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Utilizing Technology to Increase Language Understanding for ELL Students

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Abstract

This action research was driven by the researcher's interest in using technology to enhance ELL students' language understanding. Specifically, the researcher was particularly interested in using a class-wide intervention called "Storyworld". This intervention is technology-based and will be used to help increase English skills including all the language-learning domains: listening, speaking, reading and writing. The researcher is a third grade general-education teacher that has been teaching third grade students for three years. In particular, the population of students within the researcher's third grade classroom are characterized as English language learners. The intervention, Storyworld, was implemented over a course of 4 weeks including an original benchmark score and post-assessment score after the intervention was fully established. Findings revealed that the technological program, Storyworld, was successful in helping increase English language fluency and skills. The research was conducted to bring forth a new instructional method to be used for ELL students within a elementary-leveled classroom.

Keywords: technology in learning, ELL strategies, learning with technology, online ELL programs, ELL strategies, language learning for elementary students.

Introduction

Diverse classrooms are commonplace and include students with disabilities as well as other barriers. There is a responsibility for the classroom teacher to provide interventions and strategies to improve the learning environment. Diverse classrooms often include students who are English language learners. These learners are referred to as "ELL" students because they are not fluent in the English language. In the United States, English language learners are a growing student population. This population will eventually grow, by year 2030, to encompass over 40% of the school-age population (Honigsfeld, 2010). With an increased student population, teachers will be continually required to teach ELL students. Since there is an increasing number of ELL students, it is important that schools provide these students with appropriate instructional strategies and educational tools. Educational tools often include the use of technology. Technological tools have become helpful in teaching all students; in particular, it has a large benefit for ELL students. Technology allows teachers to enhance classroom activities as well as aide in the language learning process (Ahmed & Nasser, 2015). Through the use of technology, language learning has been impacted and transformed (Mansor & Rahim, 2017). The problem is, many elementary school educators fail to utilize technological programs for ELL instruction. More specifically, it is difficult to find technology that "utilizes different parts of the English language" including language skills such as "listening, speaking, reading and writing" (Pazilah, 2019).

ELL instruction must include four domains: listening, speaking, reading and writing (Pazilah, 2019). Since technology is an educational and instructional tool, it can also be used to increase ELL students' language understanding. Technology is a helpful way for students to be engaged and excited about language learning. Furthermore, technology can be used to assess the

four language domains in a meaningful manner. The push for technology in schools, aims to prepare students for the future while making learning fun. There are many tools that may help ELLs learn English; however, technology can be used most effectively when activating the four language domains. In the Fairview, New Jersey school district, there has been an increase in ELL students in the last ten years. More specifically, the student population has risen from 40% to 72% being English language learners. With an increased ELL student population, it has become more difficult to teach ELL students in an engaging and appropriate manner. Teaching ELL students, in a general education population, is difficult due to the large class sizes in the Title I district. Each classroom includes over thirty students, making it a challenge for teachers to actively differentiate. In this school district, ELL students have great difficulty engaging in lesson plans due to a lack of language understanding. Elementary-aged students have a particular difficulty because language learning can often feel nerve-wracking, boring, and uneventful. While ELL teachers and bilingual teachers are successful in helping student learn language concepts, there is a clear lack of engagement and assessment of all language domains.

According to the ESL specialist, Jean Luppino, the district offers strategies that test writing and reading. However, the specialist noted that it is of the utmost importance to include all four domains for full language proficiency. Therefore, it is essential that an engaging and technological program be adapted for these students to use. More specifically, the program should be appealing to the language learners while be inclusive of all four language domains: listening, speaking, reading and writing. By incorporating technology in a means to increase language understanding, students will become more successful learners. Although research has been conducted in the field of technology-based instruction for English language learners, there is a gap within the research. This gap should be filled by conducting research in useful

technological programs that assess the four language domains: thus, making students more fluent in the English language. These programs should be implemented, and the progress of the students should be tracked to showcase increased language understanding. The purpose of this action research project is to provide quality ESL instruction using technology. By providing students with appropriate technological tools, that teach and assess all four domains, students can increase their language understanding.

