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The Use of Technology to Support Vocabulary Development of English Language Learners

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The Use of Technology to Support Vocabulary Development of English Language Learners

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This study asks the question: how can the use of an iPad application be used to support English language learners vocabulary development? Technology can be used as an engaging, supplementary tool to foster vocabulary learning for ELLs. Research was conducted in Clark, New York (pseudonym) with a group of five ELL students and focused on vocabulary development; three students completed teacher-made worksheets and two students completed iPad activities. Three themes were found when conducting research: explicit instruction compared to the iPad, the use of visual and audio components to increase vocabulary knowledge, and differences in engagement and behavior. These findings call for teachers to create learning environments that focus on oral language skills to develop vocabulary and incorporate technological tools.

The Use of Technology to Support Vocabulary Development of ELLs

The growth of the ELL population should cause a shift in academic instruction and how educators view the classroom environment. ELLs constitute a heterogeneous group with varied linguistic, cultural, ethnic, racial and socio-economic backgrounds, strengths and weaknesses. The cultural and linguistic differences impact how ELLs acquire language and language skills. To improve language acquisition, ELL students need supplemental or differentiated activities. The purpose of this research paper is to determine whether or not available technological resources are useful in improving ELLs reading ability, specifically vocabulary knowledge (Mays, 2008; Cohen & Cowen, 2011).

As the minority population in the United States continues to grow, the number of students not meeting the required expectations increases (Mays, 2008). As a result of this population shift, the school population is becoming increasingly diverse with members from different language, ethnic, cultural, and socioeconomic backgrounds. Educational researchers are determining ways to affirm the diverse cultures and language interactions of ELLs within the classroom setting. It is important to establish a connection or bridge between home and school: "By understanding the important role that language plays for ELLs during daily academic and social exchanges in school […] educators will be better prepared to facilitate learning opportunities" (Mays, 2008, p. 415). Schools that encourage students to use their native language support student learning by increasing active participation. Instruction in a student's native language facilitates the acquisition of English. Children need a strong, fluent foundation in their native language in order to succeed in English. Dual language programs, such as services provided by an ESL teacher, provide an effective instructional environment that not only supports second language acquisition and content area knowledge, but maintains the child's first

language (NYSUT Research and Educational Services, 2010). Children have the right to their own language and culture and to not allow this would be detrimental to their overall conception of school and in turn effect language acquisition. Hawkins and Nicoletti (2009) argue that, "while considering the gaps between what ELLs bring and what is expected in school, ELLs may come to be viewed as *deficient* – that is, as coming to school without good language skills, knowledge, or experience (p. 84). Children cannot feel they belong at school when their valuable home-based practices are ignored or not valued within the context of the classroom (Gee, 2004). To accommodate ELL students, a teacher must affirm, build upon, and extend their linguistic abilities. Teachers maintain high expectations for all students, including ELLs. Teachers differentiate instruction to reach ELLs. Educators build on ELLs' prior knowledge and find ways to incorporate activities that facilitate higher-order thinking skills, especially at the beginning level. ELLs benefit when classroom or content-area teachers collaborate with ELL teachers who provide guidance in modifying instruction to meet students' needs. As educators, it is important to familiarize with the cultural and linguistic differences represented in the classroom, as well as, the instructional tools and resources available to help improve ELLs academic learning and experience.

Apart from cultural and linguistic variation, another factor to analyze is the use of technology in the classroom and its benefits or lack thereof to ELLs literacy acquisition. As new technologies emerge, so do new literacies (Baron, 2010; Jacobs, 2010; Gainer & Lapp, 2010). Baron (2001) describes the relationship between technology and literacy through a discussion of the development of the pencil. The pencil was once an advanced technology in producing text. Now text production has evolved to computerized information and led to advancements in communication. Jacobs (2010) supports Baron's argument by discussing the impact technology

has on today's youth. Jacobs (2010) research notes that literacies are not limited to traditional texts, such as, books, stories, and essays, and are now expanded to multimedia texts. Today's youth are exposed to technological devices and programs that transform text beyond its traditional form. New literacies use text, sound, video, and other forms as a way to generate, communicate, and negotiate meaning. Technology is easily accessible, digital technologies are a part of everyday life, and members of society are expected to not only successfully participate in the use of these technologies, but also interact and manipulate digital materials and tools. Technology allows individuals "the ability to be continuously connected and to share and exchange ideas and information across time and space using a wide variety of modalities" (Jacobs, 2010, p. 20). Today's youth share a set of characteristics that include the use of digital tools to construct identity, manage privacy, stay connected to community members, and collaboratively work with and understand information. The emergence of new technologies continues to impact literacy acquisition in that individuals gain new skills, knowledge, and ways of interacting with other social groups. Technology is effective in making learning accessible for all students by expanding and strengthening support for equal access, quality programs, and appropriate services. Technology can help "facilitate the attainment of learning goals for individuals with wide differences in their abilities to see, hear, move, read, write, understand English, sustain attention, organize, engage and remember" (Brand, Favazza, & Dalton, 2012, p. 134). ELLs can use different forms of technology to communicate in both their first language as well as in English with their peers. Additionally, technological devices and programs can offer multiple means to present, engage, express, and assess student understanding and acquisition of language and literacy skills. Gainer and Lapp (2010) argue that "inclusion of new literacies needs to become part of our instructional base if we want to engage students in motivating,

purposeful learning experiences" (p. 2). Technology can be used as a tool to facilitate the building of bridges between in and out of school literacies and the larger cultural systems. Living in an informational age, technology will become an integral part of instruction and daily practice and supports the need for differentiation for a wide range of learners, including ELLs. Gainer and Lapp (2010) report that "engaged learning can occur if their outside-of-school knowledge and interests are acknowledged, respected, and used as part of the instructional picture within the culture of the classroom (p. 6). This concept is critical in the way it connects to how schools may experience difficulty building classroom communities where ELLs are supported and valued. Teachers must continue to adapt instruction to meet the needs of diverse learners and technology is a viable option to do so. Mixing traditional and new literacies promotes literacy learning in the classroom. Technology is more adaptive for ELLs because they can perform literacy tasks through different technology mediums, ranging from word document programs set to their primary language to games or computer programs with dual language features. ELLs participation in literacy activities at school may be heightened if technologies exposed to and used at home are made available. Connecting home and school experiences is critical when acquiring language and literacy skills; technological advancements make this connection easier for ELL students. ELL students benefit from participation and engagement in differentiated activities that foster ways to apply literacy and language skills acquired.

Under these premises the following research was conducted to further analyze the use of technology as a tool to develop vocabulary knowledge of ELLs. How can the use of technology be used to support English language learners vocabulary development? ELLs differ in their literacy experience as they are trying to learn and master a second language in addition to their native language which proficiency may or may not be lacking. Research was done in Clark,

New York (pseudonym) with a group of five, first grade English-language learners. Through student and teacher interviews and small group instruction, it was found that educational technology can support literacy education and vocabulary development for ELLs. The iPad was successful in developing vocabulary knowledge, although explicit teaching during small group instruction was also responsible for this development. The visual and audio exposure provided by the iPad as well as during small group instruction increased vocabulary awareness and development. A difference in engagement and behavior was also found after data analysis between the iPad users and non-users.

Theoretical Framework

It is critical that every child be literate, yet it is essentially an indefinable term. A literate individual has the ability to read, write, and speak with understanding and comprehension (Kucer, 2009; Gee, 1989). Literacy continues to evolve daily and with this constant change difficulties arise not only in the ability to acquire literacy, but also being able to communicate in your secondary discourse. Gee (1989) defines literacy as "control of secondary uses of language" (i.e. uses of language in secondary discourse), where discourses are a socially accepted association among ways of using language, of thinking, and of acting that can be used to identify oneself as a member of a socially meaningful group or "social network" (p. 18). Gee identified two types of discourses: primary and secondary discourses. Gee (1989) states that primary discourses are acquired in the home through social interaction that involves mostly the linguistic dimension of literacy (Kucer, 2009) or how language is used for communicative purposes, specifically oral and written language.

Literacy acquisition encompasses the child's participation in meaningful, authentic literacy events (Goodman, 1984; Otto, 2008). One of the roots of literacy according to Goodman

(1984) is the use of oral language about written language. Children use words to express common concepts and use these to talk about life experiences across contexts. These experiences and interactions influence children's developing attitudes and beliefs about literacy and functional use of literacy in their daily lives. Children use oral language (talk) as they begin writing, during the writing process, and as a way to explain or expand what they've written. In this way, "children use oral language to guide and facilitate the creation of their written stories" (Otto, 2008, p. 23). By reading, children figure out how language is used and words are structured. Children transfer this understanding to written language by looking for patterns and hypothesizing (Kucer, 2009; Goodman, 1984; Otto, 2008). Children incorporate certain textual patterns into their writing after they have encountered it in their reading. Both oral and written language experiences heavily impact children's literacy acquisition.

Literacy is a socially constructed, continuously changing process, which knowledge is informed and constructed by everyday interactions with tools that build and maintain social relations. Literacy is not simply an individual cognitive activity; it is a communicative tool for different social groups with social rules about the production of literacies for specific purposes (Barton & Hamilton, 1998). New Literacy and Technology theory heavily impacts the consistent modifications in the definition of literacy. Prior to the New Literacy definition, reading and writing were seen as essential tools for learning to occur, and as vehicles for assessing and communicating meaning of printed texts (Lankshear & Knobel, 2003). Learning to read and write words was an integral part of learning to understand how the world works socially and culturally. The goal is to transform society's practices and beliefs that are more socially, economically, culturally, and politically just. Another factor Lankshear and Knobel (2003) discuss is the awareness of profound structural change in the United States. Schools were failing

to produce literate members who were capable of living under new contemporary conditions. In this way educational reform was needed and curriculum would change dramatically. The final factor was the increasing development of the sociocultural learning perspective within the studies of language. This theory heavily influenced educational approaches to teaching reading and writing in schools, shifting from simply reading and writing to emphasizing literacy basics and functional literacy. Given these three factors, the term literacy emerged as well as became a major focus of educational research (Lankshear & Knobel, 2003). Research in NLS (New Literacy Studies) suggests that "in practice literacy varies from one context to another and one culture to another and so, therefore, do the effects of the different literacies in different conditions" (Street, 2003, p. 77). Lankshear and Knobel (2006) define new literacies as "new socially recognized ways of generating, communicating and negotiating meaningful content through the medium of encoded texts within contexts of participation in Discourses" (p. 65). New literacies implies that new technologies are continuously emerging that will require students to read text and comprehend meaning in different ways, using different processes (Cohen & Cowen, 2011). Technology affects how individuals communicate and disseminate information. This affects how we acquire language and literacy skills. New literacies operate similarly to how traditional literacy generates, communicates, and negotiates meaning; however, new literacies use text, sound, videos, hyperlinks, and other forms of technology (Lankshear & Knobel, 2006). What it means to be considered a literate member of society is continuously changing as new literacy technologies appear in the global world. As the global world evolves literate members must be able to identify important information, gather and evaluate information, and using information to solve problems and clearly communicate with others (Cohen & Cowen, 2011).

The shift in our global society creates new opportunities and challenges for educators and students, specifically ELL students.

Globalization is a term used to describe the increasing flow of people, ideas and goods across national borders (Black, 2009; Chatel, 2002). Globalization has been assisted by and tied to new tools and technologies. As new technologies and a persistent change in economic and social structure are maintained, there will be a shift in the skills and "abilities that individuals will need for effective participation in modern work, academic, and leisure environments" (Black, 2009, p. 688). Students must possess multiple skills that will enable them to take advantage of the diverse modes of communication made possible by new emerging technologies and to participate in global learning communities (Chatel, 2002). ELL students are faced with the task of not only becoming literate in another language but trying to negotiate sociocultural skills to succeed in a different learning environment. There are four forms of literacy: functional, academic, critical, and electronic. Functional literacy is the ability to speak, understand, read, and write English. Academic literacy is the ability to read and understand interdisciplinary texts, analyze and respond to texts through numerous modes of written and oral discourse. Critical literacy is an understanding of the purposes of literacy and the ability to evaluate validity and reliability of information. Finally, technological literacy is the ability to develop knowledge and skills to understand patterns, changing relationships and to negotiate meaning of both. ELL students are challenged to develop a wide range of literacies to succeed academically, accelerate linguistic competency, and acquire necessary skills. Becoming multiliterate requires engagement in meaningful tasks that demonstrate the use of real technology tools for real purposes and to interact with texts using multiple modes of communication made possible by new technological forms (Chatel, 2002). Research supports the use of electronic

technologies with ELLs to help acquire linguistic, social, and technologically based skills. In addition to the skills acquired through the use of technology, it also creates a bridge for culturally and linguistically diverse students who are learning English.

Teachers and school leaders can do their best within school to make ELLs feel as safe and welcome to learn as native English speaking students, but there are other factors that impact ELL students in America. The pedagogy of multiliteracies focuses on "how cultural and linguistic diversity and the burgeoning impact of new communications technologies are changing the demands of learners…the operational and cultural dimensions of literacies" (Lankshear & Knobel, 2003, p. 11). Learners need new operational and cultural knowledges in order to acquire languages that provide access to new practices that inform their everyday lives. One theoretical framework that discusses issues of diversity pertaining to communities of color or members not strictly of White/Caucasian descent is Critical Race Theory. According to Yosso (2005), critical race theory shifts from a deficit view of Communities of Color and instead "focuses on and learns from the array of cultural knowledge, skills, abilities, and contracts possessed by socially marginalized groups that often go unrecognized and unacknowledged" (p. 69). This theory is not limited to black and white; rather it includes other communities like Latinos/as, Asians, Native Americans, and English language learners. Yosso (2005) merges Critical Race Theory with cultural capital and asks the question: Who has cultural capital?

Three major forms of cultural capital Yosso (2005) discusses include: linguistic, social, and familial. Linguistic capital refers to the "intellectual and social skills attained through communication experiences in more than one language and/or style" (p. 78). Linguistic capital reflects the idea that students with different backgrounds come to school with another form of language. ELL students are immersed in another language at home or do not have a strong

foundation in their native language. Either situation may present the student with the challenge of acquiring English, the language of school. The connection between home and school is extremely important for ELL children as it can have an effect on the child's ability to acquire a new language. Familial capital refers to "those cultural knowledges nurtured among family that carry a sense of community history, memory, and cultural institution" (Yosso, 2005, p. 79). This form of cultural wealth engages in a commitment to community and examines the importance of maintaining a connection between home and school. Familial capital also addresses the pedagogies in the home that students of different cultures, bring with them to the classroom setting. Social capital can be understood "as networks of people and community resources" (Yosso, 2005, p. 79). Interactions with peers and other social contacts can provide the necessary support to navigate through social institutions, like school. ELL students differ linguistically from their peers, therefore, the social experiences and classroom environment can significantly impact the child's ability to feel accepted and appreciated as a valuable member of the class. Critical Race Theory examines these forms of cultural capital in relation to how Communities of Color function and viewed within the larger world system.

