which we are exposed to language input and then intuitively pick up its patterns, learning is more of a conscious process by which we are taught grammar, rules and meta-information of the language. We are therefore expected to understand language in logical sequences (Freeman & Freeman, 2011). Krashen further states that most of our language development comes from acquisition (Freeman & Freeman, 2011). He also states that: "Some second language theorists have assumed that children acquire, while adults can only learn." (Krashen, 1982, p 10). Another element of Krashen's (1982) second language acquisition theory focuses on internal motivation such as emotions as compared to an externally motivating environment such as instructional methods that reinforce learning. Krashen's (1982) affective filter hypothesis emphasizes the importance of the student's emotional condition. According to him, second language acquisition (SLA) success hinges on a learner's passion. He further argues that the affective side of the learner will influence positively or negatively the learner performance. If the learner is not in an environment that motivates him to learn and provides him with a comprehensive input and a low filter environment then most likely he will be in a pessimistic mood and will not learn (Krashen, 1982). Comprehensive input and low filter environment are key to language acquisition since they require that not only the language has to be comprehensible to the learner, but also the comprehensive input has to take place in a low filter environment (free of anxiety and boredom) . Using technology tools to motivate students and encourage their involvement in the learning process will be a way to gauge the applicability of Krashen's (1982) theory.

In the same trend, I will analyze the scaffolding methods outlined by Echevarría, Vogt, and Short (2013). This method emphasizes independent practice, comprehensive input and

modeling as a way of motivating students to attain success. Scaffolding first mentioned by Jerome Bruner (1983) and cited by Echevarría, Vogt and Short (2013) is a term that is associated with Vygotsky's theory of the "Zone of proximal Development", this theory is summarized by Echevarría, Vogt and Short (2013) as: "the difference between what a child can accomplish alone and what he or she can accomplish with the assistance of a more experienced individual. The assistance that is provided by a teacher is called scaffolding." (p120). The idea is for teachers to: "to scaffold English learners by providing many opportunities for them to use a variety of learning strategies that have been found to be especially effective." (Echevarría, Vogt & Short, 2013, p 120). Scaffolding in teaching by providing learners an opportunity to experiment a variety of learning strategies is key to ELLs learning process, as it affords them with methods that make language contents more comprehensible to them. Scaffolding strategies in the case of an ELLs will include innovative technology tools to help him develop self-esteem and confident. The historical approach shows a consistent need for a rich and motivating learning environment as a prerequisite- for a learner to be successful. Technology tools in the learning environment are not new, as stated by Winkle and Goertler (2008): "over the past 25 years, technology and language learning has become established in theory, practice, and research. Many language programs now use technology as an integral part of their language curricula." (p 482). The use of technology to advance ELLs is even more urgent now in our technological advanced world, however the topic of ELLs using technology is vast and therefore limiting the scope of this study is a necessary step towards clarity.

To properly assess the efficiency of technology in enhancing ELLs learning, this study using an inductive data analysis method, which is defined as: "generalizations induced from

synthesizing gathered information." (McMillan, 2012, p 274) looked into different case studies and interviews conducted by different researchers. The results of most of the study were consistent with the data collected, therefore demonstrating reliability. Also this study did not focus on the historical development of the use of technology by ELLs which started on the late 1960s when the term CALL acronyms of computer-assisted language learning,(Jarvis,2004) first emerged, but rather on recent technology tools such as iPad, smart phones etc…

Chapter Three

Literature review

Globalization has increased the demand for multilingual speakers, as our world is becoming increasingly more connected. The speed and evolutions of technologies, together with the convenience and comfort they provide are resulting in the use of digital technologies in new ways. Given the increased need for multilingual speakers and recent innovations in instructional technology, the focus of this study is to assess the positive impact of technology tools in improving the learning skills of English Language Learners (ELLs). Second language acquisition theories as they pertain to the use of technology tools will be the driving vehicle allowing an in-depth exploration of how technology increases ELLs learning skills.

ELLs in the U.S faces multiple challenges when it comes to their reading, writing and oral proficiency skills. Their limited proficiency in English often leads to poor academic achievement (Freeman & Freeman, 2011) and decreases their chance of success at school (Echevarría, Vogt, & Short, 2013) Some English learners' native language phonology greatly differs from English language (Echevarría, Vogt, & Short 2013). For ELLs to be successful in their studies, they will need high quality literacy instruction that will emphasize key components of reading and oral proficiency (Echevarría, Vogt, & Short, 2013). One tool that will help struggling ELLs is technology-based differentiated instruction, defined as scaffolding strategies that include but are not limited to digital tools that provides exciting, hands-on and innovative comprehensive input. Comprehensive input is understood in this

context as making instruction comprehensible to the learner (Echevarría, Vogt & Short 2013). Krashen (1982) outlines the way innovative comprehensive input affects second language acquisition in his theory of second language acquisition. According to him, language input, which is the source of all second language acquisition has to be comprehensible and has to take place in a low affective filter environment for learning to take place (Krashen, 1982). A low affective filter environment is characterized as an environment in which affective factors, such as boredom and anxiety that prevent language acquisition from occurring are reduced or not present. Technology-based teaching strategies offer comprehensive input in a low affective filter and stress-free environment. Most users are therefore excited when offered to learn using technology tools, and this excitement motivates them to learn.