Many of the supporting research, for this action research project, were found through the use of online databases. The databases that were used, for research purposes, was found through the DeWitt library resource. Other articles were found on the Wilely online library. Many of the articles, used to support the research, was found on the online scholarly journal domain entitled "ProQuest". The selected articles provided information from the last decade. These articles were selected due to relevance. Many educational tools and technologies continue to adapt, making it important to choose current and modern research. Each of the resources found for this action research paper relate to the topic of technological learning, ESL learning, or both. The articles provide evidence that supports the active role of technology in the learning of ELL students. Most of these articles included studies conducted in various countries and focused on the learning of the English language. The articles provide extensive research in various methods of technological instruction. While these articles offer proof of the importance of technology-based instruction, they also stress a major emphasis on the importance of the four language domains. Although many of these articles include instruction in the various modes of language learning, there is not a mentioned technological tool that teaches and assesses all four domains. These four domains have been proven to be of extreme importance in the education of ELL students. Therefore, it is critical to find and test the accuracy of technological programs including each

domain. While many articles were used to help provide research, there were articles that were excluded from information. Excluding research that solely provided insight on technological learning, was not beneficial for this research project. These articles focused solely on the importance of technological learning and did not focus on the criteria for utilizing this form of learning. The main focus of the research is to find articles supporting the use of technology in language learning. This technology should specifically assess the four language domains that are critical for language proficiency. The technology's accuracy should the be determined through the implementation of formalized assessments.

When teaching ELL students how to properly master the English language, it is important to remember the four domains of language learning. This instruction will include the use of engaging technology that incorporates all the domains of the learning process. This action research topic will seek to help enhance elementary ELL students language understanding. The use of technology will be implemented to increase the language proficiency. More specifically, the online technological program entitled "Storyworld", will be implemented as a language program for student usage. Storyworld will be implemented within the general-education classroom because most of the students have limited language proficiency.This program includes interactive activities and learning opportunities. These interactive activities ensure students are educated in all four language domains while providing a fun and enjoyable learning opportunity. It is the hope, through this research, the domain-focused technological program "Storyworld" will be universally used for ELL success. This program can be purchased and easily utilized for ELL curriculum in elementary-leveled grades. Furthermore, this program can act as a means for creating more engaging lesson plans while offering students diverse and differentiated learning

opportunities. Storyworld can also be used for cross-curricular purposes, as it includes miniature reading books that include Social Studies and Science topics.

The purpose of this literature review, highlighting many of the mentioned articles, is to showcase the importance of technology in language learning. This literature review will focus on the crucial academic nature of utilizing technology to improve instructional purposes. Next, evidenced-based studies will be used to enhance an understanding of the importance of technology in the various language domains, listening, speaking, reading and writing. Each domain will be assessed, and technology will be showcased in all necessary areas. Studies will show that technology is an essential component to successfully teaching the language domains. The impact of technology, on any classroom, will be discussed and analyzed.

Literature Review

Part I: Using Technology for ESL Instruction

In a study conducted by Andrei et al. (2017), technology was used to help fill various gaps in ELL student learning. This study tested the technology in a qualitative manner. The classrooms that were inspected were 3 middle school language arts classes that incorporated ELL students. More specifically, technological strategies were implemented to help provide instruction in English language and English language arts. Language learning was enhanced, specifically, through the routine usage of various technologies including document cameras, smart boards, iPods, google images and google translate. The enhanced engagement of the participating ELL students indicates a need for technology implementation within a ELL classroom.

Further proving the importance of technology-based ELL instruction, Zhang et al. (2019) conducted a studying incorporating the use of electronic whiteboards. This study focused on

utilizing qualitative data to investigate K-12 teachers' use of electronic boards in classrooms in Central South of the United States. The use of electronic whiteboards helped appeal to all grade levels and various learners. The electronic smart boards were to be used to increase instructional methods. These boards were successful in increasing motivation and academic engagement while presenting new information or assessments. However, it was recommended that teachers be provided with "necessary supports" to continue technological based "professional training" (Zhang, 2019).

According to Lee et al. (2020), technology-based instruction can be utilized through CALL. CALL, otherwise known as computer-assisted language learning, provides differentiated instruction to ELL students through the use of computer-based software. To test this method of learning, qualitative data was collected over a course of 15 weeks. The teacher taught the ESL students in a traditional manner, followed by follow-along documents and in-class technical demonstrations followed by in-class practice time. Students then reflected on these documents and how it helped them both inside and outside of the classroom. This resulted in various teacher and ELL student educational advantages including learner autonomy, learning by doing with support, and preventing cognitive overload. This strategy allowed for the individual needs of ELL students to be met through the use of technology. The effectiveness of this strategy was supported by the student participants. The participants agreed that they enjoyed learning at their own pace and found it easier to pace themselves when learning language content in a technology-based flipped classroom approach.

Various instructional methods can be used to enhance language learning for ELL students. In a recent study conducted by Agbatogun et al. (2014), a significant difference is noted between regular instruction and technology-based ELL instruction. This study focused on

improving lessons when teaching ESL students; through the use of interactive measures such as electronic clickers. This strategy was utilized in 3 schools in the United States, focusing on 99 pupils from ages 10 to 13 years. Qualitative data found that students engaging in instruction through the use of technology "clickers", performed higher on post-instruction assessments. Students who received "regular" instruction, received lower post-assessment marks. This indicates that technology can be used to enhance and increase language learning.

