

RUNNING HEAD: Technology in the English Language Learner Classroom

THE EFFECTS OF A TECHNOLOGY DRIVEN PROGRAM IN THE ENGLISH LANGUAGE  
LEARNER CLASSROOM

By

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## ABSTRACT

The purpose of this study was to discover whether or not interactive technological resources are an effective use in English Language Learner classrooms as a means for instruction. One important question is asked is: Is there a significant difference in ELL student achievement between classrooms using higher amounts of technology compared to classrooms using lower amounts of technology? The study reviewed information gather from a midwestern school district in Missouri. The data is based on test scores from the 2012-2013 school year. Findings were analyzed through a t-test. The research indicates that an interactive computer program, such as Imagine Learning, does in fact increase academic and English language achievement for ELL students due to various reasons. The conclusions and recommendations offered include what needs to be done in order for English Language Learner teachers and district administrators to further educate students.

## INTRODUCTION

### *Background, Issues and Concerns*

The amount of students who speak another language in our country is great. Our schools now have to find new ways to educate because there are students who might be speaking English as their second language or even third. Some students might come into our schools without knowing any English at all. This is why it is incredibly important for our teachers to be equipped with the best strategies and systems for helping these students succeed academically. Teachers have come up with some great tactics to create growth in language and content areas for ELL students. However, a new area to be explored is technology. Online learning games, computer programs and applications, and even Smartboard instruction have been some of the latest forms for teaching ELL students. This carries a big question to the forefront: Is there a significant difference in ELL student achievement between classrooms using higher amounts of technology compared to classrooms using lower amounts of technology? How pivotal is the piece of instruction that technology brings to the table?

### *Practice under Investigation*

The practice under investigation is what is best practices for the greater success of ELL education between traditional teaching and teaching with technology.

### *School Policy to be Informed by Study*

All schools, districts and states are required by NCLB to show that students are making Adequate Yearly Progress (AYP). This includes ELL students. The

overall purpose of Title III of the No Child Left Behind (NCLB) Act is to help ensure that limited English proficient children, including immigrant children and youth, attain English language proficiency and meet the same challenging academic content and achievement standards that all children are expected to meet.

### *Conceptual Underpinning*

Students of this generation are learning at quicker rates. They have a different way of understanding things. A lot of their skills are centered on technology. Technology could be beneficial in classrooms to engage the students. It can also help students gain a better depth of knowledge and track their achievement. A very important piece to instructional programs on the computer is the one on one instruction and pacing. Most programs have a way of tracking the individual's success and setting a pace that works best for the student. In theory, the use of technology in the ELL classroom will increase student achievement due to individual pacing and monitoring.

### *Statement of the Problem*

There is a lack of knowledge on this new age of technology driven academic advancements. This is a whole new resource for teachers and districts to tap into.

### *Purpose of the Study*

The purpose of the study is to get a better understanding of technology's place in the world of education and specifically English Language Learning. This information will be used to gather an idea for teachers and administrators on what is out there as far as technological advancements for education and how beneficial it can be.

*Research Question(s)*

RQ: Is there a significant difference in ELL student achievement between classrooms using higher amounts of technology compared to classrooms using lower amounts of technology?

*Null Hypothesis*

Ho: There is no significant difference in ELL student achievement between classrooms using higher amounts of technology compared to classrooms using lower amounts of technology.

*Anticipated Benefits of the Study*

This study will help English Language Learner teachers have a better understanding of what is beneficial for their students. It will help administrators and school districts know what forms of technologies are successful and worthy of purchasing for their ELL students.

*Definition of Terms*

CCSS- Common Core State Standards: a United States education initiative to bring diverse state curricula into alignment with each other by following the principles of standards-based education reform.

DESE- Department of Elementary and Secondary Education

Differentiated Instruction- changing instruction to fit needs of different groups of students so every student is able to master the skills and objectives associated with the course objectives.

ELL- English Language Learner

L1 or L2- First language or second language

LEP- Limited English Proficient

*Summary*

This research project will take place in a midwestern school district. The research investigates whether or not technology is a vital factor in the instruction of English language learners in schools. The research will give ideas for future teachers and districts on what works best for the success of the ELL student. If technology is an important piece, which programs work well? This will also be explored in the research study.

## REVIEW OF LITERATURE

In order to better understand the background of this research study, a review of literature was conducted. These articles deal with technology and its place in education through the exploration of various types of technology, curriculum, benefits, and drawbacks to using this new form of instruction.

Imagine Learning is not the only type of digital media being used in the ELL classroom. Advancement of English Language Learners has been explored after using three main parts of technology in the classroom. According to J. Hur and S. Suh (2012), digitally interactive whiteboards, podcasts, and digital storytelling are pieces of technology that can be used to impact the vocabulary of ELL students (Hur & Suh, 2012). Other types of technology can be beneficial as well: presentation software, video/audio creation software, and discussion forums (Van Olphen, Hofer, & Harris, 2012). Discussion forums can be an interesting way for students and their teacher to collaborate and communicate in written form online (2012). Online mentoring (Ware & Benschoter, 2011) and classroom use of Apple iPods (Patten & Craig, 2007) are other effective uses of technology in the ELL classroom.

