Which Learning Strategy Provides Better Language Gains to Newly Arrived English Language Learners: Peer-Assisted or Technology-Assisted Learning?

Charity L. Webbley
Aquinas College

Faculty Mentor
Carol Winkle

Content Reader
Renee Howard

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Abstract

This paper explored several published articles that reported on the results of research conducted on learning achievement outcomes using peer-assisted learning strategies (PALS) and computer-assisted language learning (CALL) for English language learners (ELLs). There are wide and constant achievement disparities between ELLs and English-proficient students. As a result, schools must address the language, literacy, and academic needs of ELLs more effectively (Calderon, Slavin, & Sanchez, 2011). Trends have shown that elementary programs have not adequately addressed the needs of English learners. Different strategies and methods must be pursued to help ELLs make greater and more innovative educational advances (Calderon, Slavin, & Sanchez, 2011).

Language teachers and linguistic researchers have recognized the importance of vocabulary learning and have searched for ways to promote effective vocabulary achievement. With PALS, at-risk or ELL students (readers) paired-up with more proficient students, just above their learning level (coaches), for academic activities and cooperative behaviors during tutoring (Mathes, Howard, Allen, & Fuchs, 1998). While some research suggested peer-assisted learning best-enhanced language retention, other studies suggested computer-assisted learning promoted the greatest vocabulary gains. Articles on CALL pointed out that in using technology, ELLs had the option to work on what they wanted to, when they choose, and at the pace they preferred (Zou, 2008; Kennedy, 2007). Additional research has elaborated more on the need to move from peer-assisted to computer-assisted learning processes for newly arrived ELLs as technological advances have continued to create more options, accommodations, and self-motivated learning benefits.
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Chapter 1 – Problem

Introduction

To inspire and challenge “all” students, and instill a sustained curiosity for learning, should be the motivation that drives all teachers to be excellent. Many students have struggled academically, socially, culturally, economically and/or physically for a variety of reasons. For some students, frustrations have led to repeated failure or a defeated mentality. This has become the reality and struggle for English Language Learners (ELLs). As of late, many ELL students have come from refugee camps or as new immigrants to the United States. As the ELL population continues to grow, many teachers have struggled with finding and implementing best practices and strategies to help ELLs make the greatest academic gains.

Trying to bridge the gap and build academic understanding at a fast pace has become a struggle for teachers and learners. Educators have often wondered which strategy works best for new ELLs: peer-assisted learning or computer-assisted learning. Which method can bridge academic gaps with more efficiency and promote higher academic advances? The goal was to seek an understanding of what strategies between peer-assisted and computer-assisted learning promoted the greatest academic advantages for ELLs.

Purpose of the Study

This study aimed to understand which was more beneficial to beginner English-language learners, peer-assisted learning strategies (PALS) or computer-assisted language learning (CALL) techniques? Which method helped ELLs make the greatest gains in academic achievement in the least amount of time? While both peer-assisted and computer-assisted-learning have been a part of many studies for enhancing student learning, they have been
researched separately and independently from one another. This study aimed to compare which method had provided the most benefit to help ELLs make the greatest academic gains. The researcher anticipated the findings would show benefits for both strategies to have positive outcomes, but in the end looked to see which method garnered a stronger support for promoting greater academic achievement for ELLs.

Justification for the Study

The rationale behind using this study is that the research could help teachers, principals, schools, districts, and policy makers determine what strategy would provide the best help for beginner ELLs to acquire and retain English in the most effective (fastest and beneficial) way possible. Where should schools, districts, and states invest their money when it comes to helping ELLs make their highest academic gains possible in the least amount of time? Should educators be trained on how to implement peer-assisted or technology-assisted learning within their classrooms to promote higher academic achievement? The justification of the study was to help determine which provides better language gains to newly arrived ELLs, peer-assisted or technology-assisted learning?

Research Question

The overarching question for this study was to see: Which learning strategy provided better language gains to newly arrived English language learners, peer-assisted or technology-assisted learning?
Definition of Terms

**Academic Achievement:**

Constitutive Definition: According to Oxford Bibliographies, academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals were the focus of activities is in instructional environments, specifically in school.

