**The Effect of Second Life vs. Internet Technology
in a Sixth Grade Reading Classroom**

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Abstract

In America, there is a growing consensus that educational video games should be used in the classroom to meet the needs of 21st Century learners. According to the American Federation of Scientists (2006), students that "have grown up with digital technology and video games are especially poised to take advantage of the features of educational games" (p. 3). Because students are digital natives, educators must utilize technology in the classroom, especially computer games, to stimulate curriculum. This paper will focus on an action research study that I conducted in order to understand how Second Life can be used during sixth grade reading instruction. Research data was analyzed to determine whether or not the virtual game increased student self-efficacy and reading achievement. This was a pilot study; at the time of the investigation, there was a lack of literature in terms of the effectiveness of utilizing Second Life in sixth grade reading instruction to increase student self-efficacy and reading comprehension.

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Introduction

Although video games have been in existence for decades, the education world gave little attention to their educational value – until now. Educational video games are quickly becoming "a promising technology forum that provides students with opportunities to explore real-world issues through authentic learning experiences" (Moos & Honkomp, 2001, p. 231). National technology standards are currently being implemented, so teachers are expected to embrace 21st Century learning tools.

Students already use technology on a daily basis. Texting, social networking, and virtual gaming are appealing to young people; therefore, integrating the enjoyable features of video games with educational subject matter can offer an elevated educational experience for students. In addition, video games "reach beyond the classroom to the larger community, asking students to apply their developing analytical skills and ethical judgment to concrete problems in the world around them, and to connect theory with the insights gained from practice" (Hancock, Smith, Timpte, & Wunder, 2010, p. 37).

Second Life is an example of an online video game that connects students to the outside world. The creators of Second Life shaped a virtual environment that is increasingly being used for educational purposes. Barkand and Kush (2009) stated that users can "create an Avatar and travel around a 3D world" (p. 216) in Second Life. The program allows users to explore diverse locations, fictional and non-fictional, in a collaborative setting. Users can also engage in "rich, immersive, and engaging tasks" (Hancock, Smith, Timpte, & Wunder, 2010, p. 38) in Second Life. Unfortunately, there is a drawback to using Second Life in a middle school classroom: some content is not suitable for children. To remedy this problem, some academic institutions are creating private islands for their students in order to avoid inappropriate video game content.

Fortunately, Second Life shows evidence of motivating students and increasing their reading abilities in a sixth grade reading classroom when used in a controlled environment. According to Hutchinson (2009), "Social software technology seems to play a positive role in improving linguistic power relationships and in developing interactive writing abilities. Social software can engage and motivate students, and forge a connection between education and real life as students use it in their social lives" (p. 2).

Sixth grade reading teachers are being challenged to enhance their instruction by combining content standards with technology. Educators must also construct lessons that:

(a) Promote, support, and model creative, innovative thinking and inventiveness; (b) Engage students in exploring real world issues and solving authentic problems using digital tools and resources; (c) Promote student reflection using collaboration tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes; and (d) Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.

(Hearrington, 2010, p. 65)

Facing all of these requirements can be daunting, but teachers can utilize virtual reality games to help their students learn essential standards in an entertaining way. According to research conducted by Squire (2005), e-learning games "have developed a reputation for being fun, engaging, and immersive, recruiting deep thinking and complex problem solving" (p. 2).

Conversely, virtual reality games do not always engage and motivate students. Squire (2005) completed a research study where students played virtual reality games in the classroom; some of the participants encountered failure (pp. 1-20). In one section of the article, the author discussed students who experienced disappointment and became frustrated. "These students

lacked either sufficient interest in the game or the requisite self-efficacy with games, or perhaps they just had bad days during which playing such a difficult game was unattractive" (Squire, 2005, p. 6). In this instance, the video game was not motivating to learners.

Fortunately, if educational video games are designed with the proper learning outcomes in mind, such as increasing reading achievement, and the students are motivated, the "games can provide a training environment in which users can perform tasks without facing the real-world consequences of failure" (Garris, Ahlers, & Driskell, 2002, p. 453). Students that played video games with varying levels of difficulty gradually built their motivation, reading skills, and confidence, otherwise known as self-efficacy. As per Garris, Ahlers, & Driskell, "Individuals with greater confidence in their task capabilities are more resilient to the difficulties faced when applying skills learned in a real-world environment" (2002, p. 453).

Self-efficacy is crucial throughout the learning process. According to Bandura (1997), self-efficacy can be defined as "a generative capability in which cognitive, social, emotional, and behavior subskills must be organized and effectively orchestrated to serve innumerable purposes" (p. 36). While educators understand the importance of student self-efficacy in the sixth grade reading classroom, many students are unaware of their motivating factors. As per Davis (2010), "The ways in which children interpret and experience literacy teaching in the classroom have consequences for their achievement and motivation" (p. 54). It is for this very reason that educators must "endeavor to locate curriculum and teaching methods that are effective in both promoting academic achievement and in engaging students as they experience early literacy" (Davis, 2010, p. 54). If instructors use entertaining and educational games in their classroom, they can help their sixth grade students increase their self-efficacy in the reading classroom. If students "are more interested and involved in the task, they devote more time on task,

they actively pursue challenging activities, and they are more committed to continued task activity" (Garris, Ahlers, & Driskell, 2002, p. 454).

In this study, I incorporated the educational video environment of Second Life in my sixth grade reading lesson. Quantitative and qualitative data was analyzed to see if the use of Second Life increased student self-efficacy in the classroom. In addition, quantitative data was examined to determine if using Second Life enhanced reading instruction.