All of these pieces of the technology puzzle provide variety for teachers and students. Although they can be of great help to both parties, types of technology will not work without clearly stated learning goals. Goals in the classroom decrease confusion by pointing out a purpose or focus (Van Olphen, Hofer, & Harris, 2012). These forms of technology are not solely used to affect gains in English literacy. Studies show that students that are English Language Learners must be a certain level of proficiency in English in order to succeed in any other content course (Ryoo,

2009). K. Ryoo looks at a computer based science program that solves scientific problems as a way for ELL students to better understand the content. Content area instruction on the computer is for young learners, too. In the 2012 study by B. Rivas and L.O. Campbell, several online programs for new English speakers are discussed: Building a Butterfly Habitat, Kitchen Chemistry, Interactive Venn Diagram, The Compound Machine. Learning science in a new language is very challenging due to vocabulary words and new concepts. These programs are just a few of the ways to bring instant visuals to ELL students in order to help them understand (Rivas & Campbell, 2012). Lopez, (2012) reported a study found that academic success in mathematics for ELL students is also achievable using interactive whiteboard technology.

Paul Marcuso and Alyson Rodman (2011) studied a treatment group that used technology in the class and a control group that did not use it. The findings showed that the control group did not progress in areas of sight words and phonics in comparison to the treatment group (Marcuso & Rodman, 2011). In the Apple iPod study, K.B. Patton and D. Craig (2007) found that students showed improvements in comprehension level, writing skills, and vocabulary knowledge after having used these iPods as a form of education technology. Although there are any clear benefits from these new alleys in education, some studies found that there are negative effects as well. Some ELL students may feel uncomfortable using foreign technology (Aydin, 2011). Many students may not feel anxiety about the technology itself, but more so from the variables surrounding the programs such as connection, usage, training, and gender (Aydin, 2011). In order to create a



comfortable environment in any classroom, teachers need to help students relax and understand. S. Aydin (2011) gives several resources and tips on how to help these anxious students in the article, "Internet Anxiety Among Foreign Language Learners." Because students might feel worry about technological competence, teachers should give mini lessons on how to use the technology, rather than throwing the students into it and assuming they will pick up the skills as they go. Students may feel anxious about self-efficiency while on the computer. Teachers may want to make goals with the students so they can see their own progress as they go. Some L2 learners may not want to communicate through the Internet because they don't feel as though they are comfortable with this extra form of communication. Again, it is up to the teachers to empower the students and help them feel safe to take chances. This is the best way for students to learn. The more familiar students become with the technology, the less anxiety they will have (Aydin, 2011).

## RESEARCH METHODS

### *Research Design*

A quantitative study was made to compare data from a same pre-test in February and post-test in May given to each group. The test used is called STAR. It assesses a student's reading level. One group of students that has had instruction from a teacher only. The other group has had technological instruction. This study is based on two variables: dependent, being technology or no technology, and independent, being test score, reading level, growth over three months.

### *Study Group Description*

This research project will look at two groups of ELL students in a school district. This district includes 28 schools with 13,937 students in grades Pre-kindergarten through twelfth grade. Of those students, 1% is Asian, 10.8% is Black, 14.8% is Hispanic, .4% is Indian, and 65.9% is white. The Free/Reduced Lunch percentage of those 13,937 students is 68.5%. The district serves 4% English Language Learners. The ELL students are included in regular grade level classrooms across the district. The students that are learning English as a second language are pulled from their classes one day a week and bussed over to one main location for instruction on English and content blended. One group of students will be studied based on their scores without having any technology in the classroom from a school that does not use the program. The other group of students will be monitored based on scores after having gone through an ELL technology program called Imagine Learning.

*Data Collection and Instrumentation*

Data was collected through pre and posttest scores and then growth was compared between both groups of ELL students. This was put into tables and graphs to show growth between technology driven instruction and not over a three-month study.

*Statistical Analysis Methods*

A Statistical Package (ASP) software was used to complete the statistical calculations in this study. A t-test was conducted to find if there is a significant difference in test scores based on a group using Imagine Learning versus a group that does not. The source was broken into those two categories. The mean, mean D, t-test, df, and p-value were concluded from this test. The Alpha level was set at 0.25 to test the null hypothesis: There is no significant difference in ELL student achievement between classrooms using higher amounts of technology compared to classrooms using lower amounts of technology. Additionally, Microsoft Excel was used to compile totals used in the research.

## FINDINGS AND DATA ANALYSIS

A t-test was conducted to determine the success of using an interactive computer based program in an ELL classroom. The following figures will depict the findings based on the statistical raw data found from a pilot study of the program Imagine Learning in the school district.