Operational Definition: In this study, the term “academic achievement” refers to an elementary student reaching their multi-curricular grade-level goals.

**Computer-Assisted Language Learning (CALL):**

Constitutive Definition: LLAS Centre for Languages, Linguistics and Area Studies, states CALL as an approach to language teaching and learning in which the computer is used as an aid to the presentation, reinforcement, and assessment of material to be learned, usually including a substantial interactive element.

Operational Definition: In this study, the researcher will refer to “computer-assisted language learning” as the technology activities and applications in language learning used to aid language instruction for students by utilizing computer technology to provide individualized practice on specific language concepts.
English-language learner (ELL):

Constitutive Definition: According to the National Council of Teachers of English, an English language learner is an active learner of the English language who may benefit from various types of language support programs.

Operational Definition: The researcher is defining “English language learner” as a K-12 student who lacks the mastery of English to meet state academic standards and excel in an English language classroom, and is therefore learning the English language in addition to his or her native language.

Peer-assisted learning strategies (PALS):

Constitutive Definition: Vanderbilt University defines peer-assisted learning strategies as a peer tutoring practice which combines proven instructional principles and practices and peer mediation so that research-based reading and math activities are effective, feasible, and enjoyable. Teachers identify which children require help on specific skills and who the most appropriate children are to help other children learn those skills.

Operational Definition: The researcher defines “peer-assisted learning strategies” as a peer-tutoring elementary program to improve student proficiency in reading. PALS purpose is to supplement students’ existing reading curriculum and was developed to use with students with diverse academic needs.
Chapter 2 - Background and Review of Literature

Background on English Language Learners (ELLs)

English-language learners have comprised the fastest growing percentage of the overall student body. Some districts have had students who represent more than 100 different language groups (Keengwe, & Hussein, 2014). ELL students have had lower academic performance and lower graduation rates than white students and have affected the nation’s overall educational attainment levels. There have been wide and persistent achievement disparities between ELLs and English-proficient students and schools have had to address the language, literacy, and academic needs of ELLs more effectively (Calderon, Slavin, & Sanchez, 2011). These trends with ELLs showed us that elementary programs have not adequately addressed the needs of English learners and new methods and strategies must be sought out to help them make greater and more advanced academic gains (Calderon, Slavin, & Sanchez, 2011).

With greater academic diversity than ever before within the classroom, there are many obstacles teachers encounter. In public school primary-grade classrooms, it is not unusual for one teacher to have instructed 25 or more children. These classrooms have possessed a wide range of maturity and reading ability levels with the varied levels of diversity. Many students may not speak English as their first language or know little to no English, may be raised in poverty, may be learning-disabled, may take medication for hyperactivity/attention disorders, or may be high functioning or gifted (Mathes, Howard, Allen, & Fuchs, 1998). This array of diversity made it challenging for teachers to meet the many unique needs of individual students, which ultimately made teachers feel overwhelmed and ill equipped. Calderon, Slavin, and Sanchez (2001) indicated that schools that serve English learners and other language-minority children,
especially in regions where most families struggle economically, provided children their best and perhaps only chance to achieve economic security.

Language Building

Research indicated that vocabulary played a critical role in learning a language. Foreign language learners have believed vocabulary is a very important aspect of language learning and they have been eager to learn new words (Calderon, Slavin, & Sanchez, 2011; Keengwe, & Hussein, 2014; Kennedy, 2007). Phonemic awareness has been a critical reading skill that gives students a strong foundation for beginning reading. Without effective interventions or supplements to core reading programs, many students have failed to acquire these skills (Wood, Mustian, & Lo, 2013). Teachers and researchers have often placed a higher value on syntax and phonology, which have been viewed as more valuable to language teaching and more applicable to linguistic theory. The art of teaching and learning vocabulary has been undervalued in the field of second-language acquisition (Kennedy, 2007).