Literature Review

Hands-on learning in a middle school reading classroom can be difficult. Groff and Haas (2008) stated, "Hands-on, real-world learning experiences are the ideal way for students to learn anything. Often though, doing an activity hands-on, in the real world, is not an option in the classroom - there are constraints such as time, accessibility, and resources" (p. 12). While every classroom has its limitations, hands-on learning is not impossible. Technology can offer teachers and students "the opportunity to move within a digital space to explore new ideas and try tasks that they would otherwise not have the opportunity to do in the real world" (Groff & Haas, 2008, p. 12). Numerous middle school reading teachers are constantly looking for 21st Century learning tools that will enhance their curriculum and instruction. Many reading teachers already use Web 2.0 tools, such as Wikis, Blogs, and video and photo sharing in their classrooms. "These tools are changing how people, including our students, interact with the world. The changing nature of information and the new ways our students understand and make sense of the world signal that we need new strategies and new tools for teaching and learning" (Solomon & Schrum, 2007, p. 1). Besides Web 2.0 tools, educators can also use educational video games to enhance their instruction.

Many middle school students like to play video games at home. The games are appealing, fun, and give the children immediate feedback. Since young learners are motivated by video games, why not use educational video games in the classroom? An educator in Wyoming asked herself the same question. Ms. Johnson felt the materials and teaching techniques in the school were not motivating or engaging to students. With the help of the Albany County School District, Johnson was able to integrate educational video games into her classroom. Since the digital learning appealed to students, their learning classroom engagement was sufficiently increased. In addition, the games gave students immediate feedback, so the learners could correct their mistakes and move on. Most of the students enjoyed learning with video games (Simpson & Clem, 2008, pp. 4-11). This evidence confirms the impact that educational video games can have on student engagement in the classroom.

In addition to engaging learners, it is imperative to increase student self-efficacy. Self-efficacy is vital to the education experience. Students that have a robust sense of worth are more apt to face challenges in the classroom and put forth the effort to attain their learning goals. According to studies by Bandura (1995), "efficacy beliefs are influenced by acquisition of skills but are not merely a reflection of them. Students with the same level of cognitive skill development vary in their intellectual performances depending on the strength of their perceived self-efficacy" (p. 209). In other words, the students that put forth more effort to complete their assigned tasks are more likely to achieve their personal goals and aspirations. In comparison, students with low self-efficacy do not feel they are successful. In Bandura's (1995) opinion,

> When faced with difficult tasks, they dwell on their personal deficiencies, on the
>
> obstacles they will encounter, and all kinds of adverse outcomes rather than concentrate

on how to perform successfully. They slacken their efforts and give up quickly in the face

of difficulties. (p. 11)

Ultimately, negative learners usually put forth less effort than their counterparts, which results in

poor academic performance.

It is crucial for all students to develop self-efficacy when it comes to academic

achievement. Research shows a significant correlation between student motivation and their class

grades (Bandura, 1995). Educational video games, such as Second Life, are extremely effective

learning tools and can increase student reading achievement if used properly. Second Life can

offer teachers and students **"**the opportunity to move within a digital space to explore new ideas

and try tasks that they would otherwise not have the opportunity to do in the real world" (Groff

& Haas, 2008, p. 12). The video game is a hands-on activity where students can have control

over their learning. Learners can explore different environments, museums, and historical sites.

Teachers can be facilitators while students conduct research.

While the possibilities seem endless, there is a drawback – Linden Labs, the creator of

Second Life, "has very limited control, if any, over the quality, safety, morality, legality,

truthfulness, or accuracy of various aspects of the Service" (Bugeja, 2007, p. 18). Griefing is an

example of Second Life's clients misusing the game. Griefing is "where one player harasses

another for the sake of doing so" (Bugeja, 2007, p. 18). Fortunately, if educators are well-

informed about the realms of Second Life, they can take the necessary precautions to protect

their students during its use.

With the exception of griefing, Second Life is motivating and allows students to network

with one another; thus, the game creates a sense of community. "Sense of community is an

important aim for educators, and for many students, it is a key factor in promoting motivation,

confidence and enjoyment of their learning" (Kear, 2011, p. 2). Besides being a motivating factor for students, Second Life allows instructors to merge learning objectives with games and tasks that capture student interest, motivate them to learn, and guide them to learn real-life skills (Prensky, 2003). Fortunately, using video games in the middle school reading classroom is becoming a reality. "An emerging coalition of academics, writers, foundations, game designers, companies such as Microsoft and, increasingly, the U.S. Military is working to make parents and educators aware of the enormous potential for learning contained in the gaming medium" (Prensky, 2003, p. 2).

Besides instilling a sense of community, it is imperative for educators to use strategies in their classroom that increase student self-efficacy. Even though they are young, middle school students know their motivating factors in the classroom. Evidence of this can be found in a study conducted in a North Carolina middle school. By using multiple forms of study, including focus groups and surveys, the researchers found the students' perspectives on school; in addition, the authors found what technologies interest students and actively engage them in the classroom. The experiment presented the following: students use computers at school more than they use them at home, most of their research comes from the internet, the majority of the learners use technology at home to play web-based video games, and students mainly prefer to work on the computer and work collaboratively instead of listening to direct instruction (Spires, Lee, Turner, & Johnson, 2008, pp. 500-506). This data reveals that educators need to incorporate 21st Century learning tools in their curriculum, especially in the form of educational web-based video games and collaborative learning. Students are more actively engaged and can communicate more effectively when they use technology.