ELL instruction can be further enhanced through the use of mobile phone applications. A study conducted by Klimova et al. (2018), noted that technological applications can be used to benefit ELL student learning. Smart phones can be utilized to teach English as a foreign language. Over 5,924 studies were researched and data was collected to establish usefulness. Altogether, 15 studies were highlighted as being useful. These studies were conducted in foreign countries to test the accuracy of using mobile applications to enhance English language knowledge and fluency. Students that were included in this study, noted an increased motivation to study English. Further, students noted an improved learner performance, personalized language learning capabilities, interactivity of language apps, diversity of resources, as well as a collaboration and autonomy in learning EFL. This proves the notion that student can improve and enhance language learning through various technological strategies.

In a study conducted by Keengwe et al (2014), CAI was used to enhance achievement of language learners. Researchers collected data, including state scores, for math and language arts to compare and assess the achievement gap between ELL students using computer-assisted technology, and those simply relying on traditional instruction. Two classrooms were pinpointed for this study; Rochester Math and Science Academy and Dugsi Academy. This study utilized CAI, otherwise known as computer-assisted instruction, to extend language learning. Students

who utilized CAI, were more likely to achieve higher academic marks than students who did not use CAI. Therefore, this study helps prove the notion that technology can improve academic achievement in ELL students.

Part II: Using Technology to increase ESL Reading capabilities

A study conducted by Isaacson et al. (2017), showcased the impact of interface on ELL reading comprehension and strategy. According to Isaacson (2017), e-books should be utilized to help enhance ELL reading comprehension. This strategy was tested on high-intermediate ESL learners in a university intensive English program. Through the use of both qualitative and quantitative data, E-books were compared to the use of regular paper texts. Isaacson (2017) found that, even though strategy usage and frequency varied between groups, reading comprehension and retention rates did not. Furthermore, nearly all students preferred e-books for learning over paper texts. Therefore, e-books helped students stay engaged in learning through the use of technology.

Educational technology can help differentiate instruction for various reader profiles, including those of ELL students. To prove this particular strategy, Baron et al. (2019) conducted a study to help prove the ways that educational technology can effectively differentiate instruction for various reader profiles. Lexia Core5 Reading program was the technological program used to help students in this study. This study focused on young, elementary-aged students in a midwestern state in the United States. Qualitative tests were conducted to track the progress of the targeted students. An auto-placement test was used to level the students and provide differentiated instruction for the students' particular needs. According to the data, efficient identification and personalized instruction was possible for all students with reading difficulties, including students with language difficulties.

Multiple technologies can be used to enhance the reading abilities of ELL students. In a study, conducted by Traore et al. (2011), the use of multiple technologies exemplified effectiveness for ELL students. For this study, 10 Thai students who were studying English as a second language were targeted. This study took place in a US college and produced qualitative data to explore how technology was used successfully to teach literature. Further, the qualitative data tested and explored students' reactions to the use of technology in an ESL classroom. This strategy, of using technology for ESL students, was used for an entire semester. As a result, students perceived the technological devices as education tools that helped enhance their understanding and engagement with the themes portrayed in the literature that was distributed to the class. The technology enabled easier and accurate evaluation of the characters and events in literature; the primary focus in the college course. Therefore, the use of the technology helped enhance listening comprehension skills as well as reading skills throughout the course.

Part III: Using Technology to increase Writing capabilities

Al-Wasy B et al (2020), conducted a study on the effectiveness of integrating technology in EFL or ESL writing. This study analyzed over 18 studies that involved over 1,281 second and foreign language learners. Clear-cut quantitative data was used to test the language learning intervention and the effectiveness of these tools. It was found that technology has a large effect on second/foreign language writing. Two stages of writing, drafting and editing, received most of the researcher's concern. Both high school and university learners seem to achieve a larger effect size of using technology in writing learning. However, beginner learners had a smaller effect size due to the advanced nature of the intervention.

Similarly, to Al-Wasy B et al (2020), a study was completed by Link et al (2014) to help prove the effectiveness of technology in writing for ELL students. The study incorporated 5

instructors in an ESL academic university-leveled classroom. The strategy that was tested ad used throughout 18 weeks, was AWE; otherwise known as automated writing evaluation. According to the qualitative data, AWE should be used as a supplemental tool or extension tool. AWE tools are capable of filling in the gaps that regular educational tools are not advanced enough to fulfill.

In a study conducted by Grami et al (2015), researchers attempted to improve ESL writing using an online formulaic sequence word-combination checker. This writing tool is technology-based and was used for 74 students in two English departments in King Abdulaziz Umm Al Qura universities. A mix of qualitative and quantitative data was used to test the improved version of a formulaic sequence checkers that was easily integrated in the word processing server. Five accuracy tests were utilized, and students were also asked to write reflections on the word-combination checker. According to the findings, students were able to check words and phrases more easily and teachers were able to understand students' areas of struggle. Therefore, the strategy was helpful in differentiating instruction and enhancing writing abilities of ESL students.