Research Question

Given that literacies are continuously changing and learning occurs by using communicative tools by social groups for social purposes, this action research project asks, how can the use of an iPad application (Vocabulary Builder) be used to support English language learners vocabulary development?

Literature Review

The subsequent literature review synthesizes current research involving the use of technology as an instructional tool to promote vocabulary learning for English-language learners. Research has been conducted in response to the assumption that technology's use in the

classroom will benefit English language learners' in their understanding and retention of vocabulary words. Within each of the three thematic sections, research on vocabulary instruction and technology will be discussed. The first section concentrates on vocabulary instruction and the use of technology as a means of bridging the gap between in-and-out of school literacies. The second section will explore how technology may affect motivation and engagement of ELLs. The third section focuses on the idea that technology creates a learning environment that is student-centered which promotes learner autonomy.

Bridging the Gap Between In-and-Out of School Literacies

English language learners present diverse cultures and backgrounds (Mays, 2008; Moll & Gonzalez, 1994). Communities are increasingly becoming more diverse in their demographic make-up. Mays (2008) defines English language learners as "individuals who…are born outside of the United States whose native language is not English…comes from an environment in which English is not dominant or…from environments in which languages other than English affect English-proficiency levels" (p. 415). For many ELLs, the primary discourse spoken at home varies greatly from the secondary discourse present at school. Teachers may benefit from creating a classroom environment with the goal of expanding learning through utilizing and expanding on languages and cultures ELLs bring with them. Moll and Gonzalez (1994) similarly describe the need for effective social networks between the home and school languages of minority children. Funds of knowledge are "historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being" (p. 443). By understanding that cultural elements are dynamic and not simply a collection of traits, celebrations, and practices, teachers would be more effective in bridging the gap between in-and-out of school literacies. The role of teachers is a defining presence in

students' lives; therefore an important contribution to an English language learners' facility of a new language. Cultural and linguistic diversity is present within many academic situations and important that these differences are celebrated and appreciated in school.

New technologies have played a significant role in accelerating how information is communicated and transported (Black, 2009; Smythe & Neufeld, 2010). Technologies brought about by globalization have an effect on how individuals communicate and apply skills necessary to live and perform everyday tasks. As educators, it is increasingly important to understand how students negotiate digital literacies and what role technology plays in learning a second language. For ELLs, technology mediated learning and literacy practices may be effective in connecting out-of-school communicative spaces with formal learning environments. New literacy studies focuses on the use of technology as a valuable academic tool and has attempted to "extend the idea and scope of literacy pedagogy to account for the context of our culturally and linguistically diverse and increasingly globalized societies...[and] variety of text forms associated with information and multimedia technologies" (Black, 2009, p. 689). Black's research explored the use of virtual environments to promote affiliation with composing and interacting in English. Black conducted interviews with three ELL focal participants, looking primarily to see if adolescents' extracurricular online activities aligned with or differed from school-based literacy practices. Based on the interview analysis, it was determined that extracurricular engagement with technology shows an abundance of sophisticated literate and social practices that include but are limited to traditional print literacies. These online spaces provided ELLs with a sense of belonging in a community that was important to them and instilled the confidence needed to "attempt additional and more complex written and communicative endeavors" (p. 692). A sense of acceptance and belonging enables ELLs to

develop identities as accomplished creators and users of English texts. Similarly, Smythe and Neufeld (2010) argue that students' out-of-school lives are "infused with such technologies and incorporate these applications into students' classroom lives to engage them in learning new content" (p. 489). These online experiences afforded conversations about cultural and linguistic practices that students engaged in outside of the formal academic setting. Based on the interviews and observations of student interactions, it was found that struggling readers and writers were seen as historical and cultural subjects that were knowledgeable and skilled in practices a part of their identities. Technology encouraged students to embed cultural elements within the school-based literacy practice: "Halima approved: 'This goes with the story, because we [gesturing to herself and Amir] are the same. We come from the same place in Afghanistan. This is desert music.'" (p. 492). Interactions like this, through the use of technology, have the potential to bring students' cultural experiences and identities into classroom learning. ELLs are oftentimes devalued in school and regularly select from their environments resources that are socially, culturally, and materially available and bring these resources to school (Smythe & Neufeld, 2010). Technology serves as a way to bridge the gap between in-and-out of school literacies and enhances ELLs feeling of acceptance as a valuable classroom member.

A partnership between multicultural education and technology can be seen as beneficial for ELLs (Chatel, 2002; Foulger & Jimenez-Silva, 2007; Peng, Fitzgerald, & Park, 2006). Multicultural education focuses on building understanding and equity across students from diverse groups. Technology is a medium that may provide a bridge to bring students together across age and cultural differences. Multicultural literacy experiences help second-language learners from different cultures improve performance as well as appreciate their own culture and the cultures of others (Peng, Fitzgerald, & Park, 2006). Peng, Fitzgerald, and Park conducted a

study where ELL children developed multi-media stories using a children-as-designers approach. Multimedia technology enabled second-language learners to celebrate their cultures by integrating their cultural backgrounds into their written stories. Children's stories included "personal, cultural content [that was] meaningful, [built] on prior experiences, and enabled children to be more spontaneous in their language" (Peng, Fitzgerald, and Park, p. 281). By utilizing their cultural backgrounds, students became more comfortable in their use of language. Similarly, Chatel (2002) discusses the relationship between literacy development and cultural and linguistic differences and how technology can play a role in creating authentic connections. Technology creates a bridge for culturally and linguistically diverse students who are learning English. Becoming a literate individual is a demanding process for every student, however, it is especially more complex for ELL students working in a second language. Chatel identifies research supporting her claim that the use of technologies with ELL students helps them acquire linguistic, social and technological skills needed for success in the digital age. Additionally, Foulger and Jimenez-Silva's (2007) research using technology and project-based learning to foster language acquisition and growth, supports the need for cultural and linguistic acceptance and appreciation. On three separate occasions, project meetings were held with thirteen general education teachers who had ELLs to reflect on their teaching practices and pedagogy. One educator was cited: "Half of my students are non-English speakers. It has been phenomenal to see technology bridge the gap between non-English speakers and the content. The language isn't a problem anymore" (p. 117). By using technologies, ELLs can talk about their own backgrounds within a larger discussion of diversity that is not limited by the experiences of their teachers or school communities. Similarities and differences can be addressed as points of

learning opportunities, instead of being disregarded which leads to a possible inability or unwillingness to learn a second language.

Establishing a classroom community that accepts and appreciates all community members can lead to student confidence and willingness to use language (Padron & Waxman, 1996; Zha, Kelly, Ko Park, Fitzgerald, 2006). The continued growth of student populations that are culturally and linguistically diverse encourages educators to identify instructional approaches that promote effective and appropriate use of language, an overwhelming factor that contributes to the overall academic success of these students. Multimedia and other technologies can connect student learning in the classroom to real-life situations and authentic learning situations (Padron & Waxman, 1996). The growth of technology in schools can help target culturally and linguistically diverse students. Technology provides opportunities for ELLs to speak, listen, read, write, and communicate in meaningful ways. Furthermore, Zha, Kelly, Ko Park, and Fitzgerald (2006) investigate students' communicative competence in a computer-mediated communication environment. The research examined the changes in ELL children's use of language for social purposes and appropriate use of language in different social and cultural settings. Computer-mediated communication provides an equal opportunity for learners with different cultural background and personalities, thereby increasing participation and use of language. When learners are involved in peer discussions, their minds are challenged by viewpoints from different perspectives and levels (Zha, Kelly, Ko Park, Fitzgerald, 2006). Culturally and linguistically responsive classrooms that provide authentic learning opportunities through a variety of mediums, like technology, benefit ELLs and their ability to construct a literacy identity that is valued.

Using technology and technological devices to bridge the gap between formal and informal settings can be a struggle if there is a lack of access (Druin, 2005; Voithofer & Winterwood, 2010; Ware, 2008). Druin (2005) discusses the idea that access to diverse materials is a direct result of globalization and expansion of today's world. Druin selected children ranging from ages seven to eleven to be a part of an interdisciplinary team to create and design digital libraries. It was found that "children need appropriate digital tools that afford them access to the information they are seeking" (p. 24). Access allows children to negotiate meaning of complex content knowledge and skills needed for print-based literacy as well, like syntax, vocabulary knowledge, and reading skills. Similarly, using 33 interviews Voithofer and Winterwood (2010) found that the construction of computer and information literacies along with the support or lack thereof of available resources has a profound effect on students' ability to contextualize multiple literacies. Analysis of the interview transcripts indicates that "consistent access to computers and Internet connectivity is still a problem inside and outside of school" (p. 694). In addition, Voithofer and Winterwood identified that the awareness of resources outside of the participants' institution is frequently limited. ELLs and educators may be unaware of the technological advancements that have surfaced or lack access to technologies that will benefit instructional practices. This is further emphasized by the following statement by one educator: "Community resources? Not to my knowledge. We try to do everything in class" (Voithofer & Winterwood, 2010). Accessibility and availability are contingent on the community's ability or willingness to support its community members. The digital divide, the distinct social division between those who have access and are involved with technology and those who are not, continues to heighten the separation of diverse students from full integration into a formal learning environment.

Ware's (2008) study examines how 20 English-language learners utilized multimedia as a part of their in-school instruction and after-school program at a technology-intensive middle school. It was determined that not all youth participate in the types of literacy-rich, out-of-school digital worlds and therefore have not yet developed a rich base of experience with digital literacy. Despite high levels of access to technology within the school, ELLs had not explored new literacy activities outside of school. Ware continues to report that "language learners need access to and support for multiple genres in order to become active participants in a larger public dialogue" (p. 47). The study concluded that multimedia literacy practices broaden the breadth of language experiences, but still little empirical evidence was found in the development of ELLs' linguistic skills in reading, writing, and speaking. In this way, there is a disconnection between in-school literacy practices and out-of-school literacy practices in relation to the use of technology. How this affects English-language learners in their ability to perform literacy tasks is still undetermined; however, can help forge new pedagogical ground that combines multimedia use outside of school with academically integrated technology in-school. Other research counters the above by claiming that if there is access to digital literacies; students will make use of the programs offered and acquire literacy skills and language (Foulger & Jimenez-Silva, 2007; Proctor, Dalton, & Grisham, 2007). Foulger and Jimenez-Silva (2007) suggest that access to technology is important to students attempting to learn a second language. Authentic uses of technology are often dismissed as being too difficult by those who believe limited English proficient students must first demonstrate mastery of basic language skills before more sophisticated material is introduced. Foulger and Jimenez-Silva argue that to not allow ELLs access to technology would be a "disservice and they would not become fully engage with learning activities that require problem solving and investigation" (p. 110). It was found that

students will use computerized programs if given access to computers and other technological devices. Classroom technology use has the potential to provide ELLs with access to crucial digital literacies (Proctor, Dalton, & Grisham, 2007). Individual student responses suggested that ELLs who made use of the "embedded supports speared to be interacting meaningfully with the texts" (p. 88). These supports oftentimes were embedded hyperlinks within the reading passages that offered access to other educational resources. Digital learning environments can also be designated and programmed to present important information in a systematic and consistent fashion, thus ensuring comparable access for all students. This access can help reduce the achievement gap between native English speakers and non-English speakers. Giving ELL children access to a variety of technological tools and programs offers ways to become familiar with informational technologies and acquire skills needed to linguistically function within a larger cultural system (Foulger & Jimenez-Silva, 2007; Proctor, Dalton, & Grisham, 2007; Voithofer & Winterwood, 2010; Ware, 2008).

As society continues to advance, the demand for digital technologies to be used in the classroom increases (Saine, 2012). To accommodate this change, technologies like the iPod, iPad, and SMARTBoard are continuing to find homes within classrooms. Technology is an integral part of academic instruction, particularly vocabulary instruction. There is an increasing need to develop successful vocabulary instruction for ELL students; however, Cannon, Fredrick, and Easterbrooks (2010) state that generalizing what "works best with native English speakers is not always best practice" (p. 99). It is recommended to select target vocabulary words that account for students' diverse language backgrounds. An effective means of teaching vocabulary to ELLs is through explicit teaching of high utility words (Hickman, Pollard-Duradola, & Vaughn, 2004). High utility words are so abstract and technical that they use within text is

limited, therefore, explicit instruction is needed within specific content area knowledge: "by using terms that students are already acquainted with to give meaning to new words enables students to associate the new vocabulary with their daily experiences, generalizing it across contexts (p. 722). Additionally, Sibold (2011) agrees that teachers can ask ELLs to associate the new words with things that are already familiar to them, which help to bridge the gap between native and second languages. Explicit instruction focuses on pre-teaching the word, providing multiple examples, using the vocabulary word in context, and reviewing the word and its meaning. Hickman, Pollard-Duradola, and Vaughn (2004) add that definitions of new words should be given in everyday language that relates to concepts, words, or phrases with which the student is already somewhat familiar. Students who are ELLs require effective and ongoing vocabulary instruction. Educators often struggle with how to fill in the gaps for the ELL population because holes exist in their breadth and depth of vocabulary knowledge (Cannon, Fredrick, & Easterbrooks, 2010).

Technology Increases Motivation and Engagement of ELLs

Technology and technological devices can be used to motivate and engage English language learners' in the development of literacy and language skills (Traore & Kyei-Blankson, 2011; Ware, 2008). Much research is based on the premise that technology can help motivate students to be more engaged in reading, especially when they interact with the text using certain interactive technological tools. Technology including audio and video, cameras, software programs, and electronic learning programs can be used to enrich instructional activities. Traore and Kyei-Blankson (2011) explored the use of multiple technologies used in the presentation of a novel to classroom of ELL students. The multiple technologies were chosen based on the idea that the use of technology can be used to motivate ELL learners to develop strategies for

successful learning. The findings suggest that through the use of literature books with accompanied CD-ROMS or attached supplementary technology driven activities that are motivating and authentic helps to build up interest for other cultures. Through the use of word processors, presentation software, multimedia, hypermedia, and the Internet, language learners can develop language and communication skills. By utilizing various kinds of technological devices, language learners gain a "sense of freedom, motivation, and encouragement they need for learning" (p. 563). Researchers conducted one-on-one interviews and found that the use of technology empowered the students. In this citing, one interviewee stated that by having the audio-visual technology available, "it gave me an understanding and a confidence that I would not have had from the reading of the book only" (p. 565). Providing authentic literature to ELLs is crucial in motivating them to read. However, literature in combination with multiple technologies can offer additional support for English-language learners. Similarly, Ware (2008) explored the use of multimedia with 20 ELLs looking specifically at the types of technological tools used and the benefits or tensions these devices foster. Ware's (2008) research concluded that multimedia literacy has the well-documented benefit of motivating students to a much greater degree than print-based literacies alone. Excitement over the digital tools available made ELLs eager to work on literacy-based projects. This study chose PowerPoint as the technology medium and as an initial motivational springboard for work that integrates other technological tools that promote higher order thinking, navigation, and communication skills. Both Ware (2008) and Traore and Kyei-Blankson (2011) found that technological tools or devices when combined with literature have a positive effect on ELLs motivation to learn a second language.