We are currently living in an interactive age where communication is literally at our fingertips. Twittering, Facebooking, texting, and instant messaging allow us to communicate with one another within seconds. Social networking has changed the way we correspond with one another. Middle school students are actively engaged in social networks at home. Educators should not stifle this type of socialization in the classroom. As per Williams, Karousou, and Mackness (2011), "social networks provide the necessary conditions for an exponential expansion of emergent learning, including openness, interaction, and self-organization" (p. 44). It is important for teachers to use social networking because it prepares students for the 21st Century workforce. Fortunately, researchers are "beginning to explore the educational benefits of social networking technologies. By connecting students and teachers, they can create strong communities of practice, essential aids to good teaching and learning" (Groff & Haas, 2008, p. 12). Second Life fosters networking, because students can create Avators and speak to one another in the virtual world through chat. In addition, learners can teleport their friends to specific locations and share experiences. Social networking, such as the chat option in Second Life, should be utilized in education because it permits teachers to extend their students' learning into an additional space; in addition, networking allows everyone to collaborate and share ideas.

Statement of Research Questions

Several research questions were considered during the course of this study. Most importantly, I wanted to know if I could enhance classroom instruction to increase student self-efficacy and reading abilities by using the virtual learning environment of Second Life. I developed this query on my own during a Master's technology class at West Liberty University. My instructor, Dr. Li Wei Peng, had us explore the realm of Second Life.

During one of my excursions, I teleported my Second Life Avatar to Jaguarland (see Appendix A1). I was immediately met by a miniature donkey. "Bama Xue" spoke to me through the chat option and asked if I was a Southern Alabama student joining the university's virtual Second Life campus. I explained that I was a graduate student from West Liberty University, and I was conducting research on Second Life. Even though I was not one of her students, Bama Xue immediately welcomed me and introduced herself. She was actually one of the co-creaters of Jaguarland and working on her PhD in Instructional Design. Bama Xue was also a graduate assistant in the USA Online Learning Lab, and taught educators how to incorporate technology in their classrooms. Bama Xue took me on a tour of the campus and allowed me to visit a few virtual classrooms. Refer to Figures 1 and 2 to view screenshots of Southern Alabama classrooms in Second Life. I enjoyed my learning experience, which made me wonder how I could use Second Life in my classroom to benefit the sixth grade students.

Figure 2. Second Life Screenshot of an Educational Assessment Classroom in Jaguarland

After considering the needs of my students, I decided it was important for my sixth

graders to gain self-confidence in the classroom and improve their reading comprehension

scores. I immediately remembered the United States Holocaust Memorial Museum from Second

Life. Please see Figure 3 to view a screenshot of the museum experience.

I discovered the museum on June 5, 2010. After viewing the exhibits and artifacts, I

found USHMM to be an amazing resource for my students. My sixth graders could use Second

Life to increase their background information on Kristallnacht, which would enhance their

understanding of their class novel, <u>Number the Stars</u>. In addition, the learners would probably

enjoy using Second Life, which could increase their self-efficacy. Therefore, I developed the

idea for a research project on Kristallnacht.

Figure 3. The Synagogue at Second Life's United States Holocaust Memorial Museum

Subquestions: The following subquestions were utilized to sustain the research question:

1. How did the reading teacher attempt to enhance lesson plans by utilizing Second Life?
2. What did the educator do to prepare students to conduct research using Second Life and the Internet?
3. Did students view the use of Second Life as motivating and fun?

4. Did the students who conducted online research feel the assignment was motivating and fun?
5. Did Second Life increase the students' reading abilities compared to the students who conducted online research?
6. Did the reading teacher observe the educational game as being a vital tool in the sixth grade classroom?

I carefully developed subquestions one and two to guide me in the construction of my Second Life lesson plan. Subquestions three and four were developed in order to determine whether or not students increased their levels of self-efficacy and learn if one educational process was more beneficial than another. Subquestion five was utilized to ascertain if educational process had an effect on the students' reading abilities. Lastly, subquestion six was used as my reflection tool to determine whether or not I felt Second Life was a beneficial tool for my sixth grade classroom.

Methodology

Course Description: A case study methodology was applied in order to determine how or why Second Life should be used in a sixth grade reading classroom. I focused on the "how" or "why" case study question, then the research study commenced in the reading classroom. Since I could not control the sixth grade participants, the overall outcome could not be controlled (Yin, 2009).

The study investigated a sixth grade reading classroom at Bridge Street Middle School. The students were divided into two groups, which were the comparison group and the experimental group. All sixth graders read Number the Stars by Lois Lowry. While reading this piece of realistic fiction, twenty-one of the participants used Second Life to research information about the Holocaust, most specifically Kristallnacht, through the virtual Holocaust Memorial

Museum. Students learned about Kristallnacht events, artifacts, and vocabulary. The remaining twenty participants used the Internet to conduct online research on the same topics.

The Second Life participants traveled in small groups made up of their Avatars through the United States Memorial Holocaust Museum (refer to Appendix A2). Their task was to play the role of journalist, collecting data from eyewitness accounts on Kristallnacht while exploring a replica environment of Kristallnacht. They maneuvered their Avatars through the museum and collected note cards, read bulletin boards that contained pertinent vocabulary, listened to victim accounts, translated graffiti sprayed on Jewish businesses, and watched video testimonies. At the end of their journey, students wrote notes about their Second Life experience; in addition, the learners created a Microsoft PowerPoint to present their findings.

In contrast, students who conducted Internet research used the United States Holocaust Memorial Museum (see Appendix A3). They read information on the website including historical reviews, explored the online exhibition of artifacts, and even watched videos on the eye-witness accounts of Kristallnacht victims. Students took detailed notes to explain their experience and what they learned and created a Microsoft PowerPoint to showcase their research.