Nadzrah et al. (2017), completed research on the fusion of technology with language learning by using a blog community. These blogs were created as a strategy to help students with language learning including writing and reading in the English language. This study was tested on 16 first-year students with low English proficiency at the University Kebangsaan in Malaysia. Through the use of qualitative data, collected throughout a series of 14 weeks, the online blog system was tested. Blog communities and discussion activities were implemented to make positive progress in their mastery language on a small-scale level. The findings suggested that the ESL learners were actively engaged in the learning process and successfully increased

language abilities in reading and writing. Students were able to read blog posts and interact in a meaningful manner that resulted in positive progress in the English language.

Further proving the effectiveness of technology in language learning, interactive technological blog communities can be used in synchronization with standard language learning. The use of technological blog communities allows for students to practice language skills through realistic experiences and engaging collaborative methods. In a study conducted by Nadzrah et al. (2017), the fusion of technology learning blog communities was tested to provide insight on the effectiveness of the tool on language learning. Web-blogs were used for 16 first-year low proficiency English speakers to enhance writing communication skills. Through qualitative analysis, it was determined that ELL students made positive progress in their mastery of language when participating with peers in an online blog format. Rather than learning on their own, these students used technology to learn in an engaging and collaborative manner; a manner that is essential for language learning skills to be developed in a realistic manner.

Part IV: Using Technology to increase ESL Listening/Speaking Skills

Technology can be used to help increase ELL students speaking and listening skills. In a study conducted by Cong-Lem et al (2018), WBLL can be used to enhance ELL students' speaking performance. WBLL, otherwise known as web-based language learning, can be used to help promote speaking and listening for ELL students. There are many interventions that are highlighted in this study and have been implemented and reviewed for future learning possibilities. Students practiced the English language through a series of technology-based interventions. Blogging, audio blogging, video blogging, communication tools, text chat, audio chat and video chat conferencing were used to help promote speaking and listening skills in ELL students. The research was conducted in a mixed-method approach and found that web-based

learning generally has a positive impact on learners' L2 speaking skills. The proficiency in the English language increased and could be helpful for other language levels; possibly lower-leveled learners such as learners that are elementary-leveled.

To help enhance speaking skills, in the English language, Behrani et al (2012) suggests that technology can be rather beneficial. The study was conducted to help prove that informal language learning is the best method of speaking and listening success for ELL students. The primary focus of this study was to prove that audiovisual mass media technologies can have the ability to improve language learners' language proficiency. Thirty participants, that were characterized as intermediate language learners, were assessed through means of qualitative data. Audiovisual mass media technologies were tested, and it was found that audiovisual technologies, such as TV and Smartboards, can be implemented to benefit ESL learning; especially in relation to speaking and listening skills. Students who were exposed to audiovisual technologies performed better on post-implementation exams. As a result, audiovisual technologies can be used to benefit the learning of ELL students.

According to a study conducted by Pan et al. (2017), a technology-based method called Kinect motion-sensing interactive systems. This particular method of language learning uses kinetic motion-tension as well as interactive technological games to enhance English learning for elementary students. These two methods of learning were compared, and the effectiveness was assessed. This study took place in Taiwan and incorporated 3 classes of sixth grade students. With the help of qualitative data collection, it was proven that technology helped enhance language proficiency; especially in the categories of listening and speaking. Interactive games with questioning strategies, benefited the students' long-term retention of conversational skills. Interactive mouse-computer learning, and motion-sensing did not make a significant impact.

However, when these services were used in collaboration with regular instruction, students were able to speak more fluently.

Part VI: Summary

Examination of the included research provides deep insight on useful technological tools that can be utilized within an ELL classroom. This research points to the usefulness of technology when increasing language understanding. ELL students need to be actively engaged in various technological strategies to help aide in language learning. Technology can be helpful in increasing an ELL student's language skills, including reading, writing, speaking and listening. For students to become fluent in the English language, it is important for all the language skills to be practiced and mastered.

There are many different technological tools that can teach the four language skills. After reading about all the useful technological tools, readily available for ELL students, it is evident that these interventions can be used to help benefit ELL students. Using a technology-based intervention, within an ELL classroom will enhance a student's overall language understanding. Technological tools can also help increase fluency and increase language understanding. The researcher, in this project, will seek to utilize technology to enhance elementary-leveled ELL students' language understanding. The technological program entitled "Storyworld", will be used as an instructional method to enhance listening, speaking, reading and writing skills.