**Figure 1: Excel spreadsheet including February and May reading level scores along with growth over those three months.**

Group	FEB_IRL	MAY_IRL	Growth
Imagine Learning	1.8	2.5	0.7
Imagine Learning	1.4	1.8	0.4
Imagine Learning	-1	-1	0
Imagine Learning	2.6	2.4	-0.2
Imagine Learning	3	3.2	0.2
Imagine Learning	1.3	1.7	0.4
Imagine Learning	2.8	2.9	0.1
Imagine Learning	-1	1	2
Imagine Learning	2.3	1.9	-0.4
Imagine Learning	-1	-1	0
Imagine Learning	-1	-1	0
Imagine Learning	-1	-1	0
Imagine Learning	1.2	1.7	0.5
Imagine Learning	0.6	-1	-1.6
Imagine Learning	2.1	2.4	0.3
Imagine Learning	-1	1.1	2.1
Imagine Learning	1.7	2	0.3
Imagine Learning	1	1.5	0.5
Imagine Learning	-1	-1	0
Imagine Learning	1.8	1.5	-0.3
Imagine Learning	-1	-1	0
Imagine Learning	1	1.7	0.7
Imagine Learning	1.6	1.4	-0.2
Imagine Learning	1.1	0.8	-0.3
Imagine Learning	1.3	2.7	1.4
Imagine Learning	2.8	3.4	0.6
Imagine Learning	-1	-1	0
Imagine Learning	3.7	3.2	-0.5
Imagine Learning	-1	-1	0
Imagine Learning	-1	1	2
Imagine Learning	1	1.3	0.3
Imagine Learning	-1	-1	0
Imagine Learning	-1	-1	0
Imagine Learning	-1	-1	0

Imagine Learning	2.9	3.2	0.3
Imagine Learning	1.6	2.3	0.7
Imagine Learning	1.8	2	0.2
Control Group	1.3	2.8	1.5
Control Group	2.5	3.2	0.7
Control Group	1.9	2.2	0.3
Control Group	1.9	2.9	1
Control Group	3.1	3	-0.1
Control Group	0.5	1.1	0.6
Control Group	3	2.8	-0.2
Control Group	1.1	-1	-2.1
Control Group	3.1	3.3	0.2
Control Group	-1	-1	0
Control Group	0.1	-1	-1.1
Control Group	-1	-1	0
Control Group	3	3.4	0.4
Control Group	1.6	-1	-2.6
Control Group	2.1	2.3	0.2
Control Group	-1	-1	0

As seen in figure one, the students were given the STAR Test to determine reading level in February as a form of pre test. These students were from multiple elementary grades as students in ELL classes are divided into tiers based on English proficiency, rather than age. The students were then retested in May. The far right column shows the growth from February to May in reading level.

**Figure 2: t-Test Analysis Results for Technology and STAR Test Growth**

Source	Mean	Mean D	<i>t</i> -test	df	<i>p</i> -value
Control Group (no technology program in classroom)	-.075				
Imagine learning Program students	.275	.35	1.42	51	0.16

Note: Significant when  $p \leq 0.25$

RQ: Is there a significant difference in ELL student achievement between classrooms using higher amounts of technology compared to classrooms using lower amounts of technology?

Ho: There is no significant difference in ELL student achievement between classrooms using higher amounts of technology compared to classrooms using lower amounts of technology.

As shown in figure two, the *p*-value is at 0.16. With an alpha level of .25, the null hypothesis is rejected. Technology in the classroom clearly does affect reading level growth and English literacy achievement in the ELL classroom. The mean D is .35. The *t* test shows to be 1.42. There was a 51-degree of freedom. The control group (students that did not use Imagine Learning program), which consisted of 16 students, scored a mean average of -.075 reading level growth rate over a three month period. The Imagine Learning group (students that did use Imagine Learning program), which consisted of 37 students, scored a mean average of .275 reading level growth rate over a three month period. The group that used an interactive

computer program in the classroom did prove to make greater gains in reading level than the group that did not have any extra technology assistance.

## CONCLUSIONS AND RECOMMENDATIONS

When reviewing the data and research results, there appears to be a correlation between students using Imagine Learning interactive media and test results. The students that have used the program with validity have higher scores and are closer to proficiency than those students that were not exposed to this program. Therefore, the overall gains of students using this program are indeed effective and impactful for students who are learning the English language.

With rising numbers of ELL students in our country, districts will need to come up with a plan for how to best reach these students. In order for these students to excel in all content areas, they need to be proficient at speaking the language. Imagine Learning uses the five essential components to literacy instruction: phonics, phonemic awareness, vocabulary, comprehension, and fluency. A major factor in its success is the ability to differentiate instruction. Through the computer, each student is assessed in order for the program to tailor to his/her individual level and needs.

After looking into the Imagine Learning program and the success attributed to it, one might be interested in looking at other aspects of technology based ELL instruction. This also brings to mind several other questions: *What is the best way to use technology in the classroom? What supplementary instruction is most successful with an interactive program? What drawbacks are there when using this new form of education? Can this or a similar program be used as an intervention for struggling English speaking readers?*



As teachers, administrators, and districts, these questions need to be brought to the attention of others. As a group, English Language Learners need help. It is imperative that we work together to strive for success in English literacy and create a better future with our students. Along with any new program, teachers need to remember to be mindful of the accommodations and modifications that may be needed for some students while also encouraging colleagues to teach the program with fidelity.

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