Language teachers and linguistic researchers have now recognized the importance of vocabulary learning and have begun to search for ways to promote effective vocabulary learning. As Kennedy (2007) pointed out, “Words are the basic building blocks of language, the units of meaning from which larger structures such as sentences, paragraphs, and whole texts are formed.” Research has indicated that programs of direct, systematic instruction can enhance vocabulary learning. While learners must focus on words in a receptive manner while listening and reading, the tasks of speaking and writing will cause learners to focus on the vocabulary in a productive manner (Kennedy, 2007).
According to Calderon, Slavin, and Sanchez (2011), teachers had a natural tendency to teach in the same manner in which they were taught. A common assumption among researchers and language educators seemed to be that vocabulary words would somehow be learned through other language learning activities or in a natural way that was similar to the vocabulary attainment that occurred when students learned their native language. Studies further suggested that teachers’ personal experiences in learning foreign languages were only one of several factors that shaped their overall attitudes toward the role of vocabulary words (Calderon, Slavin, & Sanchez, 2011; Kennedy, 2007). Other factors involved a teacher’s metacognitive attitude, when vocabulary learning was most likely to occur (reading, speaking, listening, or memorization activities), knowledge of the research (various strategies, studies), and personal experience with teaching vocabulary (student performance and motivation outcomes).

Research showed that when providing direct instruction on vocabulary, teachers should have presented the new words in context, as opposed to presenting them in an isolated manner. In order to facilitate retention, students should have participated in activities that would have allowed them to elaborate on the form and meaning of the new words and illustrate their knowledge of the words, as opposed to having practiced the words in a rote manner (Kennedy, 2007).

Peer-Assisted Learning Strategies (PALS)

Children from culturally diverse homes have been faced with the ongoing challenge of performing well academically. Research has suggested that children performed better when academic tasks were meaningful and culturally relevant (Bicais & Correia, 2008). Students must no longer passively listen to and watch their teacher, but need to have learned through
reconstituted prior-knowledge as they encounter new information through collaborative partner talks with others. Ultimately, children had to take greater responsibility for their own learning while teachers served as facilitators. During PALS, at-risk or ELL students (readers) paired up with more capable students just above their learning level (coaches) for educational activities during tutoring. Studies showed that both tutors and tutees benefited academically (Mathes, Howard, Allen, & Fuchs, 1998). Research has shown a need to plan for peer-assisted learning spaces for children to interact in during curricular activities, which would foster and advance their understanding of best classroom learning practices (Bicais & Correia, 2008). Overall, peer-assisted learning strategies (PALS) instruction is a research supported strategy that has long been proven effective as a technique for promoting academic gains in multiple contexts across subject areas.

Much research has been gathered in the area of PALS. The following will explore several articles and their research findings. One study examined the effect of a supplemental peer-mediated reading program on reading achievement of first graders in a two-way bilingual immersion program. Nearly 80% of students were Hispanic and 24 of these were identified as English language learners (Calhoon, Otaiba, Cihak, King, & Avalos, 2007). Classrooms were randomly assigned to peer-assisted learning strategies (PALS) or a contrast condition. PALS students participated in a 30-hour peer-mediated literacy intervention that was conducted three times a week. Results showed statistically significant differences, with large effect sizes favoring PALS on phoneme segmentation fluency, nonsense word fluency, and oral reading fluency (Calhoon, Otaiba, Cihak, King, & Avalos, 2007). A second study included 132 Spanish-speaking English language learners from grades 3-6 in South Texas. This study of PALS for English language learners met the What Works Clearinghouse (WWC) evidence standards in finding
many positive effects on reading achievement. Another study found that within peer-learning spaces for academic learning, children asked for clarification, information, and task-content; and this interaction helped them to produce meaningful works or tasks (Bicais & Correia, 2008).

These results from several studies have continued to point to the effectiveness of PALS as a tutor support program where ELLs can make sufficient English learning gains. One article mentioned that two groups of children were compared in terms of their reading fluency. One group was instructed using the teacher directed PALS along with PALS partners. The other group was instructed on basal readers, leveled reading books, and one-on-one phonics instruction. The two groups were instructed by the same teacher, but in different years (Dunn, 2009). The results showed that after a complete rotation through PALS partners and teacher directed PALS (112 days) there were significant differences between the increases in reading fluency along with the rate of increase in reading fluency. Results showed that students participating in the PALS program made significant gains in their reading fluency, confirming the usefulness of the PALS program to reduce the gap between adequate and inadequate readers (Dunn, 2009). Many proponents believed that all schools should have PALS available for the intervention of reading fluency.