While reviewing the observation research to answer the aforementioned subquestions, I compared and contrasted data from the pre-surveys, post-surveys, journal questions, in-class observations, PowerPoint projects graded by a rubric, and Acuity Benchmark testing. The data determined whether or not I could enhance instruction in my sixth grade classroom to increase student self-efficacy and reading achievement with the use of Second Life.

Participants: Data was collected from 41 sixth grade reading students at Bridge Street Middle School. Bridge Street is located in the northern part of Appalachia in the city of

Wheeling, West Virginia. In the 2010-2011 academic year, 58.6% of the sixth grade research participants successfully passed the reading portion of WESTEST 2, which is West Virginia's state-wide assessment test. Out of the 41 students tested, 19.5% scored Novice, 14.6% performed at the Partial Mastery level, 41.5% achieved Mastery status, 17.1% attained Above Mastery, and 7.3% earned the Distinguished level (West Virginia Department of Education's Graphical Assessment Data, 2011).

Of the sixth grade Bridge Street students included in this study, 18 were female and 23 were male. According to Bridge Street Middle School's enrollment data, 37 of the participants were identified as Caucasian, 2 as African-American, and 1 as Pacific-Islander. In addition, 13 students were of low socio-economic status because they qualified for free or reduced lunches. Consequent to their socioeconomic status, many students do not get to travel to different places and seldom visit museums or academic institutions. On occasion, I have heard a student say, "I've never been to a restaurant," or "I have never been out of the city limits." These informal statements show the students' economic disparity and lack of world experience. Finally, I must note I am certified to teach middle school reading and language arts, as indicated by the West Virginia Department of Education licensure.

There were two Tiers of students involved in the study. Tier 1 students were average in terms of academic achievement in their courses and on WESTEST 2; conversely, Tier 4 students were above-average on WESTEST 2 and typically scored well in all content areas. My students and I participated in this study over the course of two and a half weeks, from February 13, 2012 to February 29, 2012.

Instruments: Twelve Acer Aspire laptop computers were used by the students throughout the study. The laptops included the Windows XP operating system, Internet access,

the Second Life program installed with a desktop shortcut, and Microsoft Office 2010

PowerPoint. Random Name Picker (refer to Appendix A4) was used to indiscriminately select

the students for the experimental group and the comparison group.

I administered pre-surveys and post-surveys in this study so I could compare and contrast

student self-efficacy before and after the use of Second Life in the sixth grade reading classroom.

The self-efficacy survey was based off of Bandura's theory of self-efficacy and the research of

Schwarzer and Jerusalem (Luszczynska, Gutie´rrez-Don˜a, & Schwarzer, 2005). The General

Self-Efficacy Scale (GSE) was designed to question participants on a scale of zero to ten to

determine their ability and motivation levels. The range was from "Not at All" at zero to "Yes"

at ten. Students took the surveys prior to using Second Life, and then answered the same set of

questions at the culmination of the project (see Appendix B).

Acuity Benchmark reading tests were also administered to the students. The Acuity

Benchmarking questions were modeled after reading questions found on WESTEST 2, which is

West Virginia's assessment test. The reading portion of WESTEST 2 focuses on vocabulary

and reading comprehension questions. Items selected were recognized as being valid and

measureable items (West Virginia Department of Education, 2011). The sixth graders took

Acuity Benchmark 2 on February 2, 2012, and their scores were counted as a pre-test. The

students were administered the Acuity Benchmark 3 exam on March 20, 2012, and these results

represented the post-test data.

I kept a journal throughout the course of the study. My notes contained observations of

student research on Kristallnacht, group collaboration, and the construction of PowerPoint

presentations. I also included quotations from the students as they conducted research and

worked in groups. This data collection strategy was used to answer the research subquestions and to confirm whether or not the data agreed Second Life enhanced instruction.

Furthermore, I answered a brief survey with short answer questions to conclude my perspective on the project. I answered the following queries: how I was able to enhance my lessons plans by utilizing Second Life, what I did to prepare my students to conduct research, and if Second Life was a tool I could employ in my sixth grade reading classroom.

Records of student experiences were also recorded. Sixth graders kept journals to jot down their favorite part of the learning experience, confidence levels throughout the research course, project preference, and their view of using Second Life or the Internet as an educational process (refer to Appendix C). The student accounts were viewed to verify whether or not they felt technology use was beneficial to the learning process. Group comparisons were also made between the Second Life and Internet students. All qualitative data collected was examined to answer the research subquestions.

The sixth grade students created a project rubric to grade their culminating project, which was a group PowerPoint presentation on Kristallnacht. The summative assessment rubric covered the following areas: discussion and collaboration, content, design, readability, and verbal explanation. The comparison group and the experimental group graded one another. I refrained from scoring the Second Life and Internet groups with the rubric to prevent any bias.

Data Analysis: The student self-efficacy pre-survey and post-survey data, as well as Acuity Benchmark Tests 2 and 3 figures, were analyzed with the Statistical Package for Social Sciences (SPSS) program. I used SPSS to run a Two-Way ANOVA to obtain statistics to confirm or deny the null hypothesis. In other words, I input the student survey data and the Acuity Benchmark scores into SPSS to compare the Tiers, pre and post results, and the Second

Life and Internet groups. The collection of statistics was viewed to attribute the sources of variation.