Technology that is effectively introduced using pre-teaching strategies can support and motivate learning a second language (Murray, 2008; Softa, 2011). Teachers need to explicitly

teach the characteristics of these new technological discourses for learners to use information communication technology competently to learn languages. Murray's (2008) qualitative data, including focus groups, interviews, and observations, focused on the use of information communication technology as a tool and a tutor in the classroom. As a tool, it helps learners organize, facilitate communication, and provide information. The role of ICT as a tutor is to teach language. In cooperation, technology as a tool and a tutor can motivate students to engage in online tasks. When skills or features were pre-taught, students were less anxious when they tried activities on the computer and became more motivated as they successfully accomplished online tasks (Murray, 2008). In the introductory phases of technology integration, learners need to be supported to ensure help is available when needed, especially when the technology's role is the tutor. ELLs need an environment that encourages active learning habits; technology can be used to motivate students to develop these habits. Softa (2011) agrees with Murray (2008) in the importance for use of technology as a motivational piece to encourage language learning. From a questionnaire given to 230 students, Softa (2011) measured student motivation from the learning environment and the use of technology. Students reflected a more positive attitude while performing in a technologically advanced environment, being less emotional or anxious when expressing ideas in English. In contrast Softa's (2011) quantitative data showed that students were "moderately motivated from the enhanced classroom conditions and use of technology is moderately important" in learning English (p. 136). In most cases, technical equipment like CD players and DVDs were seen as essential motivational components to language learning.

Expanding literacy instruction to include electronic mediums can capitalize on student interests and help shape attitudes toward learning (Foulger & Jimenez-Silva, 2007; Lin, 2010).

Teachers are encouraged to use computer technology as an intervention strategy to reverse students' negative attitudes toward reading books in English. Lin's (2010) research investigated the effects of using e-books (electronic books) in an extensive reading program on ELL's attitudes toward reading in English. E-books are beneficial to young readers with reading difficulties or for English-language learners as they help improve comprehension, phonological awareness, and encourage reluctant readers to read (Lin, 2010). There were 109 Northern Taiwanese students were selected for this study and three components were measured, cognitive, affective, and conative. The research found that cognitively, the students believed that English e-books were "beneficial for them and they had the desire and ambition to keep reading" (p. 41). Affectively, the students regained confidence and interest in English. Due to the renewal of interest and change in attitude, the participants spent free-time reading English e-books outside of school. Another factor that contributed to an attitude change was the features of the e-books, such as oral reading, highlighting, animations, and music/sound effects. E-books can effectively reinforce English-language learners' attitude towards reading in English. In order to change students' attitudes towards reading, student interests must be incorporated. Findings from Foulger and Jimenez-Silva (2007) showed that technology increased motivation among ELLs. Teachers in the study noted that "multimedia and telecommunications captured student interest by offering more opportunities for collaboration and interaction [and] allowed multiple modes of input and expression" for students (p. 118). Many teachers reported that working with computers helped to motivate students to go beyond the required activities. One teacher expresses their thoughts: "the integration of technology has had a very positive effect on student learning…my students are extremely enthusiastic and very motivated to work" (p. 118). By

acknowledging and capitalizing on students' interests, students become more compelled to learn and put forth more effort in building communication and technological skills.

Apart from motivation, attitude, and interest, there are environmental factors that contribute to ELLs' willingness to participate in language learning activities (Chatel, 2002; Foulger & Jimenez-Silva, 2007; Peng, Fitzgerald, & Ko Park, 2006; Traore & Kyei-Blankson, 2011). Traore and Kyei-Blankson (2011) note that language acquisition among young children "is a gradual process that involves building vocabulary from messages received through communication and using that language in a highly supportive, non-stressful environment" (p. 562). Teachers are responsible for providing language that is understandable and other necessary supports to ensure student understanding of the intended message. A rich linguistic environment that is supportive of student needs increases the ability of ELLs to comprehend the intended message. Foulger and Jimenez-Silva (2007) discuss the relationship between student participation and their environment and emphasize the importance of teachers building a classroom environment in which "students' social and emotional needs as well as their academic needs are met" (p. 111). Teachers in Foulger and Jimenez-Silva's (2007) study reported how technology helped create a classroom environment that was less threatening and ELLs felt safe to interact with others and the language. Teachers continue to describe how students developed their self-confidence in their abilities to use technology: "The use of technology allows the students to freely explore and apply their existing talents as well as an opportunity to share their technical knowledge with peers…students gain confidence in their abilities by producing" (Foulger & Jimenez-Silva, 2007, p. 118). The use of technology in the classroom can help build confidence especially if exposure to technology outside of the classroom has occurred. Chatel (2002) furthers this idea by stating that a safe and authentic learning environment provided

experiences that ELLs valued. The emotional and intellectual support from peers encouraged student learning and promoted self-confidence. Technology provided a way for teachers to support the self-confidence and self-esteem of ELLs, in terms of their language learning and mastery of content. When self-esteem is heighten, ELLs become more motivated to learn content-based curriculum. Peng, Fitzgerald, and Ko Park (2006) discovered that ELLs' success was due to a safe and nurturing learning environment combined with a technological element. The goal for each student was to develop skills in designing a hypermedia learning environment using two professional online programs. An environment that is risk-free encourages students to students to explore and experiment with language (Peng, Fitzgerald, & Ko Park, 2006).

Opportunities for ELLs to interact with information communication technologies can promote socialization and communication skills with peers (Lopez, 2009; Nor, Hamat, Azman, Noor, & Bakar, 2011; Padron & Waxman, 1996). Lopez (2009) focused on improving English-language learners' learning through the use of interactive whiteboard technology. Looking at performance tests for third and fifth grade students, Lopez (2009) found that was a statistical difference in scores between ELLs and regular education students in the digital learning classroom for third graders; however, ELLs in fifth grade score significantly lower on the tests than their regular education peers. However, evidence strongly suggested that the digital learning classroom increased student achievement for ELL students relative to the ELLs in a traditional classroom. Interactive whiteboard technology offered a broader range of functions and features from which to "create social settings where ELL students' learning could prosper; provide a variety of contexts for learners with diverse needs; and integrate feedback and active evaluation of learning to further content understanding and skills" (Lopez, 2009, p. 911). The digital learning classroom and the use of interactive whiteboard technology strengthened the

classroom learning environment and encouraged socialization. In addition, Nor, Hamat, Azman, Noor, and Bakar (2011) conducted a study where technology was used as a tool to motivate students to be more engaged in reading. ELL students were given the opportunity to interact with text using certain interactive technological tools to promote interest in reading texts online. The results showed that through use of these interactive tools students were "given the opportunity to express themselves and explore the text in a variety of ways" (Nor, Hamat, Azman, Noor, and Bakar, p. 257). Students shared their thoughts and ideas by providing feedback through reviewing and commenting on classmate's annotations within the texts. Although this study was purely presenting communication in an online format, not in face-to-face interactions, students gained an understanding of how to communicate effectively using online technological tools. The use of these tools motivated ELLs to continue to explore English as a language, to read online texts, and to communicate with others about similar readings and topics. Padron and Waxman (1996) discuss the effectiveness of technology for ELLs by describing how computer integrated instruction facilitates social integration, communication, and cooperation. These characteristics of technology are beneficial for ELLs because it was found that before the use of technology ELLs were disengaged from school because failure rather than success was often experienced. Computers provided students the opportunity for hands-on learning and working collaboratively. Through the use of technology ELL students interacted with English-proficient students and worked collaboratively together. Within this classroom setting, ELLs were more actively engaged on learning tasks.

Technological tools have the ability to transform literacy instruction and student engagement. The iPad is a tablet device that has many educational applications that can be downloaded for student use. Saine (2012) highlights an intermediate elementary and middle

school language arts teacher and her use of the iPad. The students created a short story that focused on one character trait and story elements using a graphic organizer and an application on the iPad to create scenes. According to Saine, the iPad allowed the students to use their creativity and imagination to create animate stories and the "digital process has helped the students become more creative in their thinking" (p. 77). In addition to creating stories, the iPad can be used to watch videos, conduct research, and play educational games to reinforce concepts or topics. When students are engaged in digital learning activities, the students see these tools as exciting and unique, not as schoolwork. Similarly, Cannon, Fredrick, and Easterbrooks (2010), state that ELLs improve their vocabulary when instructed through multimedia material. Participants in this study engaged in vocabulary activities using the DVD math expository books. The participants were reading at the emergent literacy level and the researchers found it important to recognize that the students' interests and vocabulary needs were beyond those associated with traditional emergent literacy stories. The math stories on DVD were age and interest appropriate. The findings suggest that incorporating multimedia tools is effective in promoting vocabulary instruction of ELLs.

Student-Centered Learning Promotes Learner Autonomy

Learning that is student centered promotes learner autonomy, the ability of the learner to work effectively and independently while still gaining meaning (Padron & Waxman, 1996; Proctor, Dalton, & Grisham, 2007; Soong, 2012). Instructional technology has been found to be beneficial for ELLs as it individualizes learning and tailors instruction to meet the students' needs and rate of learning. Padron and Waxman (1996) describe the need for tailored instruction for at-risk students and ELLs as it will lead to learner autonomy. Technology provides the students with a sense of personal responsibility and control. If the student feels confident in his

or her ability to perform well on an academic task in a risk free environment, the student will more likely try to complete the task independently. Proctor, Dalton, and Grisham (2007) found that it is important to embed learning supports within the technology that the learner is in control of. The amount of support that is 'pushed' to the student versus 'pulled' is critical. 'Pushed' information is information that an educator provides the student, expecting the student to apply these tools to his/her learning. 'Pulling' information is what the student does when actually using the tools given. For example, in the study, the students were required to add three new words to the glossary; this is an example of pushing. The results showed that students on average added more than a full word per text to the glossary than was required; this is an example of pulling. According to Proctor, Dalton, and Grisham's (2007) research, "some supports should be "pushed" at students, especially during the introductory stage when they are learning how to use the support system to their advantage" to ensure that students understand the purpose and function of the tool (p. 88-89). After being equipped with the necessary tools, it is assumed that the 'pulling' of supports represents a type of self-monitoring or scaffolding. Soong (2012) discusses the use of electronic learning as an integral part to learning a new language. Soong's (2012) stance on technology is that it should not be expected that the presence of new technologies will greatly impact students' learning; however, if technology is integrated effectively and appropriately that these learning practices will enforce students' learning motivation and autonomy. E-learning provides a virtual environment to learners where students can get online guidance and direction. The use of e-learning as an additional tool to traditional face to face interactions is beneficial; however, if technology is used purely as a means of supplementing teacher-directed instruction, the student will express difficulty self-teaching language skills. Soong (2012) notes that while electronic learning environments foster

independence, it can "lead to the lack of teacher supervision which traditional teaching provides" (p. 89). Face to face teaching is impossible in an e-learning environment and student's confusion or lack of understanding cannot be easily and immediately addressed. If not dealt with, the student may become frustrated and their understanding of what it means to be an independent learner suffers or is lost.

Technology supports the learner in gaining independence in its ability to expand the academic day beyond the time, place, and pace in which learning can occur (Beecher & Williams, 2012; Gedera, 2011; Hui, Hu, Clark, Tam, & Milton, 2008; Soong, 2012; Zha, Kelly, Ko Park, & Fitzgerald, 2006). The expansion of time, place, and pace allows for the continual exposure and practice of literacy skills. Beecher and Williams (2012) focused on the impact of a website accessed on school computers in increasing the amount of sight words ELLs know. Self-access language learning is an aspect of electronic learning that has the ability to extend the normal learning constraints of the classroom. Flexibility has been a desirable aspect of the electronic learning environment and has the potential of increasing learner autonomy and proficiency. Used in isolation or as an alternative to traditional teaching methods would be detrimental to language learning because a computer is just a computer and cannot operate or respond in a flexible manner to meet all learners' needs. The study concluded that computer-aided instruction is beneficial for young ELLs as word recognition skills increased through the use of the website for ten minutes daily. The website was used during school; however, it was free and accessible to those outside of school which offers students the opportunity to extend learning beyond the academic day. One of the main benefits of e-learning lies in its extension of the limits in time and space for language learning which is what traditional teaching fails to achieve (Soong, 2012). Technology is increasingly popular because educators can manipulate

time, place, and pace in more of a flexible way. Computer-mediated communication, such as Weblogs, encourages human interactions that support the language learning process. Blogs can be used for personal, education, journalistic, and commercial purposes. The greatest advantage of a blog is that it is an online journal that can be updated constantly. Gedera's (2011) research found that blogs were used as a tool for observation and taking written work through the writing process. Each stage of the writing process was made easier because the students could access not only their own work, but others as well to offer feedback and provide support. A weblog can be manipulated at any time or place. The flexibility of this technological medium is appealing to many educators and students who need to complete academic tasks outside of school. The implementation of blogs into the curriculum offers encouragement and self-esteem to ELLs, allows teachers to actively engage with students beyond the school day, and enhances independent learning and student-centered learning.

Hui, Hu, Clark, Tam, and Milton (2008) conducted a study comparing the effectiveness and satisfaction associated with technology-assisted learning with that of face to face learning. The debate over using technology as a substitute or an addition to traditional methods causes much research to remain inconclusive to whether or not technology benefits ELLs. According to research gathered as a foundation for this study, many advocates believe that technology-assisted learning offers "greater learner control over time, location, pace and repetition" (Hui, Hu, Clark, Tam, and Milton, p. 246). The members of the technology-assisted learning group were found to create a positive learning community online, showed greater improvement in language skills, and the perceived course learn-ability was positively correlated with learning satisfaction. This means the users found the website to be easily readable and accessible. One limitation of the study was that although the website resembled a typical technology-assisted learning platform, it

was designed primarily to support asynchronous learning. Zha, Kelly, Ko Park, and Fitzgerald (2006) define synchronous and asynchronous communications. In synchronous communications, users can converse using the technology at the same time (instant messaging or chat rooms). In asynchronous communications, users transmit information at separate times (messaging on electronic discussion boards and e-mail). If the technology only offers asynchronous forms of communication, this could potentially hinder student achievement, especially if feedback is needed directly or instantly. Although this type of communication may be a drawback, giving ELLs the option to work on or complete an activity without time, place, or pace restrictions is beneficial because language and linguistic skills continue to grow through consistent use.