Computer-Assisted Language Learning (CALL)

When learning a foreign language, the knowledge of vocabulary was not only a primary component, but also played a significant role in the academic success of a language learner. Language teachers emphasized both receptive and productive learning in an effort to have students reach the ultimate goal of automaticity when seeing, hearing, or using (speaking or writing) vocabulary words (Kennedy, 2007). According to the articles, a growing number of researchers suggested that teachers who have had access to computers should consider
incorporating technology into their lessons, as they believed computer-assisted language learning (CALL) would serve to greatly enhance student learning. Research revealed that students who have used computers to learn material in other educational disciplines have described their learning experiences as positive (Kennedy, 2007; Zou, 2008). Therefore, encouraging teachers to find ways to help make the learning of vocabulary and reading motivational for students, by using technology, could be proven more successful for academic achievement for ELLs.

The history of computer-assisted language learning (CALL) in the U.S. has spanned over than 30 years. Interestingly, its development can be divided into three primary stages that correspond to the common teaching practices, research, and level of technology of the given time (Kennedy, 2007). During the 1960s and 1970s, computers were thought of as the ideal tool for drill and practice. Computers provided individualized instruction and offered instant feedback to students’ responses, but overall were considered boring, not highly contextualized, and not well integrated into the curriculum. In the late 1970s and early 1980s there was a more communicative focus on learning where fluency was more important than accuracy and the teaching of grammar was not to be done explicitly. CALL supporters believed it would occur implicitly, as the students were encouraged to learn through discovery (Kennedy, 2007).

The most current influence on CALL stemmed from attention given to the socio-cognitive perspective on second language acquisition; hence, a new goal had emerged. CALL had become more integrated and attempted to provide learners with authentic environments in which they could complete task-based, project-based, or content-based activities all in an effort to reinforce the skills of reading, writing, listening, and speaking (Kennedy, 2007). A well-designed computer program with a variety of exercise material, good error feedback, and student recordkeeping made the traditional paper-and-pencil workbook almost obsolete.
Research in the area of CALL has indicated that student motivation and program utility were primary reasons many CALL activities were developed. There have been many computer-assisted instruction (CAI) programs that researchers and educators have realized could assist and help develop second-language learning pedagogy (So, Zapata-Rivera, Cho, Luce, & Battistini, 2015; Keengwe, & Hussein, 2014). In one study 83 elementary-prep students were randomly chosen and assigned to a control (hard copies of materials) or experimental (computer CALL materials) group. Results of a pre- and post-test indicated that the experimental group scored significantly higher than the control group. In a post-survey, students in the experimental group had positive attitudes toward using the CALL materials and expressed a desire to use CALL in future English lessons (Kennedy, 2007). In a second study, including 30 students from Malaysia with a mean age of 13 years, students were split into a classroom group and a CALL group. Students who participated in the CALL group performed better according to the pre- and post-test results. In a post-survey, 85% of the students found the CALL lesson motivational, while only 57% of the language learners found the traditional lesson motivational (Kennedy, 2007).

Another finding, in a study of 67 first and second grade students from an urban school in Beijing, China, found substantial advances in learning vocabulary words through multimedia technology components. Students were divided into three groups to examine the effects of two types of learning supports on their English vocabulary learning while watching a multimedia video. Group 1 received no support. Group 2 was provided an oral Chinese translation after each English sentence. Group 3 had a warm-up session with flash cards containing the target words, received the Chinese translations, and were given directions to try to determine the word meanings. Results of the study indicated that group 3 performed best on the posttests; concluding that learning second language vocabulary in an animation-based, multimedia context was
inefficient for beginners without the proper support (Kennedy, 2007). A fourth study involved two classes of sixth graders with 74 participants being split into experimental and control groups. The experimental group used a multimedia web-based word learning system that presented vocabulary words using video clips, poems, songs, and conversations. Students in the control group were presented the same words, but their English teacher presented the lesson. Results indicated that the students in the experimental group made significant gains in learning the vocabulary words, but students in the control group did not. Students in the experimental group completed a survey where 79% stated they enjoyed learning using CALL and 89% said they would like to use CALL again (Kennedy, 2007).
Chapter 3 - Procedures

After reviewing the literature on English language learners (ELLs) need for advanced vocabulary strategies, the researcher used a content analysis design to compare both peer-assisted and computer assisted-learning strategies. The following will address the overarching research question, samples analyzed, the research design, and issues of reliability and validity for the procedures used in this research.