Data Collection

For this action research project, the data that was collected was quantitative data. Quantitative data provides direct insight on the advantages of suggested strategies and teaching methods. The quantitative data focuses on the improvement, or possible setbacks, in a

numerically accurate manner. Quantitative data was chosen to highlight possible numerical trends and provide concrete feedback on the use of technology in an ELL classroom.

The quantitative data, for this project, includes baseline data and post-implementation data. The data was collected through formalized assessment methods. More specifically, language exams were provided for each student in the ELL classroom. The baseline assessment included the four language domains that are essential for language mastery: listening, speaking, reading and writing. Students were assessed through a formal assessment created by collaborating teachers; the ESL specialist and the general education teacher. The baseline assessment was completed over a 2-day period, focusing on two language domains each day. Once completed, students were provided with their baseline scores. The baseline scores consisted of one hundred points and assessed all areas of language learning. Each section of language learning was weighted with the same point system.

After the implementation of the technological support entitled “Storyworld”, students were provided with a post-assessment test. The Storyworld online program was used as a instructional strategy to enhance students’ language understand. The post-assessment was a formal assessment that also tested the four domains of language learning. Students were tested in a similar fashion to the exam that was provided as baseline data. Once the tests were completed, students’ work were assessed, and the data was collected. Data was than compared and assessed to analyze the effectiveness of the strategy.

Methodology

Research Questions:

This action research project focuses on the use of technology in an ESL setting. Primarily, this project is attempting to prove the successfulness of using technology to improve

language learning. There are a few pin-pointed research questions that have guided this particular action research project. These questions are as follows:

1.) Will technology (Storyworld) improve ELLs' understanding of the English language?

2.) Will technology enhance ELLs' language abilities?

Variables:

In this study, there are two variables that are of main concern. The independent variable that is being altered is in relation to the instructional methods for the ELL students. Previously, students were provided instruction in a more traditional manner. However, the independent variable is the intervention of "Storyworld". Storyworld will be introduced as an intervention, or instructional method, for increasing students' language knowledge. Students will partake in this technological program to test the effectiveness of the technology. The Storyworld program will be used to enhance ELL skills in reading, writing, speaking and listening.

The dependent variables will include the third-grade language learners. There will be 30 learners who will partake in the various technological aspects of Storyworld. Each day, ESL instruction will include the use of Storyworld. Students will use Storyworld to test their knowledge in the English language. Post-implementation data will showcase whether or not the intervention was successful for these learners.

Setting

This action research project, "Using technology to Improve Language Understanding for ELLs", has been conducted in an attempt to help ELL students. The targeted students for this project, are elementary-aged English language learners. More specifically, these students are third graders between the ages of 8-10 years old. These students go to a Title I school in Bergen

County, New Jersey. The town the school is located in is Fairview, New Jersey. Over 80% of students, in this district, receive free and reduced lunch services.

Many of the students in this school are from other countries. Most of the students are from countries such as: El Salvador, Honduras, Guatemala and Mexico. Since most of the student population is hispanic, and many of the students are foreigners, the ELL population is rather high in the Fairview school district. Each school year, there are between one to two classrooms that are dedicated to ESL and bilingual instruction.

Currently, the targeted classroom has 30 ELL students from ages 8-10. Twenty of the students are female while 10 of the students are male. Students in this classroom receive instruction from an ESL teacher for 45 minutes each school day. There is not a bilingual teacher assisting the general education teacher. There are no classroom aides, and the teacher is responsible for all of the 30 students.

These students are all low-leveled language learners and have been placed in this classroom to fill language gaps for the following school year. A large portion of the class includes students who are new to the United States; 22 of the students have been here for less than 3 years while 8 of them have been in the United States for less than 5 years. These students are in dire need of intervention strategies that can help improve language fluency and understanding. The school district operates on a technological one-to-one standard. This means that each student has access to chromebooks.

Participants

The participants in this study are 30 low-leveled language learners. These students are in a third-grade classroom. Twenty of the students are female while 10 of the students are male. Students have low proficiency in all areas of the English language and were assessed using the

official WIDA language assessment system. Many of the students have received ESL and bilingual instruction for a few years. However, there are some students who are rather new to the country; some students have come as recently as two months prior to the action research project.

The classroom consists of many students with differing behavioral levels. The students are eager to learn and appreciate one another as well as their teacher. School is seen as an outlet for these students, and they truly look forward to coming to school each and every day. The students enjoy using the one-to-one chromebooks as it is seen as a "treat" and continues to engage the students. Out of the 30 students in the class, 25 of them have limited reading ability in both their native and second language. All the students are eligible for free or reduced lunches. Many of these students are the only "English speakers" in their homes; and these students have limited proficiency.