Digital literacy activities can help teachers create classroom learning communities that critically engage and respond to the social worlds of English-language learners (Bakar, Noor, Azman, Nor & Hamat, 2011; Foulger & Jimenez-Silva, 2007; Gedera, 2011; Smythe & Neufeld, 2010; Zha, Kelly, Ko Park, Fitzgerald, 2006). Digital literacies, such as podcasts and blogs, promote social interaction and communication beyond the confines of the classroom. Smythe and Neufeld (2010) used podcasting as a means for students to interact with text and each other. Through the podcasts, the participants "rationale and evaluated their opinions, gathered information with and from others, shared knowledge with one another, and transformed their existing understandings as learners in a constant process of personal and social development" (p. 494). The students in this podcast project were participating in a process of discovery rather than being a passive classroom community member. Gedera (2011) agrees by stating that when working in a collaborative setting, students are exposed to meaningful interaction with peers, a greater exposure to ideas and new perspectives. Weblogs provide learners with a real audience

and a collaborative environment where students can interact by giving and receiving feedback, thus enhancing writing skills. Zha, Kelly, Ko Park, and Fitzgerald (2006) used electronic discussion boards to facilitate a cooperative learning environment. Electronic discussion boards offered an equal opportunity for peer interaction; students felt more comfortable in expressing their own opinions and preferences after adapting themselves to the learning environment. This sharing of information "reflects the social collaborative learning aspect that allows readers to learn from others through constructing and reconstructing their understanding of text" (Bakar, Noor, Azman, Nor & Hamat, 2011). For example, the annotation tool allows for discussion that enables learners to discuss any text and gives them access to different viewpoints and understanding of the text. Authentic project-based learning creates opportunities that promote academic skills, help students feel more integrated into the classroom community, and increases motivation, thereby connecting them to the realities of life outside the classroom (Foulger & Jimenez-Silva, 2007). These technology mediums aim at developing critical skills and communication competency through structured social interactive activities.

Technology changes the nature of classroom interactions because it alters the ways that information can be obtained, manipulated and displayed (Black, 2009; Murray, 2008; Voithofer & Winterwood, 2010). Students must go beyond being literate to being multi-literate because texts and literacy practices of daily life are changing at an unprecedented and often disorienting pace. Multiliteracies refer to the variability of making meaning within culturally diverse and increasingly networked global economies, societies, and political environments and the expansion of ways to making meaning in which text based linguistic components increasingly merge with graphic, audio, and spatial patterns (Voithofer &Winterwood, 2010). The features of print-based texts are elevated to new forms visually, audibly, and graphically. Technologies

provide opportunities for learners to "interact with, interpret, negotiate, and make meaning of texts available, whether these are orthographic, audio, audiovisual, or visual texts" (Murray, 2008, p. 29). Technologies afford student learning through a multitude of mediums that were otherwise non-existent before the transformation into the digital age. Information and communication technologies have moved from being a marginal contributor to language learning and instead to being a part of transformative learning. Print-based texts do not offer the same reading experience for all learners and effective technological tools can be implemented into the classroom as another way to support language learning. Black (2009) states that individuals use technological tools and semiotic forms to communicate, share information, and negotiate meaning. Specifically, English-language learners need to be taught how to use "electronic resources to locate, evaluate, synthesize, and put information to use" (Black, 2009, p. 693). Being able to locate, evaluate, and synthesize information is difficult when reading any form of text and especially complex for ELLs. Ware's (2008) study demonstrated that "Multimedia literacy practices certainly broaden the breadth of [literacy] experiences, but little empirical evidence of the depth in which students develop their linguistic repertoire when moving across textual, visual, and aural modes" (p. 49). Murray (2008) argues that computer mediated communication may not provide appropriate models that language learners need for all contexts, thus hindering the meaning making process. Not all learners are able to seamlessly transfer their reading skills from print to an electronic medium. Online reading is no longer a static representation of text. Digital texts require a different form of reading and literacy skills in order to gain full understanding: navigation tools, critically evaluating and selecting information, deciphering complex words/vocabulary. The digital text format can be extremely difficult for ELLs because their facility with English is still developing (Ware, 2008). Non-linguistic

features, like graphics and animations reduced readability. The sites ELLs found were beyond their current level of proficiency, or that had low readability or unreliable information (Murray, 2008). Making meaning from text is the ultimate goal of reading, whether reading a print-based text or an online text.

Educational technology can help ELLs develop speaking, writing, listening and reading skills (Bakar, Noor, Azman, Nor, & Hamat, 2011; deHann & Johnson, 2012; Kasapoglu-Akyol, 2010; Proctor, Dalton, & Grisham, 2007). Students need to know how to read online texts and is not always taught separately at school even though reading a text online requires different skills than reading printed text. Many traditional print-based reading habits support reading texts online; however, more is involved in reading electronic material, like being able to manipulate text or graphics in a manner that is effective and appropriate. From interviews conducted by Kasapoglu-Akyol (2010), it was determined that electronic dictionaries helped participants learn new vocabulary which improved reading and writing skills. Additionally, the participants used technologies like Microsoft Word, email, chat programs, and the Internet to manipulate, interact with, and find information. These technological tools helped ELLs practice English and improve literacy skills. As in Kasapoglu-Akyol's study (2010), deHaan and Johnson (2012) used online measures to promote literacy acquisition. The participants in this study video recorded a press conference scenario two times and uploaded to a private wiki. The students in the project were able to notice and improve their English by watching, transcribing, self-correcting and discussing their performances (deHaan and Johnson, 2012). One student stated, "I could notice my weaknesses from watching my video and was useful because we usually can't see ourselves" (p. 330). deHaan and Johnson (2012) found that the affordances provided by technology for increasing efficacy of second language learners benefited in their ability to acquire speaking,

listening, and critical thinking skills. Similarly, Bakar, Noor, Azman, Nor, and Hamat (2011) stress that online reading helps facilitate interaction between readers and texts thereby enhancing comprehension and building critical literacy skills. Through the student evaluations of the online reading system it was found that the features of the i-ELLs (Intelligent English Language Learning) system (discussion tool, my notes, and annotation tool) were important because it allowed students to apply strategies learned from each tool to reading. Bakar, Noor, Azman, Nor, and Hamat (2011) noted that while online reading through Internet technology has the potential of being a powerful tool for building reading skills, without proper instruction and a purpose, reading online for ELLs can lead to "information overload and confusion" (p. 64). ELLs need to be challenged with complex, relevant activities that involve critical thinking and engage all their senses while being careful of the intensity and rigor the activity requires. In order for students to become successful in all forms of literacy, the method of instruction needs to be in a way that students have a strong foundation in technology and digital literacies. Information and communication technologies help learners engage in activities that enhance learner autonomy and creativity through authentic communication and collaboration (Murray, 2008).

Technological tools have the capability of differentiating content or skills to meet diverse learners' needs (Padron & Waxman, 1996; Traore & Kyei-Blankson, 2011; Proctor, Dalton & Grisham, 2007). Technology can improve the cognitive outcomes of ELLs if learning is individualized and tailored to meet curriculum expectations and the students' needs. Technology enriched classrooms can change the current modes of teaching and learning by shifting the role of teacher from a deliverer of information or knowledge to one of a facilitator of more active student learning (Padron & Waxman, 1996). The focus of learning becomes more student

directed rather than teacher directed and technology helps to make this a smoother transition. Similarly, Traore and Kyei-Blankson's (2011) discuss the use of technology as a differentiating tool. Through the use of word processors, presentation software, multimedia, hypermedia, drill and practice programs, the Internet, and other procedures and tools, students from all walks of life are able to engage in instruction and the learning environment designed to meet their specific needs. Classroom technology has the potential to provide struggling readers and ELLs with access to crucial digital literacies while improving language acquisition and literacy skills. Furthermore, Proctor, Dalton, and Grisham (2007) advocate that curriculum materials involving technology be designed with sufficient flexibility that students of varying levels of ability, language proficiency, and cognitive functioning may access, and learn from, equivalent materials.

Instruction involving digital literacies should not be the only method of instruction for ELLs; rather a combination of traditional literacies and digital literacies would have more of an impact on literacy acquisition (Beecher & Williams, 2012; Smythe & Neufeld, 2010; Murray, 2008). Computer assisted instruction coupled with traditional methods may help ELL students perform at grade level faster than traditional methods alone. Using technology in the classroom challenges the conventional curriculum and its outcomes. Smythe and Neufeld (2010) state that "digital and multimodal technologies challenge the conventional curriculum, including the organization of space, student grouping, and access to equipment" (p. 493). Information computer technologies in language instruction can move from a peripheral, marginalized position in the curriculum to a tool and tutor that can transform language instruction to achieve the goals of language learning through authentic communication and learner-centeredness.

Method

Context

Research for this study took place at a large school district in Western New York. The New York State District Report Card for the 2010-2011 school year indicates that a total of 31,279 students are enrolled within the district, from Pre-Kindergarten through 12th grade. The student population in the 2010-2011 academic year was made up of 63% Black or African American, 23% Hispanic or Latino, 10% Caucasian, 3% Asian or Native Hawaiian, and 0% Multiracial and American Indian. Additionally, 11% of the population is Limited English Proficient. Of this population, 79% were eligible for free or reduced lunch. Given its large size, the district operates 39 elementary schools, 19 secondary schools, and several alternative education programs. Research for this study occurred within one building, which is comprised of students in Kindergarten through 8th grade. During the 2010-2011 academic year, the school had a total enrollment of 665 students. Within the school, the student population was made up of 87% Black or African American, 8% Hispanic or Latino, 4% Caucasian, 1% Asian or Native Hawaiian, and 3% Limited English Proficient. Of this population, 81% were eligible for free or reduced lunch. The average class size was approximately twenty-two students with three sections at each grade level Kindergarten through Sixth. This study took place within a first grade classroom. The classroom has one teacher and 24 students. Of the 24 students, 8 students are ELL (English-Language Learner), two are female and six are male. The native languages of these students include Karen, Nepali, Somali, Burmese, and Spanish.

Participants

The participants for this study include five out of the eight ELL students in the first grade classroom mentioned above. There are three male and two female participants between the ages

of six and seven years old. All of the participants in this study come from low socio-economic backgrounds, receive breakfast in the classroom and are eligible for free or reduced lunch. All of the participating students receive services from the ESL (English as a Second Language) teacher employed at the building due to the language barrier and being significantly behind grade level expectations. Students receive small group and one-to-one instruction in the areas of reading, writing, and mathematics throughout the day.

Robert (pseudonym) is a very quiet, seven year old, male born in Thailand. He loves Spiderman and when given a task that requires him to draw, no matter what the topic is, he will draw Spiderman. His native language is Karen. Before coming to the United States, Robert lived in a Burmese refugee camp with his mother, father, and younger brother. Once in the U.S. Robert did not attend Pre-Kindergarten. According to the ESL teacher, Robert's mother and father know virtually no English and is most likely illiterate in their native language, Karen. Given the lack on language spoken in the home, Robert is reluctant to speak in school, unless in a small group setting with his peers. He is extremely happy when working in small groups or one-on-one. Despite his positive attitude in school, Robert's motivation and willingness to work independently on an academic task is inconsistent. He needs frequent visual and verbal prompts to complete an activity and to stay on task.

Frank (pseudonym) is a quiet, seven year old, male born in Nepal with Bhutanese citizenship. Frank loves to play with friends, play video games, and likes Iron Man. Ethnically, they are Nepali who moved to Bhutan a few generations ago and then were kicked out of Bhutan and expected to return to Nepal. Nepal doesn't recognize them as Nepali and Bhutan will not let the family return. Once in the U.S. Frank did not attend Pre-Kindergarten. Frank's father speaks very little English in the home. He is somewhat reluctant to speak during whole group activities;

however, will raise his hand to participate. He feels comfortable in small group and one-on-one. Frank works diligently to complete task independently, although he is below grade level expectations.

Aubrey (pseudonym) is a quiet, happy, seven year old female born to Somali parents in the United States. Her native language is Somali and her parents speak both languages in the home. The LAB-R testing scored her as an intermediate ELL. Aubrey likes to play games on the computer, watch movies and play with her two best friends, Hailey and Samantha (pseudonyms). Aubrey's inability to comprehend directions and read aloud texts contributes to her lack of participation during whole group and small group settings. She needs frequent reminders to work independently and to remain on task. Aubrey struggles with acquiring letters and sounds. Despite her academic weaknesses, Aubrey is very happy at school and is always smiling.

Hailey (pseudonym) is a cheerful, seven year old, female born in Thailand. She was born in a Burmese refugee camp and her native language is Burmese. According to the ESL teacher, her mother can speak the necessary amount of English to communicate. She lives at home with her mother, father, and older brother. Hailey likes to play with her best friends, Aubrey and Samantha (pseudonym), wants to be a princess, and loves doughnuts. She listens during whole group and small group instruction; however, given the language barrier she is unable to comprehend multi-step directions and read aloud texts. Hailey works well independently on modified tasks and gets excited when she is able to learn something new that interests her.

Chad (pseudonym) is an energetic, seven year old, male born in Puerto Rico. His native language is Spanish, but his dominant language is English. LAB-R tested him as a level three

out of four in English, which is advanced. Pre-LAS testing scored him at a 1 in Spanish, which means that he is more fluent in English than Spanish. Chad attended Pre-K here in the United States. His mother speaks some English. Chad experiences significant delays in his speech and language which affects his rate of progress and participation in daily school tasks. He receives speech services from the Speech Pathologist at school once a week for thirty minutes. Despite his positive attitude towards school, Chad does need frequent reminders to stay on task and to finish work independently in the allotted time given. Of all of the ELL students in the classroom, he had the highest language skills at the beginning of the school year.

Research Stance

I am currently a graduate student at St. John Fisher College working towards a Masters degree in Literacy Education, Birth-6th grade. I presently have a Bachelors degree in Childhood Education and Special Education from SUNY Geneseo. As a researcher in this study, I acted as an active participant observer, meaning that I "actively engaged in teaching and [observed] the outcomes of [my] teaching" (Mills, 2011, p. 75). As a result, I was able to adjust my small group lessons and the vocabulary application on the iPad used throughout the study based on student needs and observations.