Identify the Question

The overarching goal of the research was to seek a better understanding amongst peer-assisted and computer-assisted learning strategies. Ultimately determining which one promoted the greatest academic gains for ELLs. This research aimed to see what effects do peer-assisted and technology-assisted learning have, respectively, on newly arrived English language learners' language advances.

Samples Analyzed

This study was designed to gain a more beneficial understanding of peer-assisted learning strategies (PALS) and computer-assisted language learning (CALL) techniques, which were both used to help English language learners make the greatest gains possible in academic achievement in the least amount of time. This was a relational content analysis study comparing both peer-assisted and computer assisted-learning strategies. Both have been a part of many studies for enhancing student learning, however PALS and CALL strategies have mainly been researched separately and independently from one another. This study sought to make a relational
comparison of which approach had the greatest possibility in helping ELLs make the maximum gains in their academic achievement.

Description of the Research Design

Content analysis was designed as a research method to determine certain concepts within texts. It has been a research method used to describe and analyze research findings. Researchers would quantify and analyze the meanings and relationships of concepts to make inferences about the messages within the texts. In the study, the researcher conducted a relational analysis by identifying concepts present in several sets of texts. In essence, developed a structure to compare one system to another by considering specific elements. (Colorado State University Online, 2004) Relational content analysis sought to go beyond mere presence by further exploring the relationships between the concepts identified.

This content analysis study included both quantitative and qualitative research to uncover the relationship between how beginner English language learners (ELLs) responded to peer-assisted and technology-assisted learning in an effort to make greater academic gains. Qualitative research considered the context and setting of the study and it allowed the researcher to analyze the participants’ experiences (Kennedy, 2007). The majority of the study was qualitative in using research-based studies to understand what strategies between peer-assisted versus technology-assisted learning promoted the greatest academic gains for ELLs. Upon conclusion, the researcher will have made inferences based on the research, in order to conclude which strategy provided the greatest evidence and support.
Reliability and Validity

The issues of reliability and validity appeared simultaneous with those addressed in other research methods. The reliability of a content analysis study is correlated with its stability or consistency to cypher the same data, in the same way, over a period. In other words, to be able to reproduce with accuracy the classification of how a text corresponds to a standard or norm statistically. However, due to the complicated human nature of research errors can be minimized but not fully eliminated, as there is usually an 80% margin for reliability.

A study will have validity if the outcome is a function of the program or approach being tested rather than the result of other causes not systematically dealt with in the study. Internal validity provided certainty that the research results would be accepted based on the design of the study (Tuckman & Harper, 2012). The validity of a relational content analysis study is referred to by the categories (content) and the conclusions (inferences) made by generalizing the results. The validity of categories is achieved by utilizing multiple classifiers (both explicit and implicit variables) to arrive at an agreed upon definition for the category. For example, in the study “English language learners” was an implicit variable to be measured, whereas “newcomer” or “immigrant” would be explicit variables associated with ELLs. Consequently, the overarching problem becomes the challengeable nature of the conclusions reached by the procedures (Colorado State University Online, 2004). The question then lies in what level of implication is allowable. Do conclusions come from the data or some other phenomenon? Reasonable conclusions can come from substantive amounts of quantitative data, but the question of proof may still be unanswered.
Conclusions are dependent on how one determined concept categories and how reliable those categories were. Concepts reviewed in this research focused on which strategy, peer-assisted or computer-assisted, best helped English language learners meet their academic needs. It is important that one defined the categories that will accurately measure the idea one is seeking to measure. Developed procedures that categorized the same data, in the same way, over time will create stability, which is essential to successful conceptual content analysis. Reproducibility of categories and methods made the study’s conclusions and results more comprehensive and produced higher accuracy.
Chapter 4 – Data and Analysis

Upon analysis of the research, data supported that peer-assisted and technology-assisted learning provided better language gains to newly arrived ELLs. Both strategies were superior and have been more beneficial than traditional teacher-directed instruction, or individual learning. Throughout the research, there were benefits and obstacles with both PALS and CALL learning strategies. The researcher examined those findings and concluded which strategy presented the greatest results for ELLs academic achievement.