Findings

Quantitative Findings: In order to gain an in-depth understanding about the collected data, various analyses were conducted. The acquired statistics provided the answer to the main research questions. Tier differences were analyzed with respect to four dependent variables: pre and post-scores of self-efficacy surveys and pre and post scores of Acuity Benchmark tests.

It must be noted that in respect to the two Tiers, the Tier 4 students already had high levels of academic success and self-confidence. I did not expect the Tier 4 participant self-efficacy scores to show significant gain. The Tier 1 learners attained average levels of achievement, so I anticipated there was more room for improvement in regards to these students.

Table 1 showed the self-efficacy survey scores from the Tier 1 Second Life group. The data revealed that nine out of the eleven participants gained confidence in terms of learning. I must mention the two students that did not show improvement were dealing with extraneous conflict during the study. Perhaps this conflict had an impact on student performance. As shown in Table 2, ten of the eleven Tier 4 Second Life students showed improvement in their self-efficacy results. Student H, a new student at Bridge Street, was the only learner that did not feel his or her confidence was boosted throughout the course of study.

As per Table 3, the survey results from the Tier 1 Internet group displayed achievement in terms of student self-confidence. Every student, except for AH, showed gain; the difference in learner AH's pre and post self-efficacy scores was not significant. According to Table 4, the Tier 4 Internet results also revealed an increase in learning assurance. Seven out of the ten participants increased their self-efficacy, and one participant maintained their current level of

confidence. There was a decrease in the scores of two students in terms of confidence. The

variance in learner P's scores was minor. Participant M, however, had a significant decrease. I

inferred student M's behavioral issues might have been a contributing factor.

Table 1. Tier 1 Second Life Participant Scores from Pre and Post Self-Efficacy Surveys

Tier 1 Second Life Self-Efficacy Survey Results

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
Pre	0.76875	0.90625	0.74375	0.59375	0.7125	0.6	0.85625	0.74375	0.80625	0.90625	0.7375
Post	0.68125	0.7375	0.84375	0.875	0.85	0.875	0.9375	0.88125	0.825	0.9625	0.85625
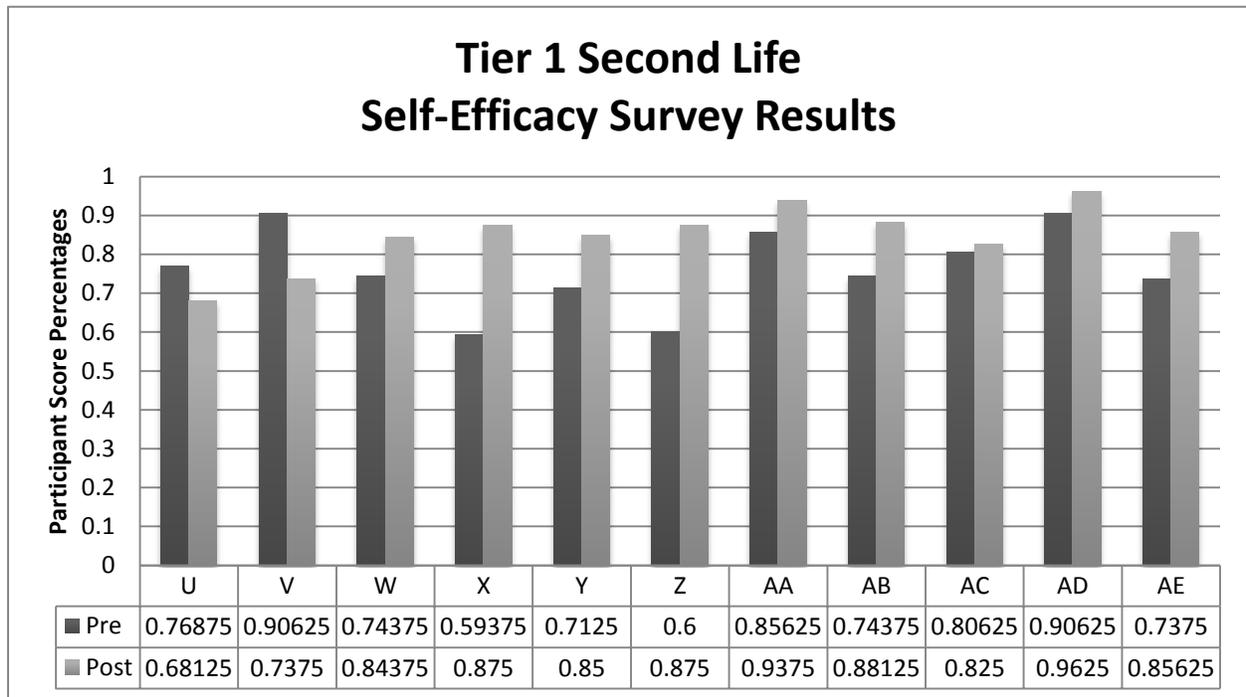
Table 2. Tier 4 Second Life Participant Scores from Pre and Post Self-Efficacy Surveys