Method

During this study, I collected qualitative and quantitative data to examine the use of an iPad application (Vocabulary Builder) as way to support the vocabulary development of English-language learners. It specifically will examine the effects of these technologies on students' vocabulary word knowledge, their ability to interact with the iPad, and their independence. For the purpose of collection comparative data, students were randomly assigned to a control or

experimental group. The iPad will act as the independent variable. The study took place over the course of 12 sessions total, one 30 minute session daily. Two of the sessions, one at the beginning and one at the end of the study, will be dedicated to collecting pre and post assessment (see appendix A) data as well as student interviews (see appendix B) and teacher interviews (see appendix C).

During the course of the study, the students were tested on their ability to understand new vocabulary words and their meanings with the iPad as an additional support. In order to determine if any academic gains will be made by the students, the first session was dedicated to administering a pre-assessment to each participating student (see appendix A). Students were asked to demonstrate their ability to identify meanings of words. The words were chosen based on the vocabulary the students in the experimental group will encounter on the iPad. Students in the experimental group were provided a tutorial on how to use the iPad as well as time to practice using the application prior to literacy instruction.

Throughout the remaining 11 sessions, students were removed from module instruction (a read aloud) or writing time to participate in the study. During each 30 minute session, all students will be explicitly taught the vocabulary for the day in a small group setting for approximately 30 minutes. The instruction consisted of pre-teaching the vocabulary words and providing examples of each word. For the purpose of the study, the iPad was used as an enhancement activity for the experimental group. The participants completed the Vocabulary Builder activities that go along with the vocabulary words chosen during small group instruction. The control group completed a teacher-made worksheet on the vocabulary words that reinforces what is seen on the iPad (see appendix D and appendix E). The experimental group was recorded by video and the control group was recorded by audio as a means of observation.

Lastly, during the final session of the study, students were re-assessed on their ability to identify the meanings of vocabulary encountered throughout the study. The post-assessment was the same one used to assess student knowledge during the first meeting. The experimental group was also interviewed at the end of the study for five minutes to determine their feelings about the application and the level of use as a learning tool (see appendix B). All interviews were recorded and transcribed in order to keep the integrity of the research.

Quality and Credibility of Research

In completing any action research, it is crucial to evaluate and ensure the study's quality and credibility. To do this, Mills (2011) looks to the work of Guba (1981) to identify credibility, transferability, dependability, and confirmability as the essential components of a qualitative research study's trustworthiness. All four components will be thoroughly examined and enforced within this current research to ensure trustworthiness.

Mills (2011) defines credibility as a "researcher's ability to take into account the complexities that present themselves in a study and to deal with patterns that are not easily explained" (p. 104). To help ensure credibility throughout this research I practiced triangulation. According to Mills (2011), triangulation is when a researcher utilizes a "variety of data sources and different methods with one another in order to cross check data (p. 104). I practiced triangulation by collecting and using experiential, enquiry, and examination data. I will actively observe students use the vocabulary application on the iPad, collecting descriptive field notes, collecting pre and post assessment data using audio recordings, conducting formal interviews with four staff members, and examining student work are all various data collection methods that will be implemented throughout this study.

In addition to credibility, I will also ensure transferability in my research. Transferability is defined as a "researchers' beliefs that everything they study is context bound" and therefore is not generalizable to larger groups of people (Mills, 2011, p. 104). In order to ensure transferability in this study, I will collect data that is descriptive and detailed which will allow for comparisons of the study to other contexts. By providing descriptive data that is specific to my research situation, it is possible for others to "make judgments about fittingness with other contexts" (Mills, p. 104).

Another component of ensuring a research study is valid and trustworthy is dependability. Dependability refers to the stability of the data (Mills, 2011). In my research study, I will address dependability by overlapping my data collection methods through the practice of triangulation. As stated previously, I will conduct student and teacher interviews, observe students on the iPad, and collect student assessment data from the iPad and district mandated assessments (NWEA and AimsWeb). By using three data collection methods, the weaknesses of one area are more likely to be compensated by the strengths of another, which will further strengthen their stability (Mills).

Lastly, I ensured confirmability throughout the course of my research. Mills (2011) defines confirmability as the "neutrality or objectivity of the data that has been collected" (p. 105). The triangulation process will help ensure confirmability. By comparing all data sources, I will allow for cross-checking of the collected data. Additionally, I practiced reflexivity by noting my "underlying assumptions or biases" in a reflective journal after each session (Mills, p. 105). By meeting these criteria, I believe that the data collected throughout this qualitative study is trustworthy, and presents valid and reliable insight into the use of a vocabulary application on the iPad into literacy instruction.

Informed Consent and Protecting the Right of the Participants

Before beginning my research, I asked for permission from the parents of all students who are going to be involved in the study. I provided each parent with a permission form that explains the purpose of the study and ask for their permission and signature to allow their child to participate in the study. Additionally, I needed to receive verbal assent from each student following the receipt of parental permission. I explained to each student what the study entailed. The parents and students were notified that the names of the participants would be changed to pseudonyms and all identifiers were removed from all artifacts to protect the identities of the children.

Data Collection

I collected three different forms on data to comply with the need for triangulation in the study. One form of data collection I used was that of video and audio recordings to observe and collect field notes on each 30 minute session of the study. A video camera was set up at the iPad center where students interact with the iPad. At the end of each of the eight recorded sessions, I reviewed these recordings and took detailed field notes on what I observed or heard in regards to the students' vocabulary word knowledge, their ability to interact with the iPad, and their independence. In addition to the field notes I kept, I recorded my own thoughts and perceptions about each session as a way to reflect and synthesize the information.

Another form of data I collected is pre and post assessment data from each student that participated in the research study to identify the amount of growth made throughout. Students were individually assessed on their ability to identify the meanings of various vocabulary words. The Vocabulary Builder iPad application has multiple versions which each house three separate

categories of vocabulary. I chose two activities from the Vocabulary Builder application (shapes and action verbs) in which each student was tested on the vocabulary words and their meanings. At the end of the study, the data was examined to determine any academic growth the students gained and any correlation to the group they were assigned to. At the final session, I had a conversation with students who used the iPad in regards to their perceptions and feelings about the Vocabulary Builder application. All interviews and audio recordings were transcribed. I analyzed all forms of data collected to determine whether or not literacy instruction is supported by technology.

Students within the iPad group and the experimental group progressed in their ability to discuss vocabulary words and provide meanings and examples of each of the chosen vocabulary words. Frank specifically made significant gains in his ability to use the iPad and his conversations about the vocabulary words were much more complex. Frank became more confident in his recognition of the words on the iPad and the time it took him to match the words to the pictures decreased each time he interacted with the iPad. This confidence could be related to his frequent use of the iPad as well as the in-depth small group conversations he had with his peers. Chad, a member of the control group, also increased the number of vocabulary words he could identify and explain. He was able to independently complete the teacher made worksheets for both sets of vocabulary words. His ability to complete these activities independently could be the result of his active participation within the small group conversations daily. The fact that students in the control group made similar gains to those in the experimental group suggests that both reinforcement activities were successful in supporting the vocabulary development of ELLs.

In conclusion, due to the fact that all students increased their ability to identify and provide meanings for vocabulary words to deem either the iPad or the paper and pencil tasks

more beneficial than the other. Instead, these findings prove that both reinforcement activities provided students with adequate practice in defining vocabulary words and giving appropriate examples or descriptions. In examining these results with the other themes prevalent throughout the study however, it can be concluded that students benefitted overall from the use of the iPad more so than the teacher made worksheets. Not only were students more motivated and engaged in the use of the iPad, but they were also able to practice the targeted skills more independently.

Data Analysis

After collecting the data I began to look for commonalities between all sources. I first analyzed the quantitative data. The quantitative data included the number of times each vocabulary word was touched on the iPad, the number of times each vocabulary word was spoken or heard, and the results of the pre and post assessment data. This quantitative data led to the development of the three major reoccurring themes. These scores were organized into tables and placed within the appropriate thematic sections. I analyzed these scores to determine if these factors strengthened or hindered the students' ability to define the vocabulary words. Additionally, I looked for similarities and differences between the iPad users and the non-users.

I took a closer look at the field notes from the small group instruction sessions to examine the student responses. From the small group sessions, which were all audio transcribed, were listened to and read through multiple times paying particular attention to how many times each participant responded as well as the actual verbal responses. As mentioned earlier, a table was created to show the number of times each vocabulary word was spoken or heard during these small group sessions. These verbal responses were coded for the use of the vocabulary word and how the word was described in conversation. Teacher interviews were coded and used to

support the finding that audio, visual, and verbal components increase vocabulary retention and development.

Engagement is crucial to ELLs academic learning. Students' engagement during small group instruction, teacher-made worksheets, and the iPad were recorded and examined. The engagement of the students was coded for the difference between iPad and paper methods. The findings demonstrated that the vocabulary application on the iPad increased student engagement, but did not necessarily increase the student's ability to define vocabulary words. Some of this data reflected information from previous studies that students were more engaged during lessons that included iPad (Murray, 2008; Softa, 2011, Traore & Kyei-Blankson, 2011). Using triangulation by collecting the varying types of data such as, engagement and assessment scores along with field notes and reflections led to conflicting results.

Reflections were read and analyzed looking for similarities and differences that could be directed into themes. The reflections were analyzed by grouping the verbal statements into positive or negative feelings toward the iPad. First the reflections were read together, then they were read with notations of positive or negative feelings. Finally, the reflections were examined for connections to student's assessment and engagement. The students both had positive responses to the questions asked about the iPad. Due to this observation, reflections were coded as positive feelings toward the iPad and placed in the engagement and behavior theme.

From the student surveys, focus group instruction periods, and teacher interviews I found three common themes. In particular, I focused on three major themes. The first theme compares the use of two teaching strategies: explicit teaching and iPads. In this theme, the field notes, observations, and the pre and post assessments will be examined. The second theme is the visual

and audio components as a means of increasing vocabulary development. In this theme, the number of times the vocabulary words were heard or spoken was considered and compared to the post assessment results. The third theme is increased student engagement and behavior when using the vocabulary application on the iPad. This theme focuses on the difference between student engagement on the pencil and paper task and the iPad. The students' reflections of their use of the iPad and teacher-made worksheets have a connection to their academic and engagement scores, this information will be further examined in this area. These focal points were derived from the research I conducted and keeping in mind the focus of the research question.

Findings and Discussion

Qualitative and quantitative data was collected for the purpose of analyzing the effects of the iPad on English language learners' vocabulary knowledge and development. Of the five participating students, two were iPad users and three students completed teacher-made worksheets that imitated the iPad format (Table 1).

Table 1

Control Group and Experimental Group

Student Name	Group Assignment	Teacher-Made or iPad
Aubrey	Control	Teacher-Made Worksheet
Chad	Control	Teacher-Made Worksheet
Robert	Control	Teacher-Made Worksheet
Frank	Experimental	iPad
Hailey	Experimental	iPad

It is important to show the results of the random assignment of the five participants. Table 1 shows the members of the iPad group (experimental) and the members of the control group who completed the teacher-made worksheets. Aubrey, Chad, and Robert were a part of the control group. Frank and Hailey were a part of the experimental group and were given the iPad as a form of supplementary instruction.

Three themes were found when analyzing and comparing the experiences of the two groups, explicit instruction compared to the iPad, the use of visual and audio components to increase vocabulary knowledge, and differences in engagement and behavior.

Explicit Teaching vs. iPad

For the purposes of this study, all participants were required to participate in small group instruction that focused on the teaching of vocabulary words explicitly. Explicit instruction follows this format: introducing the new vocabulary word, providing synonyms, and describing or explaining the meaning of the word. To show how this format is congruent to our small group discussions, an example for the word 'triangle' is provided in Figure 1.

Figure 1. Explicit Vocabulary Instruction Example

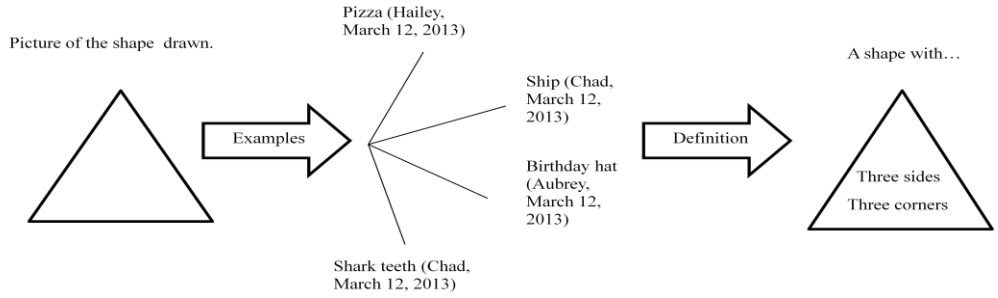


Figure X. An example of explicit instruction for the vocabulary word 'triangle.' The vocabulary word was drawn, examples were provided by the students, and a definition was reached.

In this figure, the shape of the triangle was drawn to introduce the word. Next, students were called upon to give examples of shape or describe what the shape look liked. Chad stated, "A triangle look like a ship" and "I have one more! I have one more! Shark teeth" (Focus Group, March 12, 2013). Aubrey shared that a triangle looked like "a birthday hat" (Focus Group, March 12, 2013). Hailey replied that "The triangle, the triangle looka like pizza. Pizza, pizza, yeah!" (Focus Group, March 12, 2013). From these responses one could conclude that the students were familiar with the triangle shape and could connect personal experiences or other objects to that same shape. After background knowledge was built and connections were established, I proceeded to explain the meaning of the words side and corner: "A side is a line and a corner is when two sides meet" (Focus Group, March 12, 2013). It was found that a triangle had three sides and three corners. This became the basis for definition of the vocabulary word. To connect this to the pre and post assessment data, none of the participants could define triangle by the above criteria in the pre-assessment, and only Chad and Frank were able to define triangle successfully in the post-assessment. The post-assessment data shows that all participants were able to successfully identify or give a sufficient example for the following action words: read, write, count, climb, sleep, drink, and kick. All members with the exception of Robert were able to identify the word walk. For shapes, Hailey, Aubrey, and Robert were unable to provide an example or define any shapes correctly. Frank could demonstrate a satisfactory understanding of rectangle, square, triangle and heart: "four sides, four corners because it has four sides (rectangle)," "four sides, four corners (square)," "three sides, three corners (triangle)," and "curved (heart)" (post assessment, March 15, 2013). Chad displayed that he knew the words rectangle, square, triangle, heart, diamond, and oval: "four sides, four corners because they are up, they are numbers. When you learn numbers you learn how to read it and tell sides

(rectangle)," "A square is a shape who has four sides and four corners," "A triangle has three sides and three corners," "Has no corners, it only has bumps and straight lines (heart)," "A diamond is the one, it has two triangle to build it" "It look like a circle and has no sides and no corners (oval)" (post assessment, March 18, 2013). The possible reasons for these results follow. Chad is an ELL student that is considered to have more proficiency in English than his native language of Spanish and is the highest performing ELL within the group. Frank was an iPad user and was given opportunities to see and hear the word through a technological device. Robert lacks proficiency in his native language with virtually nothing spoken in the home and therefore has much difficulty translating information into English. Aubrey has both her native language and English spoken in the home, although is an extremely shy child which may have contributed to her inability to connect words to their meanings. Hailey was an iPad user as well; however could not explain the vocabulary word successfully. Research shows that learners could increase their vocabulary size effectively with explicit, de-contextualized study of vocabulary (Tran, 2006). Being that one member of the control group and one member of the iPad group were able to identify this vocabulary word (triangle) one could imagine that the use of explicit teaching or the iPad (technology) alone is not effective in increasing vocabulary knowledge.