Differentiated instruction emphasizing use of technology improves ELLs' participation in class (Echevarría, Vogt, & Short, 2013) and by doing so, allows students to own the learning process. Another positive aspect of technology-based education as it pertains to ELLs is the use of technology to teach sensitive topics to students. As an example, teaching sex education to ELLs can be a difficult task given the sensitivity of the issue. Software applications can help teachers' achieve this goal in a manner that preserves cultural sensitivity of ELLs. Another sensitive topic such, immigration and the status of undocumented students in schools can lead to fears that need to be addressed by teachers (Lickona, 1992). The best way of addressing these issues is to debunk all rumors and give the right information to students, so that they can relay that to their parents and they can feel safe at school. The use of technology will allow students to have access to accurate information via the internet.

Researchers have different views and opinions as it relates to the impact of technology in improving the process of acquiring a second language. These views largely mirror those present across our society. While technology-driven pedagogy is becoming the new norm (Chuang, 2013), advocates of traditional teaching methods reluctantly refuse to adapt to new changes and maintain the status quo. The purpose of the current study was to examine research and educator's views about the value of technology for learning a second language. In that aim, this chapter provides (1) an overview of second language acquisition (SLA) theory, (2) a comparison of traditional teaching methods (e.g., those that do not integrate digital technology) to technology-based methods, (3) analysis of the impact of differentiated instruction within the second language acquisition theory (4) a discussion of the limitations of technology use for ELLs and (4) an exploration of research around technology as a tool enhancing ELLs' learning.

Second Language Acquisition Theories.

Krashen's (1982) second language acquisition theory outlines the affective filter and comprehensive input hypothesis as important concepts in helping ELLs acquire a second language as they addresses some of the majors concerns on how we acquire language, but most importantly how to make instruction understandable for students (Echevarría, Vogt, & Short,2013). In Krashen's (1982) comprehensive input theory, the use of teaching strategies to make instruction understandable and accessible to learners, involves: "a conscious effort to make the lesson understandable through a variety of means" (Echevarría, Vogt, & Short, 2013, p 97). These means include not only traditional methods such as visual aids to get the learners interested, but also new tools that build on the learner's motivation to help him or her

acquire the language. The affective filter, on the other hand, differs from the comprehensive input theory as it mainly focuses on the learner's such as anxiety and boredom that can prevent him from learning. The affective filter is therefore defined as: "the role of affective factors in the process of language acquisition" (Freeman & Freeman, 2011, p 123). The concept of the affective filter was first outlined by Dulay and Burt (1977) and then clearly articulated by Krashen (1982). According to Krashen (1982), the key elements of the affective filter hypothesis are:

- **Motivation**: high motivation is conducive to better language acquisition
- **Self-confidence**: self-confidence lead to better language acquisition
- **Anxiety**: low anxiety lead to better language acquisition.

These two-second language acquisition theories highlight factors influencing learning of a second language. The Comprehensive input hypothesis highlights the importance of using multiple means to teach students and the affective filter hypothesis draws attention to affective factors that influence second language learning.

Technology-based learning environments tend to motivate learners. Particularly, research supports that technology can help ELLs build self-confidence, reduce anxiety, and acquire the language faster than learners who are in a stressful and less motivating environment. Research shows the impact of technology tools in creating learning environment where comprehensive input contributes to the lowering of the learner's affective filter. Turgut (2011) emphasizes the importance of a technology-rich environment in teaching literacy. The purpose of Turgut's research was to assess the contribution of a laptop-borrowing program to the enrichment of both the teacher and students' learning environment.