Tier 4 Second Life
Self-Efficacy Survey Results

	A	B	C	D	E	F	G	H	I	J
Pre	0.675	0.5375	0.64375	0.64375	0.8625	0.95625	0.63125	0.83125	0.95625	0.775
Post	0.8	0.56875	0.84375	0.78125	0.96875	0.98125	0.7	0.66875	1	0.875
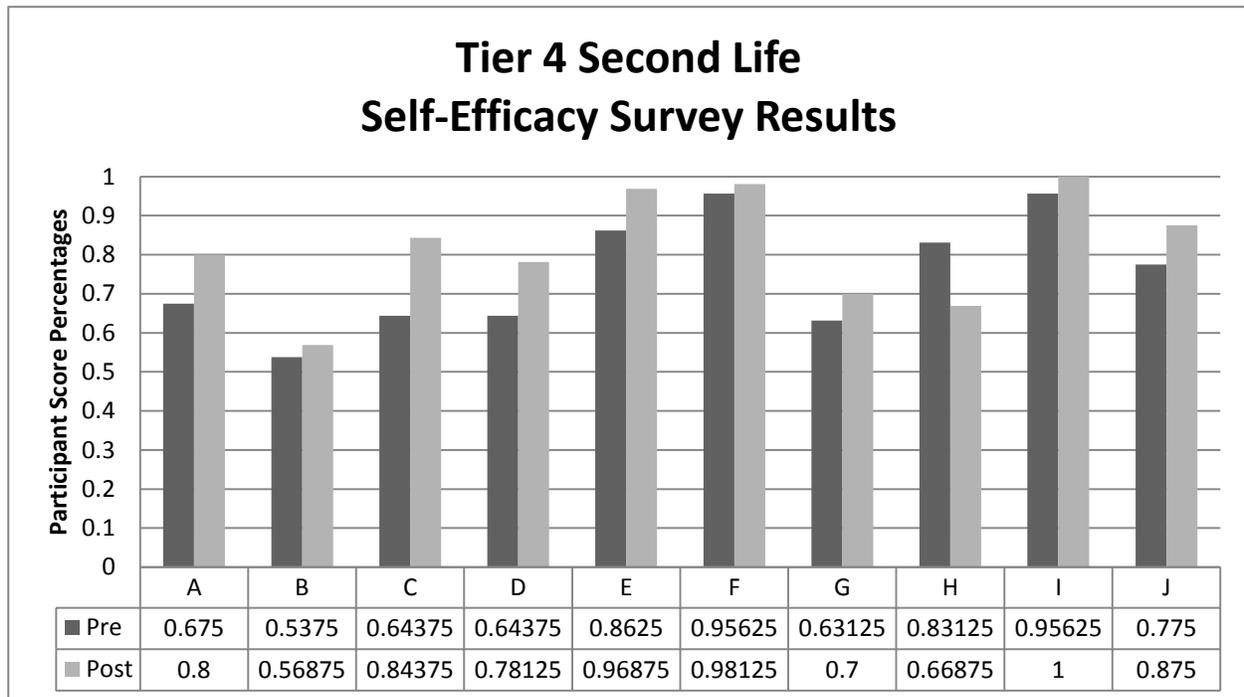
Table 4. Tier 4 Internet Participant Scores from Pre and Post Self-Efficacy Surveys

Tier 1 Internet
Self-Efficacy Results

	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
Pre	0.70625	0.575	0.91875	0.868875	0.66875	0.8125	0.65625	0.75625	0.85625	0.79375
Post	0.74375	0.6125	0.9125	0.95	0.91875	0.98125	0.69375	0.88125	0.925	0.85625

Tier 4 Internet Self-Efficacy Results

	K	L	M	N	O	P	Q	R	S	T
Pre	0.95625	0.71875	0.95625	0.84375	0.90625	0.8	0.80625	0.64375	0.725	0.8
Post	0.95625	0.96875	0.8	0.95	0.99375	0.79375	0.9375	0.6625	0.8625	0.9

Y-axis: Participant Score Percentages (0 to 1)

Overall, the Second Life students showed higher percentages of improvement in terms of self-efficacy. With the exception of three students, all participants showed improvement. The greatest increase in self-efficacy amongst the Tiers was seen in Tier 1. In regards to the self-efficacy surveys, the Two-Way ANOVA was interesting because the pre-score (ScorePre) showed a significance. Regrettably, the data in Table 5 did not explain if the significance was a result of the participants, Tier, or educational process. Therefore, I concluded that based on the pre and post self-efficacy surveys, comparing the methods of Second Life and the Internet did not seem to impact student confidence. However, given the significance of the pre-score, I want to perform a repeated measures Two-Way ANOVA to see if the test reveals why the result was significant. However, I did not have access to the appropriate measuring tools at the time of the study.

Table 5. ANOVA Results from Pre and Post Student Self-Efficacy Surveys

➤ Univariate Analysis of Variance

Between-Subjects Factors

		N
Tier	1	21
	2	20
EdProc	1	20
	2	21

Tests of Between-Subjects Effects

Dependent Variable: ScorePost

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.177[a]	4	.044	4.891	.003
Intercept	.146	1	.146	16.177	.000
ScorePre	.156	1	.156	17.305	.000
Tier	.001	1	.001	.097	.757
EdProc	.002	1	.002	.214	.646
Tier * EdProc	.002	1	.002	.219	.643
Error	.325	36	.009		
Total	30.061	41			
Corrected Total	.502	40			

a. R Squared = .352 (Adjusted R Squared = .280)

According to Table 6, the Acuity Benchmark score results showed six out of the eleven Tier 1 Second Life participants improved their reading comprehension. Students V, W, and Y showed a slight decrease in their scores. The researcher deduced this was because Acuity Benchmark Test 2 and Acuity Benchmark Test 3 were not the exact same assessment. While the Content Standards and Objectives being evaluated were the same, the actual questions were entirely different. Two learners, U and AB, showed noteworthy regression in terms of achievement. As previously mentioned, student U was going through personal hardship. Student AB was also dealing with Student AB was experiencing significant family issues, which could have influenced performance.