Another form of data collected looked at the participant's ability to match the vocabulary word to a picture that shows the action word or shape. The control group completed teacher-made worksheets and the experimental group completed activities on the iPad. The purpose of the activity was to name the action word or shape and match it correctly to the picture. The goal was to be able to describe the picture by telling me the action word or shape that matched, not necessarily if the student could point to the correct vocabulary word in print. Aubrey was able to

describe each of the action word pictures, but could only identify the work ‘kick’. She was able to match the rest of the words with teacher support. For shapes, Aubrey could identify the circle, star, rectangle, triangle, heart, and oval visually, but could not match any of the printed words. She could not identify the square or diamond without teacher support. Robert could describe the following pictures: read, sleep, walk, climb, and kick. He could not describe the picture for count, write, or drink and could not identify the vocabulary words in print to match the pictures. For shapes, Robert could name the circle, rectangle, star, and heart. He could not identify the square, triangle, oval, or diamond and could not match any printed vocabulary words without teacher support. Chad could describe all of the action word pictures and successfully identified the printed words walk, sleep, read, and drink. For shapes, he was able to match all vocabulary words correct to all the pictures. I noticed that if he did not know a word he looked at the beginning sounds to try and identify the printed word (Field notes, March 12, 2013). This data shows that the visual representation strongly influenced the students’ ability to identify the action word or shape in a picture format; however, did not help in identifying the printed word. The use of explicit teaching during small group discussions only supported the students in terms of the visual clues given to them. The discussions focused on creating connections to the visual form of the word (a picture), rather than on the spelling or structure of the vocabulary word which could be responsible for Aubrey and Robert’s lack of word identification. The English as a Second Language teacher stated that “It’s obvious that all ELLs need vocabulary development, but there is quite a difference between teaching a student who is literate in their L1 compared to a student who unfamiliar with print in their L1” (personal interview, March 18, 2013). Robert is not proficient in his native, lacking the ability to proficiently speak and write. Aubrey lacks the ability to write in her native language and has some knowledge of speech. Chad is a more

proficient speaker and writer in English than his native language of Spanish. These reasons might contribute to the overall results from the teacher-made worksheets. Hickman, Pollard-Durodola, and Vaughn (2004) argue that ELLs require effective and ongoing instruction in vocabulary to improve oral language skills and increase the likelihood that they will read with meaning and learn from text.

The iPad activities had voice software that said the vocabulary word when touched. The iPad users were able to complete these activities independently. Table 2 displays the number of times each user touched each vocabulary word before being able to match it to the correct picture.

Table 2

Number of Times Each Vocabulary Word was Touched on the iPad

Student Name	Action Words		Shapes	
Frank	Read	2	Square	6
	Write	2	Rectangle	5
	Drink	2	Oval	5
	Sleep	2	Triangle	3
	Count	2	Star	3
	Kick	1	Circle	2
	Climb	1	Diamond	1
	Walk	1	Heart	0
Hailey	Read	3	Square	6
	Kick	3	Diamond	6

Write	2	Rectangle	3
Sleep	2	Oval	3
Count	2	Circle	2
Walk	2	Triangle	2
Climb	1	Heart	2
Drink	1	Star	1

From this table, Frank had to touch the words kick, climb, and walk only once before he was able to match the word with the picture and two times for words read, write, drink, sleep, and count (Field notes, March 7, 2013). That is an average of approximately 1.6 times per word before being able to place it next to the correct picture. Hailey touched the words climb and drink once, walk, count, sleep, and write twice, and kick and read three times (Field notes, March 7, 2013). That is an average of 2 times per word before being able to place it next to the correct picture. From this information, it is possible that Hailey experienced some confusion when listening to the vocabulary words; therefore, she needed to hear each vocabulary word multiple times. For shapes, Frank did not touch the word heart, touched diamond once, circle twice, star and triangle three times, oval and rectangle five times, and square six times before being able to match it to the correct picture (Field notes, March 14, 2013). Hailey touched star once, heart, triangle, and circle twice, oval and rectangle three times, and diamond and square six times (Field notes, March 14, 2013). That is an average of approximately 3.1 times per word for both students. The shape vocabulary proved to be harder for both students in terms of matching the word to the picture. From this finding, one could assume that perhaps since some shapes look similar, it became confusing when trying to identify the correct picture. After hearing the word, both students seemed to need more auditory support for shapes than for action words. Both

students were able to complete these activities independently because there was no penalty if pictures and words were not matched correctly, just reset and the student was allowed to try again. The computer/technology teacher in the building stated that "The use of repetition and visual clues as well as the ability to hear the correct pronunciation of a word makes learning less difficult for these students" (personal interview, March 18, 2013). Frank and Hailey needed to hear the shape vocabulary words more in order to identify the correct picture. The iPad activities were chosen because important information (vocabulary words) was presented in a systematic and consistent fashion, much like the use of explicit teaching and the teacher-made worksheets. Proctor, Dalton, and Grisham's study (2012) found that classroom technology, like the iPad, has the potential to provide ELLs with access to crucial digital literacies while working to improve vocabulary.

Visual and Audio Exposure Increases Vocabulary Knowledge

Information that is presented in a multi-modal fashion including visual and audio improves vocabulary knowledge and retention (Traore & Kyei-Blankson, 2011). From the audio transcriptions, I recorded the number of times each vocabulary word was spoken to and by the students. During small group instruction, the vocabulary word was posted in front of each student; therefore, the visual cue card was available for viewing constantly. Table 3 displays the number of times each vocabulary word was spoken during small group instruction in rank order.

Table 3

Number of Times Each Vocabulary Word Spoken

Vocabulary Word	Number of Times Spoken						
	Teacher	Aubrey	Hailey	Chad	Robert	Frank	Total
Count	49	1	1	6	1	4	62

Read	44	1	2	3	1	1	52
Write	42	1	1	3	1	1	49
Walk	37	1	1	1	1	2	43
Climb	28	2	0	4	1	3	38
Sleep	25	2	0	2	4	4	37
Kick	16	4	2	2	5	3	32
Drink	24	1	0	1	0	1	27
Oval	9	3	3	3	3	3	24
Circle	10	2	2	2	2	2	20
Square	3	3	3	4	3	4	20
Triangle	5	2	1	4	1	1	14
Diamond	3	1	1	1	1	1	8
Star	1	1	1	1	1	2	7
Heart	1	1	1	1	1	1	6
Rectangle	2	0	0	0	0	0	2
	299	26	19	38	26	33	

From this table, the action words were spoken to or by the students the most ranging from 27 to 62 times. The vocabulary word ‘count’ was spoken 62 times, ‘read’ was spoken 52 times, ‘write’ was spoken 49 times, ‘walk’ was spoken 43 times, ‘climb’ was spoken 38 times, ‘sleep’ was spoken 37 times, ‘kick’ was spoken 32 times, and ‘drink’ was spoken 27 times. In comparison, shape vocabulary words were spoken during conversation less frequently. The vocabulary word ‘circle’ and square tied with 20 times, ‘triangle’ 14 times, ‘diamond’ eight

times, ‘star’ seven times, ‘heart’ six times, and ‘rectangle’ two times. I, the researcher, was recorded as saying all of the vocabulary words 299 times, Chad totaled 38 times, Frank totaled 33 times, Robert 26 times, Aubrey 26 times, and Hailey 19 times. This data shows that I was responsible for the majority of the audio and visual exposure of the vocabulary words. Research has shown that if ELLs are exposed to language using visual and audio modes, there is an increased likelihood that vocabulary specifically would be retained. Chatel’s (2002) research findings suggested that “students [who] explore and listen to new information are actively engaged in a process of acquiring and creating knowledge” (p. 47). My voice acted as the audio material during small group instruction and encouraged the listening skills of the ELLs while visual presentation not only provide a focus of attention but also made it easier for my language learners to fill in information not understood. From the totals provided, one could assume that when asked what these vocabulary words meant, the word ‘count’ would have the biggest increase in retention from pre to post assessment and the word ‘rectangle’ would show virtually no change.

Pre and post-assessment data was collected and examined the amount of information each participant could provide in terms of each vocabulary word. The following table (Table 4) shows how many vocabulary words each participant could identify (give an example of) at the pre-assessment session and the number of correctly identified words at the post-assessment. The fraction shows out of eight because there were eight vocabulary words for each set.

Table 4

Vocabulary Words Identified at the Pre and Post-Assessment

Student Name	Pre-Assessment	Post-Assessment

	Action Words	Shapes	Action Words	Shapes
Robert	1/8 - walk	0/8	7/8 - read, write, count, climb, sleep, kick, drink	1/8
Frank	6/8 - read, write, count, climb, sleep, kick, drink	1/8 - diamond	8/8 - read, write, count, climb, sleep, walk, drink, kick	4/8 - rectangle, square, triangle, heart
Chad	5/8 - read, write, count, climb, drink	2/8 - circle, diamond	8/8 - read, write, count, climb, sleep, walk, drink, kick	7/8 - circle, rectangle, square, triangle, heart, diamond, oval
Aubrey	4/8 - count, climb, sleep, drink	0/8	8/8 - read, write, count, climb, sleep, walk, drink, kick	0/8
Hailey	5/8 - read, write, climb,	0/8	8/8 - read, write, count,	0/8

	sleep, drink	climb, sleep, walk, drink, kick

From this data, all participants showed growth in their ability to identify characteristics or examples of the action vocabulary words. At the pre-assessment, Robert could identify one action word and zero shapes, Frank could identify six action words and one shape, Chad could identify five action words and two shapes, Aubrey could identify four action words and zero shapes, and Hailey could identify five action words and zero shapes. At the post-assessment session, Robert could identify seven action words and zero shapes, Frank could identify eight action words and four shapes, Chad could identify eight action words and seven shapes, Aubrey could identify eight action words and zero shapes, and Hailey could identify eight action words and zero shapes. Robert gained the most action words (seven) and Chad gained the most shapes (five). To connect to the above table (Table 4), all participants, with the exception of Robert, were able to identify all of the action words by the post-assessment and the action words were spoken to and by the students most frequently. This demonstrates a positive correlation between the number of times a word is spoken and the ability to retain information about that word. Given that the action words were spoken most frequently during small group discussion, the growth from pre to post-assessment displayed by the participants could be a direct result repetitiveness of the audio and visual exposure. In a teacher interview, the teacher stated that "hearing the language is going to benefit them…and repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition, repetition" (personal interview, March 13, 2012). Repetition is one of the keys to learning a new word. By listening to the pronunciation of the word, repeating the word several

times, and providing a visual that represents the vocabulary word, ELLs are given more opportunities to interact with vocabulary and understand its meaning (Sibold, 2011).

Engagement and Behavior

Student engagement and behavior was observed and monitored after each small group discussion, teacher-made worksheet and iPad use. Each student could receive a total of five points per session. The five points were based on the 'Give Me 5' strategy which stands for legs still, hands folded, eyes looking, ears on, and mouths closed. For legs still, the student needed to keep their legs still, underneath their bodies or sitting criss-cross on the carpet. For hands folded, the student needed to have their hands folded unless when raising their hand to answer a question. Eyes looking meant their eyes were on the person who was talking, not looking around the room at other objects. Ears on meant they were listening to the speaker. Mouths closed meant they were not interrupting or talking when another student or teacher was talking. The student earned one point for each component if demonstrated throughout the entire meeting time. The participant's engagement scores can be seen in Tables 5, 6, and 7. The 'Give Me 5' visual can be viewed under Appendix F. These categories and descriptions of expectations was the way that students were assessed on their engagement levels during the sessions and activities along with field notes connecting to the behaviors and engagement levels.

In Table 5, the behavior scores for the small group sessions are presented. Participants could earn a total of five points per session. Appendix D shows the visual representation of the 'Give Me 5' strategy.

Table 5

Behavior Scores for Small Group Instruction

Student Name	Small Group Instruction				
	Session 1	Session 2	Session 3	Session 4	Session 5
Frank	5/5	5/5	5/5	5/5	5/5
Hailey	5/5	5/5	5/5	5/5	5/5
Chad	5/5	5/5	4/5	5/5	5/5
Aubrey	5/5	5/5	5/5	5/5	5/5
Robert	5/5	5/5	3/5	3/5	3/5

Frank earned five out of five points for all small group sessions, which means that he kept his legs still, hands folded, ears on, eyes looking, and mouth closed. He displayed excellent behavior and engagement throughout all of the sessions. Hailey earned five out of five points for all small group sessions, which means that she kept his legs still, hands folded, ears on, eyes looking, and mouth closed. She displayed excellent behavior and engagement throughout all of the sessions. Aubrey earned five out of five points for all small group sessions, which means that she kept his legs still, hands folded, ears on, eyes looking, and mouth closed. She displayed excellent behavior and engagement throughout all of the sessions. Chad earned five out of five points during sessions one, two, four, and five. During session three, Chad consistently interrupted others while speaking. This could have been due to his excitement about the vocabulary words as he was able to share many personal connections and offer a variety of responses. Robert earned five out of five points during sessions one and two. Sessions three,

four, and five proved to be a bit more difficult for him to focus as he became more unwilling to participate and strictly gave responses about Spiderman and Superman. He did not earn points for mouths closed or ears listening during sessions three, four, and five. In addition to these scores, the amount of participation was recorded after each small group session. Aubrey participated eight times in session one, 15 times in session two, 19 times in session three, seven times in session four, and two times in session 5. On average she participated ten times per session. Chad participated 19 times in session one, 16 times in session two, 17 times in session three, 13 times in session four, and 11 times in session five. On average he participated 15 times per session. Robert participated 11 times in session one, 18 times in session two, 17 times in session three, eight times in session four, and did not participate in session five. On average he participated ten times per session. The amount of participation and engagement can lead to the overall understanding of the vocabulary words. From this information and in connection to the results of the post-assessment the students who participated on average the least, Aubrey, Hailey, and Robert did not show as much growth in vocabulary knowledge. Chad and Frank participated more often and were able to show more understanding of the vocabulary words during the post-assessment examination. The body language amongst the participants did not vary; all students sat in their chairs, pulled tightly up to the table, and hands were raised before speaking. Little redirection was needed as students were excited to participate, answer questions, and respond to their peers (Field notes, March 1, 4, 6, 12, 13, 2013). The small group discussions were designed in a way that offered all students the chance to participate and acknowledged all answers given to questions asked. The conversations centered on vocabulary were non-stressful and the discussions took place with their peers whom they felt comfortable. Traore and Kyei-Blankson (2011) argue that language acquisition among young children “is a gradual process that involves

building vocabulary from messages received through communication and using that language in a highly supportive, non-stressful environment" (p. 562). Teachers are responsible for providing language that is understandable and other necessary supports to ensure student understanding of the intended message.