Four ESL teachers, six ESL students and three school officials participated in individually conducted and semi-structured interviews. The participants' were selected through a purposeful sampling procedure. As stated by the author, "the research question guiding the study, data collection, and data analysis was: How are laptops utilized in ESL classrooms as part of a one to one laptop program in an urban school context?" (Turgut, 2011, p. 29) The research was therefore targeting a specific group of students as it pertains to their needs. Data from the research was analyzed using grounded theory and selective coding. Turgut reached the conclusion that the use of the laptops allowed the teachers to make their teaching content more visual, provide practice learning content through online games, create a soothing environment by playing music, and help support ELLs language development (Turgut, 2011) . Results from both classrooms and interviews were triangulated and tracking features built in the assessment process helped both teachers and students monitor their progress. The overall result of the three major themes, (uses of teacher laptop in classrooms, uses of students laptop in ESL classrooms, concerns about use of laptop) of the studies as it pertains to laptop use in an urban school were compared. The study findings indicate that teachers mainly use laptops for instructional plans and improve delivery of instructions. On the other hand, student laptops were mainly used to support ESL language development and prepare projects, results shows improvement of their English language skills. The authors stated that the results were then parallel to earlier investigations. Based on the result of his studies, the author finally concluded that: "laptops are used to meet language related needs of ESL students" (Turgut 2011, p. 43). In short, Turgut's study connects the laptop, which represents rich comprehensive tools to language instruction in a low affective environment (Krashen, 1982)

to enhance ELLs learning experience. The author therefore emphasizes the role of technology in reinforcing comprehensive input by lowering learner's affective filter.

Bahrani and Tam (2012) reached the same conclusion as Turgut (2011). Participants in their study were 107 aspiring teachers, aged (18-23), and majoring in teaching English as a second language (TESL). Of that group, 60 low-level language learners were selected and were divided in three groups. The International English Language Testing System (IELTS) was used to assess the language proficiency of the participants. Data collection process of this study was done in two stages. Researchers after administering IELTS pre-posttests, provided participants with different types of audio-visual to work on inside classroom, after 10 weeks of exposure, all the participants were subjected to the second sample as a post-test to gauge whether there was any improvement in participants' language proficiency. The study results showed that: "although audiovisual programs generally are a great source of authentic language input for teaching/learning purposes, more caution should be given to the selection of the type of audiovisual program for low level proficiency learners" (Bahrani & Tam, 2012, p 63). These two studies demonstrate that technology tools apprehended as audiovisual news programs, cartoons, movies and laptops are educational tools that help ELLs have access to comprehensive input by lowering their affective filter. These technology-based educational tools provides rich comprehensive input compared to traditional teaching methods and the novelty of the tools help lower learners' affective filter, as outlined in krashen's theory. Technology perceived here as visual, electronic educational based devices, therefore help achieve tangible results in all aspects of our life, however there was a period where technology tools were absent, a comparison of these two periods of history is needed to get a clear picture of the achievements of technology.

Traditional teaching method versus technology based methods.

In the second language acquisition field, traditional teaching methods mostly refer to the learned knowledge about the language, the conscious effort we put into the learning process by memorizing rules of the language such as syntax and grammar that usually occurs in a stressful environment (Krashen, 1982). Consciously learning and memorizing language rules was the widely used methods of teaching a second language prior to incorporating technology tools. Traditional teaching methods implied that:

> "The way to develop competence in a second language is by language learning. We will use the term "learning" henceforth to refer to conscious knowledge of a second language, knowing the rules, being aware of them, and being able to talk about them. In non-technical terms, learning is "knowing about" a language, known to most people as "grammar", or "rules". Some synonyms include formal knowledge of a language, or explicit learning." (Krashen, 1982, p 10).

The rigidity of the traditional method and its emphasis on grammar rules creates anxiety, frustration, and lack of interest. This teaching method delivered in a stressful environment, which implies emphasis on grammar memorization and learned syntax rules when contrasted to technology-based teaching methods shows limitations in achieving language acquisition. Technology-based methods offer alternatives and the study of Bahrani and Tam (2012) is a perfect illustration. The author argues that when learners are exposed to various kinds of authentic and new materials such as technology tools, they develop interest: "audiovisual programs can be incorporated as authentic sources of potential language input for second language acquisition." (Bahrani, & Tam, 2012, p 56). In the same trend, research conducted

by Carrasquillo and Nunez (1988), highlights the importance of computers in creating an interesting and motivating learning environment through a rich comprehensive input in a low affective filter (krashen, 1982). Contrasting traditional teaching methods to technology-based teaching methods of second language acquisition: "computers assume the role of toys by creating environments that allow children to manipulate text in a variety of ways the same way a children manipulates blocks. A "toy" like the computer could accelerate reading acquisition by providing opportunities to "play" with the text."(Carrasquillo, & Nunez, 1988, p 8). (Carrasquillo & Nunez, 1988) study included 68 randomly selected 4th grade Spanish low-income students from Porto Rico. Students were tested using the (a) the inter-American test of reading, (b) the language Assessment battery, (c) the sequential reading skills test, and (d) the computer-assisted reading lessons with embedded metacognitive strategies. The interesting fact about this study is that it has instruments used by the traditional reading skills of students and it has a computer-assisted method allowing judgment of both methods. Pre-test data were collected prior to testing and post data collected after testing. The educational implications of this study are worth mentioning:

- The use of computer as a medium of instruction enables students to work at their own pace while acquiring metacognitive skills.
- The flexibility and adaptability of the computer technology allow students to recreate situations, repeat tasks and manipulate their own learning process.
- Computer-aided reading instruction can promote comprehension when metacognitive strategies are programmed into software." (Carrasquillo, & Nunez, 1988, p. 17).