Benefits and Obstacles of PALS

Consistent with academic findings, PALS teachers reported that it had benefited both them and their students. Research showed that all learner types, especially struggling learners and ELLs, made gains in reading achievement, math, and social skills development. These gains resulted from providing students with sufficient opportunity to actively engage in critical content through meaningful discussion and exploration with another student (Mathes, Howard, Allen, & Fuchs, 1998). Peer-assisted learning utilized teacher time, required little training, offered less planning time for teachers, allowed teachers to respond to individual needs, thus ultimately providing greater academic achievement opportunities for English language learners or at-risk learners. Peer-assisted learning spaces allowed teachers to also encourage dialogue between students that weaved multiple home and cultural resources into school discourses (Bicaís & Correia, 2008).

Prior research had established that peer tutors and tutees have benefitted academically from their tutoring experiences. However, some obstacles in the research pointed out that
although tutor learning has been observed across diverse settings, the magnitude of these gains were often underwhelming (Roscoe & Chi 2007). In one review, an analysis of tutors' actual behaviors showed an account for the variation in learning outcomes and those typical tutoring behaviors may have created or undermined learning opportunities. The study examined two tutoring activities that are commonly hypothesized to support peer-tutor learning: explaining and questioning (Roscoe & Chi 2007). These activities were hypothesized to support peer tutors' learning via reflective knowledge building, which includes self-monitoring of comprehension, integration of new and prior knowledge, and elaboration and construction of knowledge. According to Roscoe and Chi (2007), “peer tutors tended to exhibit a pervasive knowledge-telling bias when untrained” and that peer-tutors focused more on delivering knowledge rather than developing it.

As a result, the analysis for the true potential for tutor and tutee learning may rarely be achieved as planned with PALS. Students must have a willingness and desire to help or be helped in order for PALS to ultimately be successful as a peer support structure. Multiple variables included students’ motivation, desire, and ability to follow the correct procedures when assisting a peer-tutor. These variables were unpredictable and many times unreliable hence limiting the effectiveness of PALS.

Benefits and Obstacles of CALL

States and school districts have felt the need to implement more core technology in education in an effort to prepare students for future endeavors and the competitive job market. Technology had provided learners with unique learning experiences and allowed them access to information that might otherwise be extremely difficult to acquire. According to Kennedy,
technological lessons were also used to enhance many realia items that may be incorporated within the classroom (2007). Computer programs have easily integrated graphics, audio, and text into one file or learning system. These multimedia presentations have the power to give students more control over the rate and speed of the presentation being viewed. In using technology, students have had the options to work on what they want to, when they choose, and at the pace they prefer (Zou, 2008; Kennedy, 2007).

Another important aspect has been that key findings have shown that the effects of computer technology on learning and achievement, across all learning domains and learner ages, increased. Findings reported that students in technology rich environments experienced positive effects on achievement in all major subject areas. There was also increased achievement for ELLs and those with special learning needs, and students’ attitudes toward learning and their own self-concept improved consistently (Keengwe, & Hussein, 2014). Findings from a comparison study on motivation of elementary second-language students learning English revealed that computer adaptive instruction (CAI) increased motivation for learning English through interactive visual media that allowed opportunities to enhance their problem solving and interpersonal communication skills and enhanced vocabulary development and verbal language skills. Some studies suggested students learning increased up to 40% faster through computer adaptive instruction as it increased the amount of time on task (So, Zapata-Rivera, Cho, Luce, & Battistini, 2015; Keengwe, & Hussein, 2014). Therefore, computer-assisted language learning programs have been found to be wonderful stimuli for ELLs, boost positive attitudes toward learning, and provide a means to greater academic gains.

After analyzing the benefits of CALL programs, it was apparent through the research that CALL has been a more efficient way for ELL students to learn vocabulary words and have
increased reading fluency. Those who used computer-assisted vocabulary programs have learned significantly more than those who completed independent reading activities. Computer users continued to show an increase in their levels of reading comprehension, as well as their rate of speech for frequent word recognition.