Table 6 shows student scores during teacher-made worksheets. The same scoring rubric applied for the teacher-made worksheets.

Table 6

Behavior Scores for Teacher-Made Worksheets

Student Name	Teacher-Made Worksheets	
	Session 1	Session 2
Chad	5/5	5/5
Aubrey	5/5	5/5
Robert	5/5	5/5

Chad, Aubrey, and Robert earned five out of five points for both teacher-made activities. Their legs were still, hands were appropriate, eyes were looking at the task, ears were listening to the teacher's directions, and mouths were closed as these activities were independently completed. From the field notes and observations, Chad was absent on March 7, 2013 and Robert was absent on March 14, 2013 when the teacher-made worksheets were given. Chad and Robert had to complete these activities at a separate time which meant there were fewer in-class distractions and they were better able to concentrate on the task. This had the potential to impact their ability to complete the work independently because they were each one-on-one during this

time and Robert tended to rely on the teacher for help: “What dis say? Hey! I don’t know this” (Field notes, March 15, 2013). Robert became easily frustrated with the task in regards to his inability to read the vocabulary words; however, once the words were given to him he was able to successfully match the words to the action word or shape and regained some confidence. Aubrey and Chad were able to complete the tasks almost independently only asking for support a few times, which was to be expected as their ability to read the vocabulary words was not the entire focus of the research. Cannon, Fredrick, and Easterbrooks (2010) argue that since holes exist in ELLs breadth and depth of vocabulary knowledge, activities and vocabulary instruction should be engaging and motivating to help promote vocabulary learning.

Table 7 shows the engagement levels for the iPad users. Frank and Hailey used the iPad on two separate occasions and the interactions were video recorded.

Table 7

Behavior Scores for iPad

Student Name	iPad Interaction	
	Session 1	Session 2
Frank	5/5	5/5
Hailey	5/5	5/5

Frank and Hailey earned five out of five points for each session. In session one, Frank and Hailey sat criss-cross on the carpet and held the iPad in their laps (legs still and hands used appropriately), had their head phones on (ears listening), eyes on the iPad, and mouths closed. In session two, Frank and Hailey sat at the table, placed the iPad on top of the table, had their head phones on, eyes on the iPad, and mouths closed. Direction on my behalf was not needed as both

students were extremely focused on the task. After reviewing the videos, Frank and Hailey used the text-to-speech feature in both sessions (refer to Table 2). There was never a moment when either student knew the vocabulary word right away and was able drag the word to the picture on the first try. Each vocabulary word had to be heard at least once. This behavior supports the notion that repetition is indeed needed when learning new vocabulary words. In addition to the video recordings, student surveys were given to gain insight into what the students liked and disliked about the iPad activities. Frank stated that his favorite parts were "the pictures, shapes, and it talked to you" (Student Survey, March 18, 2013). Hailey stated that her favorite parts were "the action words, pictures, and it talked to you" (Student Survey, March 18, 2013). When asked if they liked the iPad, Frank and Hailey shouted "Yes! We love it. We love it." (Student Survey, March 18, 2013). Frank and Hailey seemed engaged and motivated to use the iPad perhaps due to it being a new program and it could have been perceived as fun. Similarly, Foulger and Jimenez-Silva (2007) showed that technology increased motivation among ELLs. Teachers in the study noted that "the integration of technology has had a very positive effect on student learning…my students are extremely enthusiastic and very motivated to work" (p. 118). By acknowledging and capitalizing on students' interests, students become more compelled to learn and put forth more effort in building communication and technological skills.

Implications

The first implication of my study is that in order to foster vocabulary knowledge, there needs to be a strong focus on oral language skills and proficiency. Becoming a literate individual is a demanding process for every student, however, it is especially more complex for ELLs working in a second language (Chatel, 2002). English language learners lack proficiency in English and perhaps even their native language, making it increasingly more difficult to

acquire language and the necessary skills needed to be a literate individual. Oral language proficiency in a child's native language establishes the knowledge, concept, and skill base that transfers from the native language to reading and understanding print in a second language. An ideal situation would allow the teacher to strengthen knowledge in an ELL's native language to reach proficiency and then make a more seamless transfer to English; however, this type of dual instruction may not be feasible in today's classroom given limited resources or knowledge of other languages. In this way it is unrealistic to expect major growth from young ELLs at the emergent level, but teachers need to be supportive and patient in developing their oral language skills. Teachers need to create an environment where oral language is modeled, encouraged, and accepted through a variety of authentic and engaging literacy activities. Oral language development provides the foundation for phonological awareness and provides the support for learning about print. Much of my research focused on discussions centered on the vocabulary words, providing multiple real-life examples to make connections, and promoting constant oral and visual cues to improve retention. By creating a safe and nurturing environment, the children felt valued and thus were comfortable offering responses and engaging in conversations about new words.

The second implication of my study is that technology, when used appropriately can heighten language skills and vocabulary knowledge. Technology can enhance social, language, and cognitive abilities in ELLs. Technology provides opportunities for language use, social interaction and increased motivation. Teachers are encouraged to use various technological forms and incorporated into daily instruction. It should also be noted that technological tools and devices should supplement, not replace, highly valued learning opportunities like teacher-directed, explicit vocabulary instruction. Developmentally-appropriate activities through the use

of technology can help ELLs visualize difficult concepts and the text-to-speech feature allows ELLs to hear the language multiple times which encourages retention. The use of audio and visual presentations simultaneously can lead to a higher effect as ELLs listen to the vocabulary words and are visually stimulated by the graphics and pictures (Traore & Kyei-Blankson, 2011). Technological activities should be built into the academic day to enrich it, expand on concepts, and provide a deeper understanding of the concepts. It is possible that ELLs have the ability to learn new ideas or concepts through the use of digital forms rather than just traditional pencil and paper activities. Therefore, technology integration can be successful if educators explicitly teach students how to use the technology appropriately, provide a purpose and explain expectations for its use, and progress monitor individual's growth.

Conclusion

This action research project intended to answer the question of whether or not the iPad is a successful tool used to increase the vocabulary development of English language learners. The theory used to frame the research was New Literacy Studies. Lankshear and Knobel (2006) define new literacies as "new socially recognized ways of generating, communicating and negotiating meaningful content through the medium of encoded texts within contexts of participation in Discourses" (p. 65). New literacies implies that new technologies are continuously emerging that will require students to read text and comprehend meaning in different ways, using different processes. The literature found that technological devices and tools have a positive impact on the development of language and literacy skills. Technology helps to bridge the gap between in and out of school literacies. Multiliteracies are capable of increasing engagement and improving motivation in acquiring a second language. Additionally, technology creates a student centered learning environment which in turn promotes learner

autonomy. The research for this study focused on comparing the vocabulary development of English language learners through the use of technology as s supplemental support. All five participants were provided explicit instruction in a small group format on the vocabulary words chosen. Three participants were responsible for completing teacher-made worksheets and two students were given an iPad to use. The preceding research found differences in the teaching strategies used to develop vocabulary, engagement and behavior in vocabulary learning, and the use of visual and audio components to improve vocabulary learning. From the action research it was found that the iPad alone did not support vocabulary development, rather the combination of technology and explicit teaching helped increase vocabulary knowledge and retention. As educators it is important to recognize that ELLs are attempting to acquire an unfamiliar language with a lack in fundamental oral language skills. English language learners need constant vocabulary instruction as this becomes the basis for word knowledge. Creating a learning environment centered on word knowledge and utilizing tools like technology can help improve language development.

Although the research has reached its aims, there were some unavoidable limitations. First, there was a time limit, not only in the amount of time allotted to meet, but also limited choice of time during the academic day. In addition, since the assessment of the pretest and post test was conducted by me, a certain degree of subjectivity can be found. If given the opportunity to do it differently, I would have conducted research on individuals that I did not have contact with prior to the beginning of the study. I would want to conduct a study that includes students of different developmental and academic levels to compare the effects of technology on vocabulary development. I would also have created more substantial student interest surveys and student interview questions to gather more concrete data.

There are some questions that I am left with after completing this study. Does technology have a profound impact on vocabulary development? From the results of my study, the answer to this question would be mixed. The iPad helped to increase engagement and promoted positive behavior. However, the iPad was not the sole contributor to the development of vocabulary words, rather the small group discussions played a larger, more significant role. How does language proficiency in a native language influence how ELLs communicate and engage in meaningful conversations about vocabulary words? The students in this study range from limited English proficient to having proficiency in English more so than their native language. Given that the findings show some inconclusiveness about the use of the iPad and its contributions towards vocabulary development, it was seen that technology and digital tools can increase ELL's motivation and engagement.

In conclusion, it is pivotal to note that technology can have a high effect on literacy acquisition for ELLs. The school environment and the outside, global world have high expectations of students to be literate members of society. In order to be successful, ELLs need focused, intensive instruction in language and literacy skills, as well as, instruction in how to appropriately and effectively use technological tools to facilitate and encourage language development. As teachers it is important to recognize the cultural and linguistic differences ELLs have and how to support the language development of these individuals through the use of multiliteracies.

References

Bakar, N.A., Noor, N.M., Azman, H., Nor, N.F.M., & Hamat, A. (2011). Students' evaluation of an intelligent English language literacy system. *The International Journal of Educational and Psychological Assessment, 6*(2), 63-82.

Beechler, S., & Williams, S. (2012). Computer assisted instruction and elementary ESL students in sight word recognition. *International Journal of Business and Social Science, 3*(4), 85-92.

Black, R. (2009). English-language learners, fan communities, and 21st century skills. *Journal of Adolescent & Adult Literacy, 52*(8), 688-697. doi: 10.1598/JA AL.52.8.4

Cannon, J.E., Fredrick, L.D., & Easterbrooks, S.R. (2010). Vocabulary instruction through books read in American sign language for English-language learners with hearing loss. *Communication Disorders Quarterly, 31*(2), 98-112. doi: 10.1177525740109332832

Chatel, R.G. (2002). New technology, new literacy: Creating a bridge for English language learners. *New England Reading Association, 38*(3), 45-49.

deHaan, J., & Johnson, N.H. (2012). Enhancing the scenario: Emerging technologies and experiential learning in second language instructional design. *The International Journal of Learning, 18*(4), 322-333.

Druin, A. (2005). What children can teach us: Developing digital libraries for children with children. *The Library Quarterly, 75*(1), 20-41.

Colombo, M., & Fontaine, P. (2009). Building vocabulary and fostering comprehension strategies for English language learners: The power of academic conversations in social studies. *New England Reading Association Journal, 45*(1), 46-54.

Foulger, T.S., & Jimenez-Silva, M. (2007). Enhancing the writing development of English-language learners: Teacher perceptions of common technology in project-based learning. *Journal of Research in Childhood Education, 22*(2), 109-124.

Gedera, D.S.P. (2011). Integration of weblogs in developing language skills of ESL learners. *International Journal of Technology in Teaching and Learning, 7*(2), 124-135.

Hickman, P., Pollard-Durodola, S., & Vaughn, S. (2004). Storybook reading: Improving vocabulary and comprehension for English-language learners. *The Reading Teacher, 57*(8), 720-729.

Hui, W., Hu, P.J.Hu., Clark, T.H.K., Tam, K.Y., & Milton, J. (2008). Technology-assisted learning: A longitudinal field study of knowledge category, learning effectiveness and satisfaction in language learning. *Journal of Computer Assisted Learning, 24*, 245-259. doi: 10.111/j.1365-2729.2007.00257.x

Kasapoglu-Akyol, P. (2010). Using educational technology tool to improve language and communication skills of ESL students. *Novitas-ROYAL (Research of Youth and Language), 4*(2), 225-241.

Lin, C.C. (2010). "E-book flood" for changing EFL learners' reading attitudes. *US-China Education Review, 7*(11), 36-43.

Lopez, O.S. (2009). The digital learning classroom: Improving English language learners' academic success in mathematics and reading using interactive whiteboard technology. *Computers & Education, 54,* 901-915. doi: 10.1016/j.compedu.2009.09.019

Mays, L. (2008). The cultural divide of discourse: Understanding how English-language learners' primary discourse influences acquisition of literacy. *The Reading Teacher, 61*(5), 425-428. doi: 10.1598/RT.61.5.6

Moll, L.C., & Gonzalez, N. (1994). Lessons from research with language-minority children. *Journal of Reading Behavior, 26*(4), 439-456.

Murray, D.E. (2007). From marginalization to transformation: How ICT is being use in ESL learning today. *International Journal of Pedagogies and Learning, 4*(5), 20-35.

Nor, N.F.M., Hamat, A., Azman, H., Noor, N.M., & Bakar, N.A. (2011). An investigation on employment of interactive technological tools to comprehend online reading texts. *The International Journal of Learning, 18*(2), 248-260.

Padron, Y.N., & Waxman, H.C. (1996). Improving the teaching and learning of English language learners through instructional technology. *International Journal of Instructional Media, 23*(4), 341-354.

Peng, H., Fitzgerald, G., & Ko Park, M. (2006). Producing multimedia stories with ESL children: A partnership approach. *Journal of Educational Multimedia and Hypermedia, 15*(3), 261-284.

Proctor, C.P., Dalton, B, & Grisham, D.D. (2007). Scaffolding English language learners and struggling readers in a universal literacy environment with embedded strategy instruction and vocabulary support. *Journal of Literacy Research, 39,* 71-72. doi: 10.1080/10862960709336758

Saine, P. (2012). iPods, iPads, and the smartboard: Transforming literacy instruction and student learning. *New England Reading Association Journal, 47*(2), 74-81.

Sibold, C. (2011). Building English language learners' academic vocabulary: Strategies & tips. *Linguistically Diverse Students & Their Families*. 24-28.