When contrasting traditional second language teaching methods based on rigid rules with new technology based methods, motivation emerged as a key element. The study of (Semerci & Duman, 2013) surveyed a sample of 142 students from a computer and instructional technologies, which is part of the university teaching department and completed an achievement motivation test. Motivation was clearly the driving force behind achievement: "students are found to be motivated to learn when they thought the learning task was meaningful and interesting" (Semerci & Duman, 2013, p 138). The study stresses that for teachers to motivate students, they should make learning tasks meaningful. Using computer and instructional technologies, helps motivate learners by engaging them in an interesting and meaningful computer-based learning task.

Traditional teaching methods also fail to address some of the needs of students with disabilities. O'Malley et al. (2013) highlights the advantages of using new technologies such as iPad to help students with communication disorders and vision impairments. O'Malley et al. (2013), mentioned: "Mobile technology devices, like the iPad, are fundamentally altering the paradigm of traditional education and blurring the lines between assistive technology and instructional technology" (p 2). The study was conducted over a four-week period using a single case research method. The participants were three females and seven males all diagnosed with autism, spectrum disorder or multiple disabilities. By alternating between delivering math instruction via traditional teaching methods and with the use of technology, and by regularly assessing students' performance in math, the researchers were able to demonstrate that the iPad was an effective instructional tool for disabled students. By using an iPad, teachers were able to document the increase in math fluency of their disabled students. The research also pointed to limitations of using iPads such as the skills needed to interact

with the iPad. They also suggested training strategies that adapt with the current content standards being applied all over the country (O'Malley et al., 2013). As suggested in (O'Malley et al., 2013) study, legislative mandates such as the No Child Left Behind Act of (2001) influence the transition between traditional teaching methods and technology based methods. Strict legislative requirements conflict with the evolving technology world. Miller, Lake and University of Washington (2012) stated: "The federal government should be doing all it can to promote technology-driven innovation for our school children. Instead, federal policy stands in the way of innovation, both actively and passively." (p 1). The federal government by not providing adequate funding to education is limiting progress and the author argues that without proper funding, the U.S will not be able to compete with other developed nation in the field of technology-driven education.

Technology-based teaching methods hold another advantage when it comes to reaching learners not accessible via traditional teaching methods. (Godzicki, Godzicki, Krofel, & Michaels, 2013) research shows an increase in students' motivation when innovative tools such as iPad application, computer software and web tools are included in a classroom settings. Technology offers second language learners a more natural communicative approach and online immersion by being able to practice with native speakers. Godzicki, Godzicki, Krofel, and Michaels (2013) study involving 116 students who were administered a survey to gauge their motivation and engagement in the classroom, shows that students were more likely to engage in classroom when technology is used as an instructional tool inside the class, as opposed to class where these technology tools are not present. Technology tools hold an advantage and represent an improvement when it comes down to accessibility, motivation and comprehensive input. According to Krashen (1982), comprehensive input in the form of

the variety of technology tools provides rich oral, visual and written input that supports language acquisition and literacy development, specially by making sure we understand what we read and hear.

Differentiated instruction

In addition to having educational benefits related to accessibility of instruction, promoting student motivation, and providing comprehensive input, technology can also benefit ELLs due to the increased possibilities for differentiated instruction. The advantage of technology tools over traditional teaching method reside in the fact that technology makes English language understandable in a stress free and interesting environment. While traditional teaching methods emphasizes learning, the stress factor attached to the need to learn grammar rules in a boring environment as opposed to the need to learn the same grammar rules in an innovative technology based environment makes a difference for ELLs. Technology-based teaching methods allow ELLs to learn without the stress attached to the rigid traditional methods, which is based on strict rules in a boring environment not appropriate for second language acquisition. The experiment of Chen and Hsu (2008) using mobile devices to teach ELLs confirmed that the level of interest of learners helped reduce their stress level. The method of acquiring a second language using innovative methods to differentiate from the old method is a perfect example of a rich and comprehensive input (Krashen, 1982). Differentiated teaching method based on the use of technology tools is more than showing pictures in a classroom or explaining concepts. It is rather a process that allows educators to use a variety of innovative means such as technology tools to make lessons