Description of Intervention

The intervention being used in this action research project is called "Storyworld". Storyworld is an online technological program that focuses on producing well-rounded language learners. This program focuses on engaging language learners through the use of fun, relatable and interesting stories. These stories create an exciting way for students to enhance their reading, speaking and listening skills.

Storyworld provides students with the ability to test and enhance various areas of language learning. Each electronic story contains the four language domains. Stories include interesting topics and provide coinciding activities that test each language necessity. Students can increase reading fluency and comprehension, practice speaking and listening skills, and continue improving English writing skills. The activities are extremely interactive and include engaging games that allow students to feel interested and engaged.

Teachers are able to track students' progress through Storyworld's dashboard. Furthermore, teachers can assign various assessments and assignments to test students' overall language progress. Teachers can use the stories to teach third-grade instructional standards while also providing language instruction. Since the program includes all of the language domains, students continue to practice the necessary skills for language mastery. It is the hope, that this program can help improve students' overall language understanding and fluency.

Plan for Collecting Data

The measurement instrument being utilized is the district-created language assessment test. This exam is referred to as the "Tiger Language Assessment" and was created by the head of the ESL department; Jean Luppino. Jean created this assessment to include language skills such as speaking, listening, reading and writing. With the help of the special education department, Jean created this assessment which was approved by the district for official usage. This assessment is used to place students into appropriate classes based on their language levels. Upon collaborating with the head of the ESL department, it was concluded that this exam could be used for data collection on the effectiveness of the Storyworld program.

The timeline for the data collection included 4 weeks of intervention implementation. The first week of instruction included traditional, non-technological instruction. Baseline data was then collected to establish the language levels of the students. Students completed the "Tiger Language Assessment" and data was collected and stored. After the baseline data was collected, students received the intervention for 4 weeks. This intervention was fused into the ESL classes and ESL/ELA fusion classes. Students received ESL instruction through means of Chromebook technology. The intervention" Storyworld" was used via Chromebook to enhance students reading, writing, speaking and listening skills in the English language.

After four weeks of intervention implementation, post-assessment data was conducted. Students completed a "Tiger Language Assessment" summative evaluation. This assessment consisted of the same format and included the same language domains. Data was then collected and compared to the baseline data to showcase any growth. The successfulness of the strategy will be determined upon analyzation of the collected data. The data will be stored in the ESL department's filing cabinet for future use. Teachers will not be allowed access to these files unless it is needed for appropriate matters.

Plan for Data Analyzation:

Using Microsoft Excel, the pre- and post-assessment scores was compared. The data will be entered into an Excel spreadsheet to note any improvements from the pretest to the posttest. After the data is entered, a dependent samples t-test was used to highlight any significant differences in the collected data. This data will show whether the intervention was successful in making significant differences or if the intervention was overall unsuccessful.

Data Analysis

Formal assessments were used to collect benchmark data and post-assessment data. The formal assessments that were used to collect the data are referred to as "Tiger Language Assessment". After pre-implementation data was collected, it was shown that many students performed on a low academic level. In this data assessment, all students were included in the data collection. Thirty students were accurately assessed in a manner that could track any progress made due to the represented intervention strategy of utilizing technology (Storyworld) for ELL students.

According to the collected pre-implementation data, students performed on a low academic level on the "Tiger Language Assessment". On average, students performed at a 65.7

level. This is below the accepted passing level, for the language assessment, of 75. The test's scoring rubric provided deeper insight and allowed for a determined language level to be provided for further intel. The data showed that students performed on a low-language proficiency. This data showcased a need for language interventions that could increase the students' English language skills in all necessary domains.

After viewing the need for language interventions, and analyzing the pre-implementation data, Storyworld was introduced to the class of 30 ESL students. Storyworld, a technology-based intervention, presented various interactive stories to the students. Aside from reading the stories, students were able to interact with the story in a bilingual manner to enhance vocabulary skills. Students were also able to answer various questions that enhanced their comprehension skills as well as their reading response skills. Further, students were able to complete written exercises and verbal responses for recording and assessment purposes. These exercises tested the four necessary domains for language learning, providing students with a well-rounded intervention strategy for language learning.

After the implementation of the technology-based strategy entitled "Storyworld", students were provided with a post-implementation assessment. The same testing style was used for this post-implementation assessment to accurately showcase a data-based trend. The school's language exam "Tiger Language Assessment" was used to collect the post-implementation data. According to the post-implementation data, students scored an average of 86.23%. This is over a 20-point difference from the pre-implementation data. The test shows that students have moved to an intermediate level of language learning. This provides insight on the accuracy of the technology-based intervention plan. The data shows that Storyworld was successful in enhancing the language understanding of the 30 ELL students.