Seven out of the ten Tier 4 Second Life participants displayed an increase in reading comprehension from Acuity Benchmark Test 2 to Test 3, as per Table 7. While I could not ascertain why student G's score decreased, I did determine that student A was traveling a great deal due to sports. In addition, student F had multiple absences throughout the research period.

Table 6. Tier 1 Second Life Participant Scores from Acuity Benchmark Tests 2 and 3

Tier 1 Second Life
Acuity Benchmark Results

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
■ AB2	0.76	0.56	0.64	0.6	0.68	0.24	0.6	0.68	0.44	0.6	0.56
■ AB3	0.56	0.52	0.6	0.68	0.64	0.44	0.72	0.56	0.6	0.8	0.72

Participant Score Percentages
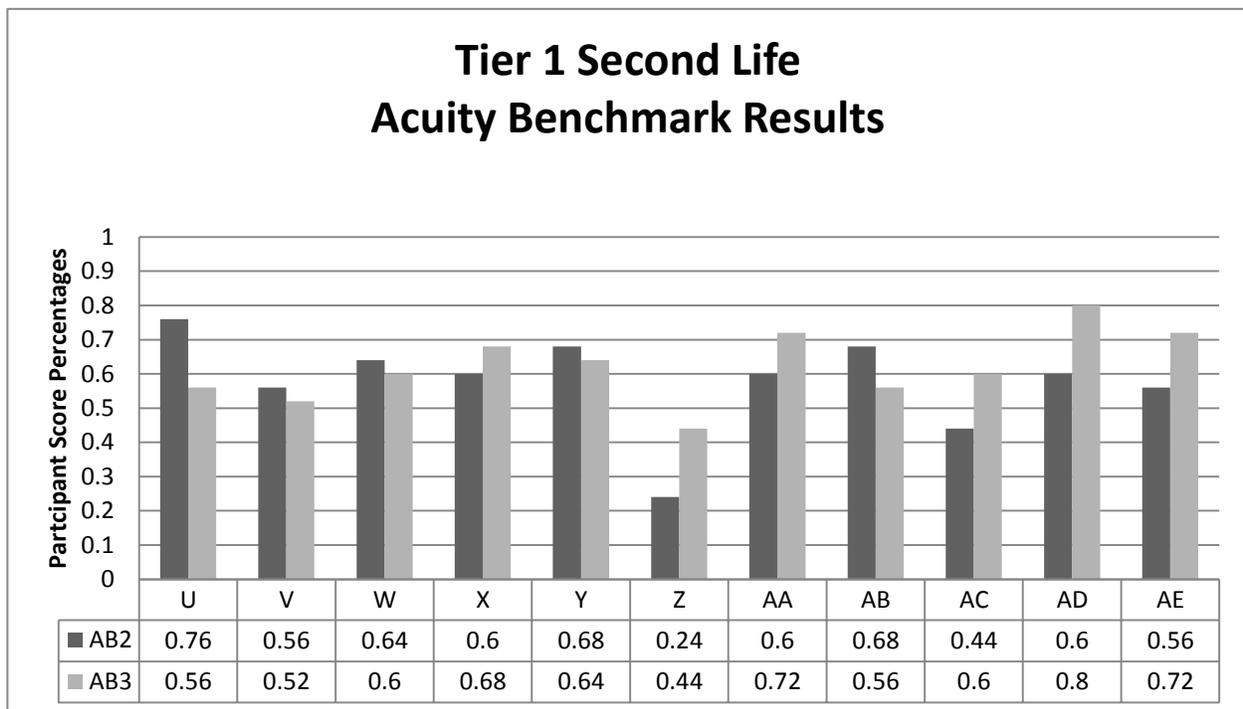
Table 7. Tier 4 Second Life Participant Scores from Acuity Benchmark Tests 2 and 3

Tier 4 Second Life
Acuity Benchmark Results

	A	B	C	D	E	F	G	H	I	J
■ AB2	0.76	0.68	0.6	0.72	0.64	0.88	0.76	0.68	0.52	0.6
■ AB3	0.64	0.84	0.8	0.84	0.8	0.72	0.56	0.84	0.88	0.8

Participant Score Percentages (y-axis: 0 to 1)
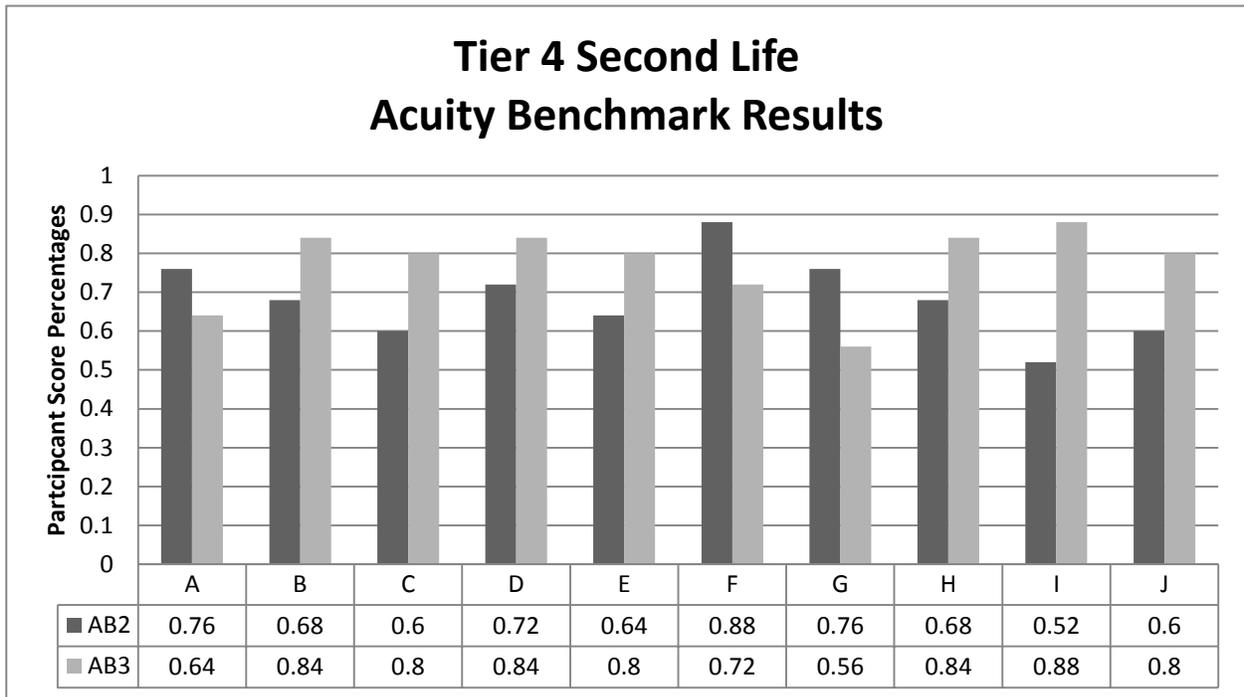
The Tier 1 Internet participants showed an increase in reading comprehension as well.