understandable and accessible to students (Echevarría, Vogt, & Short, 2013). Using technology tools to make content tailored to individual ELLs, put into practice is a teaching method known as differentiated instruction. Differentiated instruction is when: "teachers change the pace, amount, level, or kind of instruction to meet the individual needs of each learner." (Echevarría, Vogt, & Short, 2013, p 312). An example of how to apply differentiated instruction using technology in a classroom will include "use of multimedia and other technologies in lessons. Teachers may use transparencies, PowerPoint slides, interactive white boards, a document projector, or relevant Web sites as supplements to a presentation. In so doing, they not only provide more visual support but also model the use of the technology." (Echevarría, Vogt, & Short, 2013, p 102).

Numerous studies have confirmed the importance of technology as a differentiated instruction tool that provides ELLs with a rich and comprehensive input necessary to acquire a second language (Chen & Hsu, 2008; Elsner, 2011; Tsuei, 2011; and Winkle & Goertler, 2008). The study of Winkle and Goertler (2008) exploring students' academic and professional use of multimedia tools found that students are involved with technology in their daily life but when asked are reluctant to use the same skills in a classroom: " if students are using them for day-to-day communication and information sharing, for coconstructing identities and creating discourse communities (through such websites as Facebook and MySpace), why aren't the classes?", (Winkle & Goertler, 2008, p 495). The study participants included a sample of 911 who were studying French, German or Spanish at Michigan State University. The result of their paper-based survey provides validity to previous research by (Ushida, 2005) claiming that training is key in order for learners to take advantage of technology. Technology tools will not in itself help ELLs if literacy is not

provided in the form of training that is also part of the differentiated instruction method. (Elsner, 2011) study makes the same argument that technology resources enhance multi-literacy awareness. The quote below helps us understand the difference between traditional teaching methods and new innovative technology-based differentiated instruction methods: "while traditionally being literate solely referred to the ability to read and write in a standardized form of one language, literate practices today incorporate multimodal, critical, cultural, and media competencies next to traditional-functional language skills, like reading, writing, speaking, mediating, and listening in many languages (Elsner, 2011, p 29). Elsner (2011) by advocating for a media competencies paired with traditional-functional language skills, outlines a differentiated teaching approach in ELLs learning continuum.

The European multiliteracy virtual project called (MuVit) in Elsner's (2011) research paper, is a software that allows children to engage actively in the learning process of new languages while using innovative differentiated instruction model in Europe. This paper shows that the use of technology as a differentiated instruction tool is a worldwide phenomenon. Another study, Tsuei (2011) emphasizes the role of technology tools in enhancing peer support learning. The study demonstrated that differentiated instructional support provided by computers helped build a stronger collaborative learning environment for elementary school students. Fifty-six students (aged 10-11) from two classes at an elementary school in Taipei (Taiwan) went through an eight-week experiment. This quasi-experiment aimed at comparing students' reaction on an online peer-assisted environment. The study clearly demonstrated the positive impact of online peer-assisted learning environment on students' reading skills. This study also emphasizes the positive impact of computer-based differentiated teaching model. The differentiation occurs when students reach out to their peer

online for support rather than the traditional teacher based support. This type of support build on online interaction among elementary school students help them develop mutual interests and motivate them to learn more since they learn together and perform the same task. Chen and Hsu's (2008) study also outlined the positive impact of technology-based differentiated instruction. Chen and Hsu, (2008) study is a prime example of positive use of mobile technology tools to facilitate second language acquisition. The study implemented a personalized intelligent mobile learning system (PIMS), which as stated by the authors: "can appropriately recommend English news article to learners based on learners' reading abilities." (Chen & Hsu, 2008, 153). The authors using fifteen third grade university students from the department of education at the National Hualien University of China were first given an oral presentation on the research and then given the PDA device to conduct the experiment. The experimental design outlined below was used:

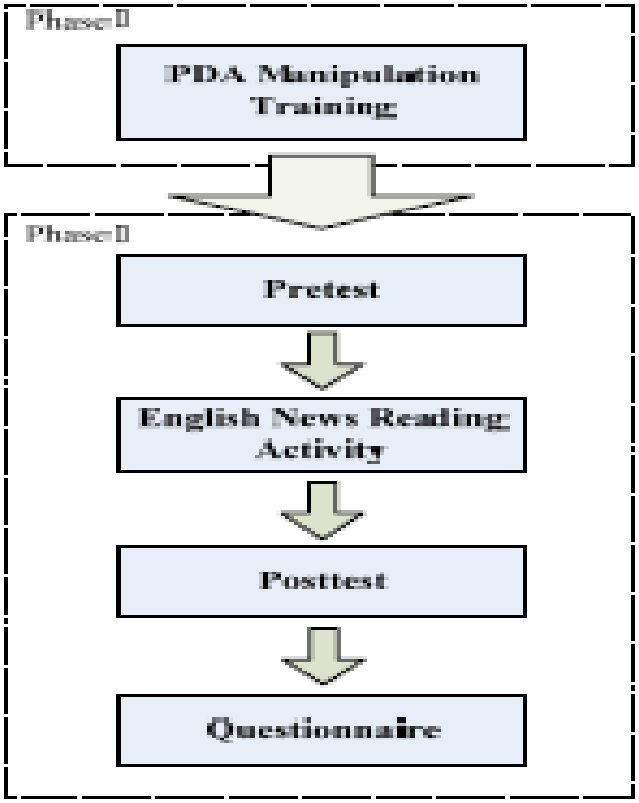

Figure 11. The procedure of the experiment

Reproduced from Chen and Hsu, 2008, p170.

The research shows that personalized intelligent mobile devices increase ELLs' reading ability. As the authors stated: "the experimental results demonstrated that the personalized reading and learning of English news articles with enhancing unfamiliar vocabularies facilitates learners' reading abilities." (Chen & Hsu, 2008, p 176). Mobile-based methods of instruction will motivate the learner by helping him develop self-confidence. The study points to the learners' increasing reading abilities, the differentiating teaching method the mobile device represents occurs in a low affective environment as explained by Krashen (1982). Moreover, mobile device as an instruction tool gives second language learners access to an increasing number of vocabulary words in English. While technology tools helped, ELLs

become proficient in English faster than the traditional teaching method, questions remains as to cost and accessibility of technology tools.

Limitations of technology

Technology tools are part of our daily routine and one cannot imagine spending a day without using devices such as cell phones and tablets. This intrusion of technology has an impact on all the spheres of our life including education. One of the oddities of this study is that, all of the literature available on the topic of technology as a tool for progress in educational field is not matched with an equal amount of literature on the limitations of technology. Amory (2007) is among the few researchers who have documented the limits of technology tools in education. He argues in his research: "While it is often argued that technology could act as a change agent and transform educational practices, individuals, communities, government and society holding their own ideological beliefs limit such a liberalization of the educational system." (Amory, 2007, P 655). As an innovative tool, and like any other tool, technology needs to be regulated by state institutions as to what is needed to be achieved and how to achieve it. By creating standards, state institutions will help harmonize the use of technology. This harmonization process should include all interested parties such as teachers and school administrators. Miller, Lake and University of Washington (2012) and Amory (2007) share the same concerns as it relates to ideologies holding back progress. Miller, Lake and University of Washington (2012) mentioned that the federal government should do all it can to promote a technology-driven society rather than blocking innovation with old and archaic policies such as not including computer literacy skills as a key element in our K-12 curriculum or not providing funding to acquire technology

tools for our schools A study by Fuchs and Akbar (2013) selected 39 participants all teachers and using questionnaire to documents benefit and challenges of using technology in an adult intensive English program (IEP). Through quantitative analysis research design, the responses of the teachers were exported into an excel sheet to calculate percentages and averages. The following areas were documented as drawbacks to using technology to promote learning:

- Lesson planning takes precedence over technology with novice teachers.
- Participants projected their own negative personal experience using technology onto teaching.
- Intensive English Program (IEP) lack of access and teachers low e-literacy skills.
- Technology cannot substitute for face-to-face communication. (Fuchs & Akbar 2013, p 163).

Other studies mentioned the same issues outlined above, for instance the study of Godzicki, Godzicki, Krofel, and Michaels (2013) mentioned both the lack of access to technology tools and lack of literacy in using specialized skills as factors limiting the use of technology. O'Malley et al. (2013) on the other hand advocates for technology tools to align with the curriculum. A recurring issue mentioned by almost all the studies is the need for teacher and students to be trained on the skills needed to use the new technology tools. Teachers need adequate training so that resources spent on technology tools are not wasted; Turgut (2011) study on the laptop loan program shows the importance of training. Cost as a limit to the use of technology tools is also an element of concerns as stated by Turgut (2011).

These limiting factors have to be addressed in order for technology tools to be able to help ELLs achieve success in acquiring the English language through technology.