The collected scores, for the data analyzation, were used to conduct a t-test for paired two sample for means. The t-test for the paired two sample for means showed that the effect size is $p<.001$ showing the difference is significant. Below, the collected data scores and standard deviations are visible to exemplify the significant difference after the intervention was implemented. Following the concrete data explanation, a chart is shown to highlight the major difference in the pre-implementation and post-implementation data.

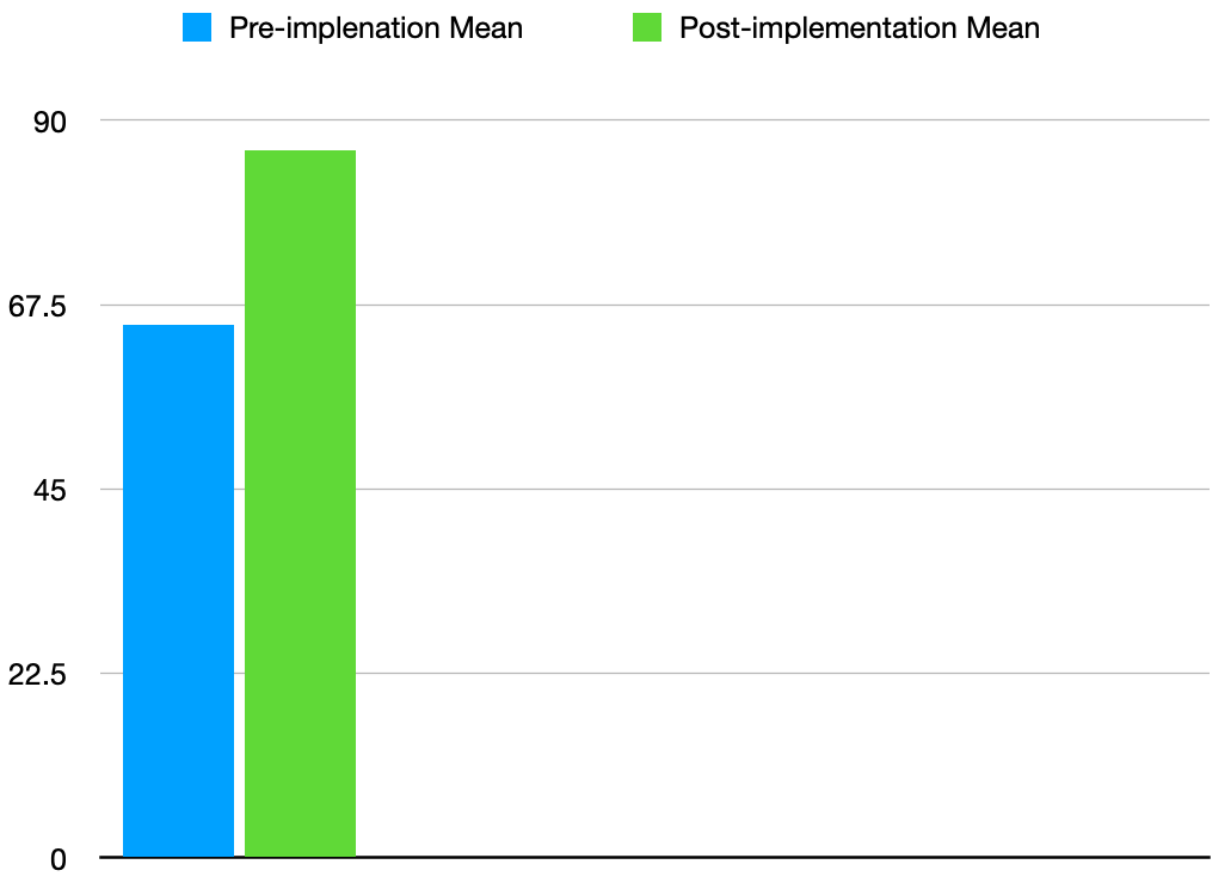
Student	Pretest	Post Test									APA Write-UP	
1	52	75		PreMean	65.7	Pre-test Standard Deviation				12.57844	M=65.7, SD=12.58	
2	72	85		PostMean	86.23333	Post-test standard deviation				8.35292	M=86.23, SD=8.35	
3	50	78										
4	46	79										
5	70	88										
6	71	80										
7	64	91										
8	73	67										
9	43	89										
10	66	92										
11	74	92										
12	43	79										
13	81	98										
14	62	82										
15	67	84										
16	49	79										
17	64	78										
18	78	92										
19	88	98										
20	77	94										
21	73	91										
22	55	82										
23	83	96										
24	77	94										
25	69	91										
26	64	87										
27	72	93										
28	44	68										
29	75	89										
30	69	96										