Smythe, S., & Neufeld, P. (2010). "Podcast time": Negotiating digital literacies and communities of learning in a middle years ELL classroom. *Journal of Adolscent & Adult Literacy, 53*(6), 488-496. doi: 10.1598/JA AL.53.6.5

Softa, V. (2011). Learning environment effect and use of technology in the study of English language. *Problems of Education in the 21st Century, 35,* 127-137.

Soong, D. (2012). A study of EFL students' use of e-learning programs for learning English – Taking a Taiwanese university as an example. *English Languge Teaching, 5*(4), 87-95.

Tran, A. (2006). An approach to basic-vocabulary development for English-language learners. *Reading Improvement*, *43*(3), 157-162.

Traore, M., & Kyei-Blankson, L. (2011). Using literature and multiple technologies in ESL instruction. *Journal of Language Teaching and Research, 2*(3), 561-568.

Voithofer, R., & Winterwood, F. (2010). Articulating and contextualizing multiple literacies in an urban setting. *Urban Education, 45,* 687-707. doi: 10.1177/0042085910377259

Ware, P. (2008). Language learners and multimedia lliteracy in and after school. *Pedagogies: An International Journal, 3,* 37-51. doi: 10.1080/15544800701771598

Zha, S., Kelly, P., Ko Park, M., & Fitzgerald, G. (2006). An investigation of communicative competence of ESL students using electronic discussion boards. *Journal of Research on Technology in Education 38*(3), 349-367.

Appendix A

Name: _____
Date: _____

Define the following vocabulary words.

Action Words:

- **read**
- **write**
- **count**
- **climb**
- **sleep**
- **walk**
- **kick**
- **drink**

Shapes:

- **circle**
- **rectangle**
- **square**
- **triangle**
- **heart**
- **diamond**
- **star**
- **oval**

Appendix B

Did you like using the iPad?  

What was your favorite part about using the iPad?

What was your least favorite part about using the iPad?

Would you recommend the iPad to your friends?  

Appendix C

Interview Questions for Capstone Project

1. In what ways do you utilize technology in your classroom? What devices or technological tools specifically do you have/use and for what purpose?

2. What programs does the school suggest you use or gives to you to use? What are the benefits and drawbacks of these programs (computer, iPad, apps)

3. What strategies do you use when working with ELLs? What strategies do you find work/do not work? Why/possible reasons?

4. With the language barrier, how do you go about teaching ELL students how to use technology appropriately?

5. How do you use technology to motivate students? What programs/technological tools do you find the most helpful/least helpful in motivating ELLs?

6. How do you teach vocabulary or incorporate vocabulary instruction into the academic day? When? How much emphasis is placed on the learning of new words (module vocabulary, sight words, math vocabulary, writing vocabulary, etc.) Is there an accountability piece? To know whether an ELL can pronounce the word? To ensure ELLs understand the meaning of the word? To write the word in a sentence?

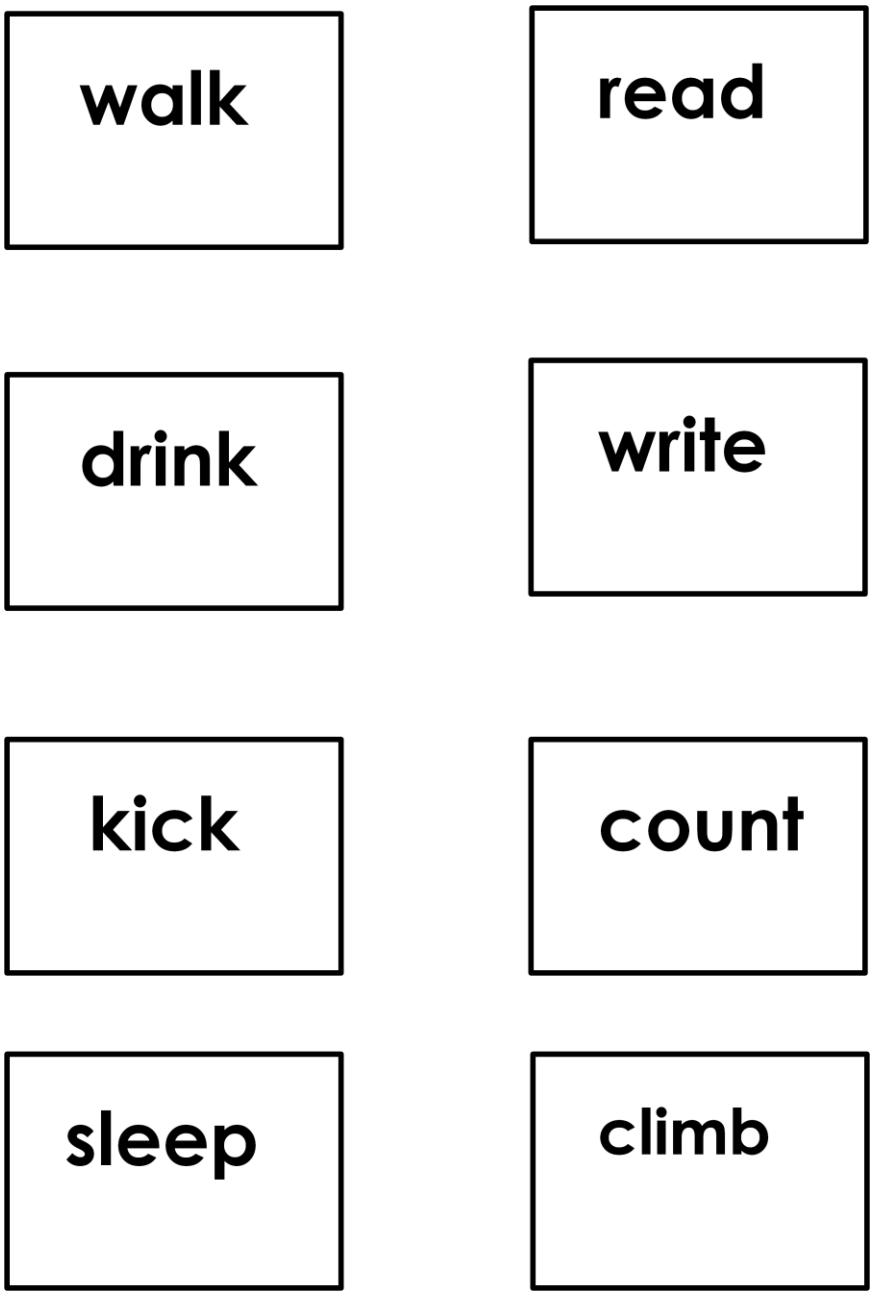
7. What methods or strategies do you use in the classroom that helps improve vocabulary knowledge? Are technologies a part of any vocabulary development?
8. How do you differentiate instruction to meet the needs of diverse learners (ELLs)? Are technologies used to differentiate instruction, if so how?

9. Are the computer programs (online readers/games) or iPad applications supporting your ELLs? Is it an effective way to scaffold instruction or tailor concepts to their developmental level?

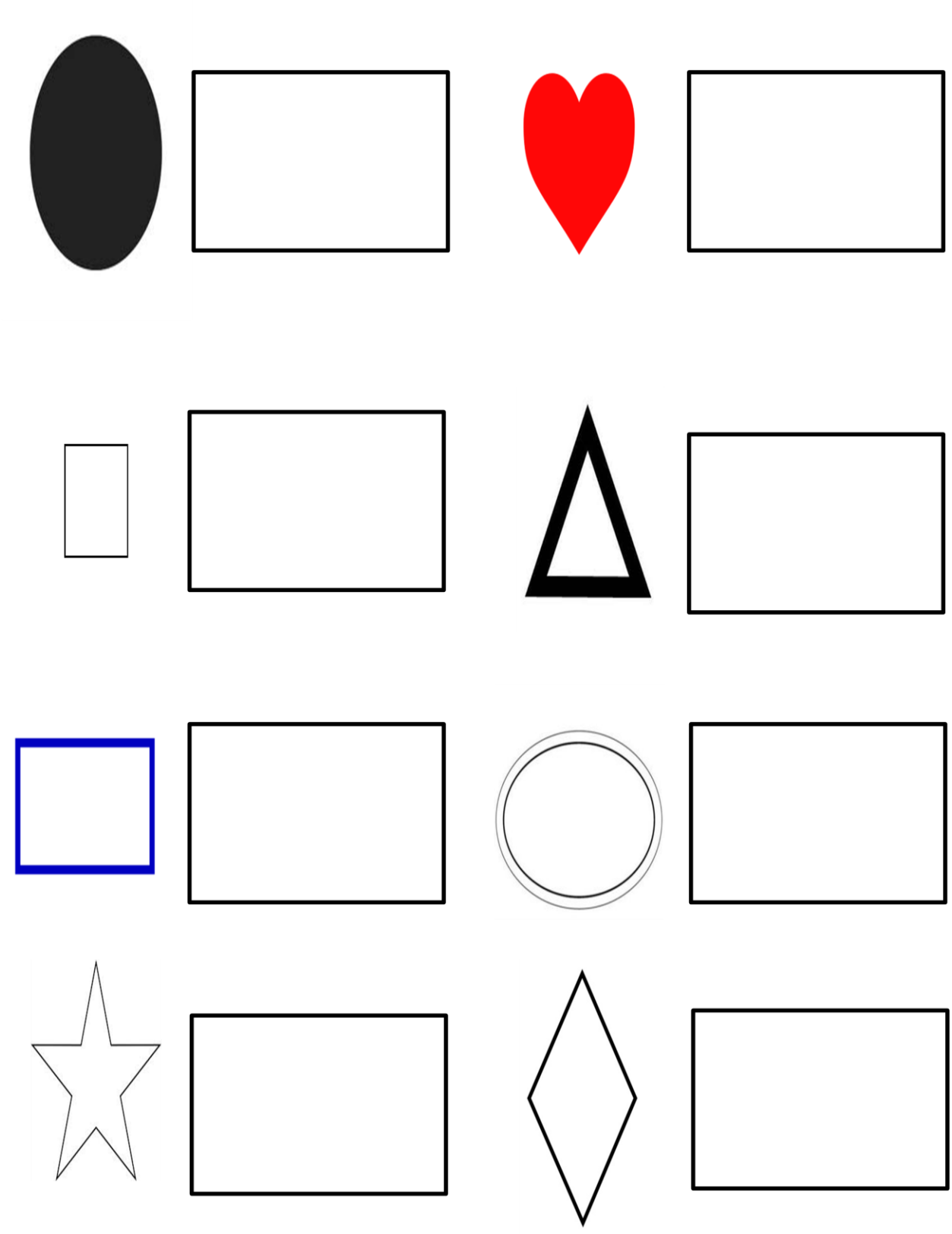
10. What is your opinion on the use of technology in the classroom as a way to promote literacy acquisition and skills (in terms of vocabulary development/knowledge)? What other strategies do you think are more or less effective that you have in place in your room?

Appendix D

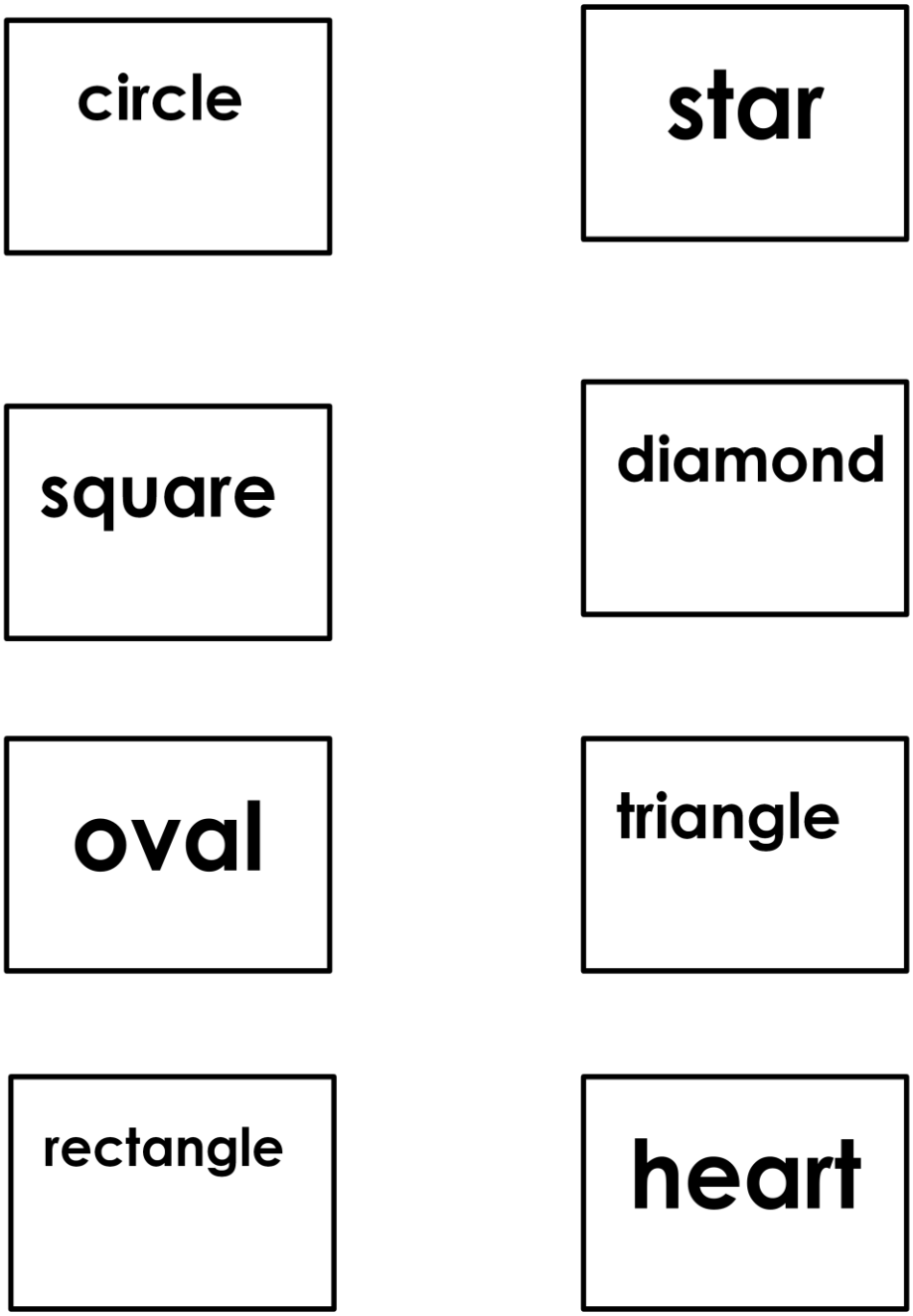
Appendix D



Appendix E



Appendix E



Appendix F

Give Me 5 Strategy (on another computer –will add)