Technology as a tool enhancing English learning

The internet and recent technological discoveries have made technology tools an essential part of our modern life. While a handful of studies mentioned the nuisances technology tools represent, majority of researchers agrees on the fact that education is an area where technology tools have made tremendous changes. The use of technology in school settings to improve learning has been documented by numerous studies reviewed in this chapter. Grandberg (2000) stated that faculty across the country are using technology to help students' master wide areas of subjects. While technology tools are helping learners, especially ELLs improve their second language acquisition skills through a wide range of new software and hardware devices; researchers are interested in understanding the processes by which technology helps learners of a second language succeed (Chuang, 2013). Researchers, in their quests for answers as to what makes technology tools so attractive to education also started questioning whether technology drives pedagogy. The study of Chuang (2013) aims at answering some of these questions. Chuang (2013) study collected data from students proficient in English. The students, who used to tutor other students in face-to-face settings, were trained on online tutoring. The result of her findings proved that when synchronous videoconference tools such as Skype are used, students and teacher established a positive instructional relationship. She also emphasized that students who favor face-to-face teaching methods are also comfortable with online streaming teaching format. Furthermore, Ingerson (2011) argues that for ELL students to be successful, not only they need motivating

technology tools, but they also need knowledgeable teachers who will help them make good use of the technology tools. Ingerson's (2011) study shows that grades increase when teachers are provided with adequate training and when technology-based differentiated instruction teaching materials incorporate native languages themes such as cognates that make the transition from native language settings to English easier. From her viewpoint, technology and well-trained teachers are important in helping students increase their learning abilities. Combining these two factors as she suggested is the best approach to help ELLs strive in classroom. Turgut (2011), Yang (2012) and Bahrani and Tam (2012) studies will help us get a clear understanding of the type of technologies that will better fit English language learners needs and how to build upon ELLs' experience to enhance learning skills through the use of technology.

Turgut (2011) conducted a case study aimed at explaining: "How laptops are utilized in ESL classrooms as part of a One-to-One Laptops programs in urban schools context" (Turgut, 2011, p. 31). The study sample included four ESL (English as a Second Language) classroom teachers, six ESL students and three school administrators. The students were from different cultural and linguistic background. The use of laptops compared to other technological devices was motivated by the fact that computers are the most commonly used technology for classroom instructions. The study was conducted using semi-structured interview lasting 40 minutes, the author also stated the participants were interviewed individually; most of the interviews took place at school (Turgut, 2011). Feedback from interviewees and classroom's observations were used by the author to triangulate and validate the result of the study.

Data from the research shows that laptops were used by teachers to prepare instructional plans and improve the delivery of visual content (Turgut, 2011). The laptops also allowed teachers to track their students' progress. The students, on the other hand, used the laptops to prepare their projects and that contributed to their language development skills.

In the same trend, Yang (2012) used two tools, the M-learning attitude survey and the M-learning Self-Efficacy survey to assess student's skills and ability to complete task using M-learning. Students and volunteers were interviewed using semi-structure questions that lasted 30 minutes (Yang, 2012). They were also required to take an advance English class and this process lasted 6 weeks, which was followed by an online classroom discussion. They were presented with different scenarios designed to test their problem solving skills. Five of the scenarios required students to discuss problem-solving tasks using the m-environment (mobile environment). This study is interesting from a multitasking viewpoint because the students were conducting searches online, answering questions and posting feedbacks on films related to their tasks online. As noticed, the students were immersed in a digital world with no human interaction and some scholars disagree with this way of teaching.

Lickona, (1992) for instance, marks his preference for a human interaction in classroom. Nevertheless, data from this research shows overall positive attitudes of the learners towards M-learning, the study also demonstrated that there were more opportunities to acquire information through collaborative online learning environment.

The technology mentioned above (m-learning environment) is recent compared to Bahrani and Tam's (2012) research focusing on traditional technology such as audiovisuals news, cartoons and films to assess how students respond to the use of technology. Data were obtained from 107 language learners aged 18-23 and all majoring in teaching English as a

second language (TESL). First, the author used the IELTS test to assess students' proficiency in English. Out of the first group, a second group of 60 low-achieving learners was segregated from the larger group based on their scores on the IELTS, then the students were given three set of materials from TV programming such as TV shows, TV news, and several movies. The audiovisual content included both British and American English Bahrani and Tam (2012). The research yielded interesting results. Groups that used cartoons and films as learning tools significantly improved their English language skills. According to the author, this was due to the type of audiovisual exposure they had as a result of technology use. The group of learners that was exposed to news did not significantly improve their language proficiency and this is justified by the fact that the learners were low-achieving learners. Comparatively, the use of this type of learning tool by advanced learners yields more positive results (Bahrani &Tam 2012).