t-Test: Paired Two Sample for Means

	Variable 1	*Variable 2*
Mean	65.7	86.2333333
Variance	158.2172414	69.7712644
Observations	30	30
Pearson Corre	0.653476349	
Hypothesized	0	
df	29	
t Stat	-11.81096137	
P(T<=t) one-ta	6.65625E-13	
t Critical one-	1.699127027	
P(T<=t) two-ta	0.0000000000	
t Critical two-	2.045229642	

p < .001

Difference is significant


Pre-implenation Mean
Post-implementation Mean
90
67.5
45
22.5
0

Discussion

This particular action research study provides results in support of the technological intervention. This study relates to ELL students that must increase their overall English language understanding in the four necessary domains. Of the 30 participating ELL 3rd graders, 100% of the students increased their language score on the Tiger Language Assessment. The pre-implementation data suggests that students performed on a low-level, averaging at a score of 65.7% accuracy on the language exam. This places the students at an introductory language level; even though many of the students have been in the US for several years.

Technology has been proven to be beneficial for language learnings. Technology has been used to increase language abilities in several domains. Various studies have been conducted that showcase the many benefits of utilizing technology for language learning. However, most programs are used for more advanced language learners in higher age ranges. It was the hope of the educator to find an appropriate tool for low-leveled language learners that increases language knowledge in all four language domains.

Over a span of five weeks, students were provided with the technological intervention entitled "Storyworld". This intervention was strategically used throughout the school day in increments of 30-45 minutes. Students were also provided with homework activities to complete at home that ranged from 15-20 minutes of utilization. The Storyworld program provided various activities that relate to the four language domains: listening, reading, writing and speaking.

The program, Storyworld, is extremely interactive and focuses on increasing a students' overall learning skills. Students can increase language skills, in various domains, through interactive stories and coinciding activities. These activities allow for students to be more focused and engaged in the learning process. Furthermore, these skills are increased through

fidelity as the program is used on a daily basis and includes homework activities to also promote language learning within the home.

After utilizing the technologically based intervention, Storyworld, students were able to increase their language understanding in a significant manner. According to the data, students performed over 20 points higher on the post-implementation assessment. The average score, for the post-implementation assessment, was 86.23. The average score for the pre-implementation assessment was 65.7, making the average increase in language understanding was increased by 20.53 points. This increase was significant, providing evidence of the effectiveness of the technological program, Storyworld.

Future Research

Extending the research of this action research project is important. The next step for this project would be to continue implementing the program within various ESL programs. It would be helpful to see which areas of the program are most successful in strengthening students' language understanding. Studies could delve deeper int the use of Storyworld for more advanced language learners. Another idea, would be to track individual students' success and compare the success to classroom learning. It would be interesting to see if there is a particular domain that is heavily focused on in the program, which accounts for the raise in the post-implementation test scores. Further, the program can be tested on the ways in which it may improve a student's particular area of need.

In order to conduct such research, in seeing if there is a particular domain strength, it is important to utilize the program with accurate fidelity. Teachers should be exposed to professional development opportunities on ways to implement the program effectively within the

ESL classroom. Once teachers become familiar with the tool, it is important for teachers to use pre-implementation data to target an area of specific need for the student.

Teachers should utilize a pre-implementation test that tests each language skill in a separate manner. After the exam is completed, the data should be analyzed to provide individualized instruction to students. For instance, if a student is struggling with speaking more than the other language domains, that student should receive individualized instruction related to the area of need. Storyworld will then be utilized to help students' focus on the particular language need and progress may be tracked through the technological program's dashboard.

Once Storyworld is implemented and used for individualized instruction, students should use the program with fidelity. After the program is practiced for a minimum of 5 weeks, students will be assessed using a post-implementation exam. This exam should focus on the area of the students' needs to accurately establish whether the program was successful in increasing the understanding in the selected domain. Storyworld should be the primary focus as an instructional strategy for improving students' language understanding, especially in areas of individual need.

Conclusion

This study provides informative data that concludes the usefulness of an educational tool. The educational tool can be utilized to support English language learners in an elementary-leveled setting. The tool entitled "Storyworld" is a technology-based tool that is successful in increasing students' language learning in various language domains. This supportive tool allows for students to learn in an engaging and influential manner that enhances reding, writing, speaking and listening.

Storyworld can be used to help promote language learning for low-leveled English language learners. The program provides engaging stories that allow for students to learn grade-

level content while practicing language skills. Each story provides the student with translated material with coinciding activities and assessments. The program allows for students to practice skills in particular areas of need. Furthermore, teachers can track and observe student progress through recordings and self-graded assessments.

Progress, of ELL students, was highlighted and tracked using language assessments. The language assessments provided insight on the effectiveness of the technology-based strategy. Every language learner increased their language scores. On average the score increase showed a significant increase that proves the overall success rate of the strategy.

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