Results of the research can benefit numerous groups. Policy makers could use the results to make better decisions regarding future investments relating to technology. These studies can inform those who develop technology in regards to the aspects of enhanced language learning. Research has also benefited language educators and allowed them to make better-informed decisions when selecting appropriate forms of technology and determining the best methods to incorporate it into teaching (Kennedy, 2007). When integrated appropriately, CALL technologies have supported learning and practice in a variety of modes, provided effective feedback, enabled partner work, promoted global learning, enhanced student achievement, provided access to authentic learning materials, facilitated greater interaction, individualized instruction, allowed independence, and motivated learners (Keengwe, & Hussein, 2014; Kennedy, 2007).

While technology has held a great deal of educational potential, it may not have substantial positive impacts on learning until used properly. Obstacles to CALL included the need for more rigorous research in the area of technology and language education, especially in the K-12 setting (Zou, 2008). Many schools have spent thousands of dollars each year on technology investments without any evidence of its impact on student learning. Technology tools must be used selectively and appropriately to supplement and aid teaching. Therefore, it is necessary to have some type of audit or study to help schools/districts make decisions on appropriate and cost effective professional development, curriculum alignment, and staffing needs to implement computer-assisted technology efficiently. Finally, studies showed that
schools must also allow ample time for teachers to learn, understand, and model sound pedagogical practices as well as innovative computer-technology integration models (Keengwe, & Hussein, 2014). Teachers need to embrace and incorporate new technology skills to support student learning with research-based computer-assistive methods. Data has indicated that ELLs have felt more comfortable and more in control of their learning when using technology and computer-assisted learning.

Through data analysis, the researcher has concluded that ELLs preferred technology-assisted learning to peer-assisted learning due to the self-paced, motivational factors. Overall, research led to a stronger support of technology-assisted programs promoting greater student academic achievement.
Chapter 5 - Discussions and Conclusions

In order to gain a complete understanding of peer-assisted learning strategies and computer-assisted language learnings true effects on English language learners’ academic gains, it is necessary to conduct further study that examines all aspects that promote learning for newly arrived English language learners. This includes but is not limited to, specific studies on current adaptive technology programs, PALS and CALL studies that have been researched over longer periods, and more findings on best practices for ELLs making quicker language gains. It is important to examine the impact of all methods or strategies that have proven data to support ELLs making quicker academic achievements.

Through the content analysis process, research has shown that English-language learners have many benefits from both peer-assisted and computer-assisted learning. Both provide studies that showed academic growth and social growth. This study aimed to make a relational comparison of which approach had the greatest possibility in helping ELLs make the maximum gains in their academic achievement.

The results of the research have demonstrated that while peer-assisted learning strategies can be beneficial for some, they do not work for the majority. Student peer-tutors would tend to focus more on delivering knowledge to ELL tutees rather than helping ELLs understand and develop their language awareness. While PALS can be a very beneficial strategy for many ELLs if delivered correctly, there tended to be very unpredictable and unreliable results depending on the peer mentor’s effectiveness to coach the ELL correctly during learning activities. More research into how PALS would teach student tutors how to be effective coaches and the strategies these students would need to incorporate when collaborating with the ELL tutees would be beneficial in better understanding PALS when implemented effectively.
The researcher’s conclusion is that ELLs prefer technology-assisted learning to peer-assisted learning due to the self-pacing and motivational factors. In this technological era, with rapidly expanding technology advancements, CALL has become more integrative for students learning. Technology provided language learners with authentic learning environments in the areas reading, writing, listening, and speaking. Computer-assisted language learning gave English language learners a variety of language practice modalities, feedback, enabled partner work, facilitated interaction, allowed for individualized instruction, gave independence, and motivated learners to reach high level learning goals. These findings have led the researcher to the conclusion that in today’s technology-based age there is a stronger support for technology-assisted programs promoting greater student academic achievement.

In the future schools and districts may want to look into incorporating specific computer-assisted technology programs with some type of audit or data driven results system that provides a proven track-record in increasing student proficiency. Technology programs should selectively be researched further and then used appropriately in order to maximize student learning. Future discussions and additional research is needed to best determine cost effective programs, standards-based alignment, and staffing professional development needs to implement computer-assisted technology efficiently.
References