Bahrani and Tam (2012) showed that mobile devices, laptops and audiovisual tools such as films, cartoons, and television news programs enhance ELLs' learning abilities. Despites limitations such as network reliability mentioned by (Turgut, 2011), and the lack of progress of low learners who use TV news as an instructional tool (Bahrani & Tam 2012), the overall results of the different studies validate the assertion that technology enhance ELLs learning skills. Based on the data uncovered by Yang (2012) study, we can assert that not only students strives in a mobile learning environment (m-learning environment), but also the online format opens up door for improving collaborative learning as well. Depending on the quality and type of interaction the users have in an online forum, they can find not only motivated mentor who will help them achieve success, but also allow them to tap into resources that are not rightfully available where they live. The use of personalized intelligent

mobile learning system (PIMLS) to support effective English language acquisition is a smart way of putting good technology to work for the benefice of ELLs students. Experimental research confirms that using mobile applications that recommend reading news articles that match the learners' interest have the potential of motivating the learner to read more which leads to learning more vocabulary (Chen & Hsu, 2008).

Starting in 1960, when the term CALL acronyms of computer-assisted language learning, (Jarvis, 2004) first emerged and technology was making its way timidly into the education world, up to now where almost everything is digitized. The steady evolution and overall positive achievement of technology in the education field appeared limitless. Technology by helping ELLs learn more in less time, allows teacher more time to spend teaching content knowledge, which is a top priority with the generalization of common core standards curriculum across the country.

Chapter Four

Summary, Conclusion, and Recommendations

The purpose of this study is to discover if and how technology can help ELLs become more proficient in English. The theoretical framework of second language acquisition guided this study, particularly Krashen's affective filter and comprehensive input theories, which advocate for innovative second language teaching methods as key factors in helping ELLs acquire a second language. Krashen's affective filter theory details the role of affective factors (e.g, anxiety, and interest) in the language acquisition process. Krashen's theory outlined the need for ELLs to have rich comprehensive input perceived as a comprehensible message that motivate the learner to acquire the language faster than the traditional teaching method. Technology tools, as rich and comprehensive input, help achieve all of the following:

- **Motivation**: high motivation is conducive to better language acquisition.
- **Self-confidence**: self-confidence leads to better language acquisition.
- **Decreased anxiety**: low anxiety leads to better language acquisition.

The literature review shows ways new technologies as part of differentiated instruction tools helped set the stage for a low affective filter learning environment rich in comprehensive input. Moreover, literature review also shows the growing influence of technology tools covering all subjects of the education field from teaching math, to adapting instruction methods to help disabled learners (O'Malley et al., 2013). These literatures are evidence of the growing importance technology has in our life and how it is shaping our classrooms in a way never seen before.

While there is an abundance of literature outlining the benefit of using technology tools to differentiate and adapt our teaching methods in order to motivate ELLs (Chen and Hsu, 2008), there are also literatures critical to the use of technology tools for teaching purposes. However these literatures are not opposing the use of technology tools, but they are rather advocating for regulating the use of technology tools (Amory, 2007). The studies of Amory (2007) and Miller and Lake (2012) point to the lack of political will or difference in ideology as the reason why there is resistance in making the use of technology tools in education a priority. Following the same findings, the study of Turgut (2011) raises an important issue. The cost of acquiring and maintaining technology tools are factor limiting the efficiency of these tools, as they are only accessible to a limited number of people. The difference between these findings is however, less of a disagreement in substance and rather a disagreement in priorities. These studies cite issues such as the lack of appropriate teacher training and the use of inefficient technology tools versus efficient technology tools to help ELLs achieve success. As stated above, these differences are therefore not opposition to the use of technology, but rather how to use technology most effectively.

Several studies reviewed in this thesis show positive and concrete results achieved by using technology to help ELLs become more proficient in English (Bahrani & Tam, 2012; Targut, 2011; Yang, 2012). One can, therefore, conclude that technology tools help ELLs become more proficient English speakers because of the efficiency and the rich learning environment technology represents when compared to traditional teaching methods characterized by learning complex rules of English syntax and grammar in a stressful environment.

The study covered the role of technology in helping ELLs become more proficient English language speakers. However important elements such as the cost of technological tools and the political will to push for a more bold and progressive agenda is still a work in progress. Reducing costs will help all learners achieve success and will be a positive step in democratizing the inevitable instructional tools that technology have become. Such steps will allow students from poor socio-economic backgrounds to be included in the increasingly growing numbers of technology-literate students. Another positive step will be to provide training to teachers so that, as they develop an increase awareness of the potentiality of technology tools, they will be more engaged advocates and will help lead the way for the change. Finally, the study of O'Malley et al. (2013) shows that iPad helped disabled students achieve success. However more studies using different types of technology tools is not only needed but is also a priority, as more disabled students are left outside mainstream classroom because of the lack of instructional resources to deal with their learning disabilities.

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