Seven out of ten students exhibited gain, while one remained the same. Two learners, AI and

AO, showed a decrease. I could not deduce why student AO dropped in terms of achievement,

but AI was dealing with emotional issues.

There were clear and significant gains in reading comprehension according to the Tier 4

Internet participant Acuity results. Nine out of ten students showed improvement in their

comprehension of reading Content Standards and Objectives. One student, S, showed a decrease.

I inferred that the decline was the result of the learner's behavioral issues.

Table 8. Tier 1 Internet Participant Scores from Acuity Benchmark Tests 2 and 3

Tier 1 Internet
Acuity Benchmark Results

	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
AB2	0.76	0.48	0.44	0.76	0.52	0.72	0.64	0.44	0.56	0.52
AB3	0.76	0.68	0.76	0.6	0.56	0.84	0.72	0.56	0.72	0.4

Particpant Score Percentages (y-axis: 0 to 1)
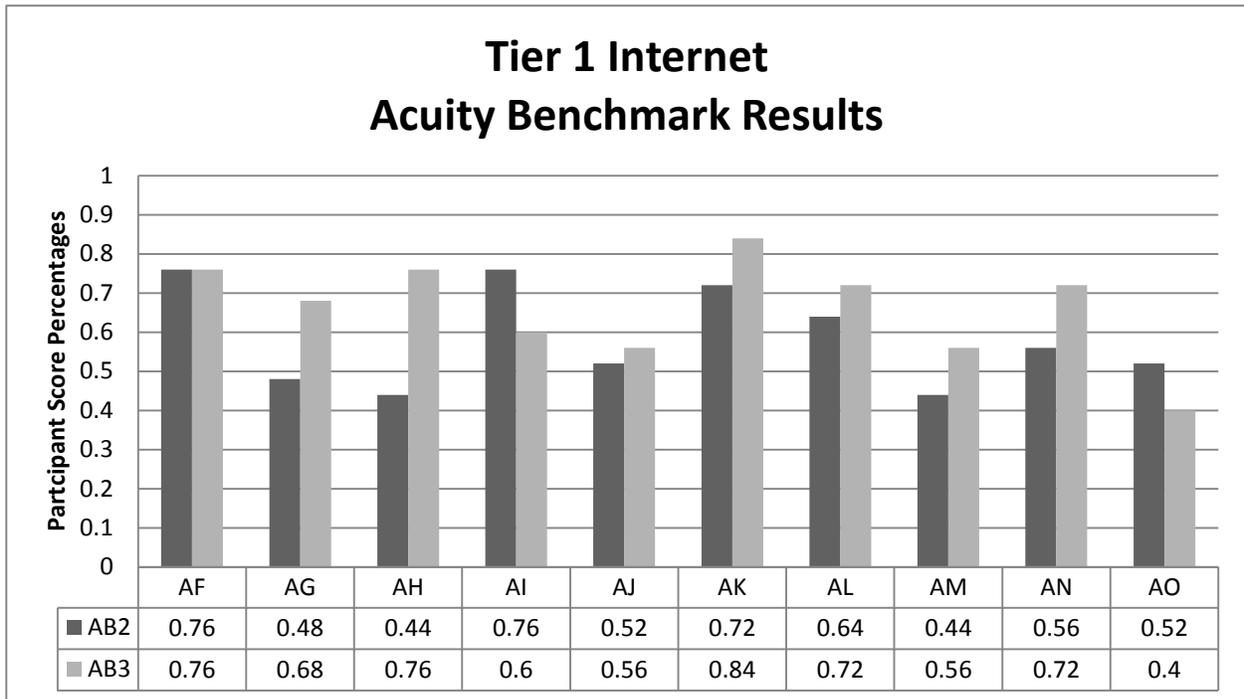
Table 9. Tier 4 Internet Participant Scores from Acuity Benchmark Test 2 and 3

Tier 4 Internet Acuity Benchmark Results

	K	L	M	N	O	P	Q	R	S	T
AB2	0.64	0.68	0.36	0.64	0.6	0.52	0.48	0.48	0.6	0.52
AB3	0.76	0.8	0.64	0.88	0.76	0.84	0.52	0.84	0.52	0.72
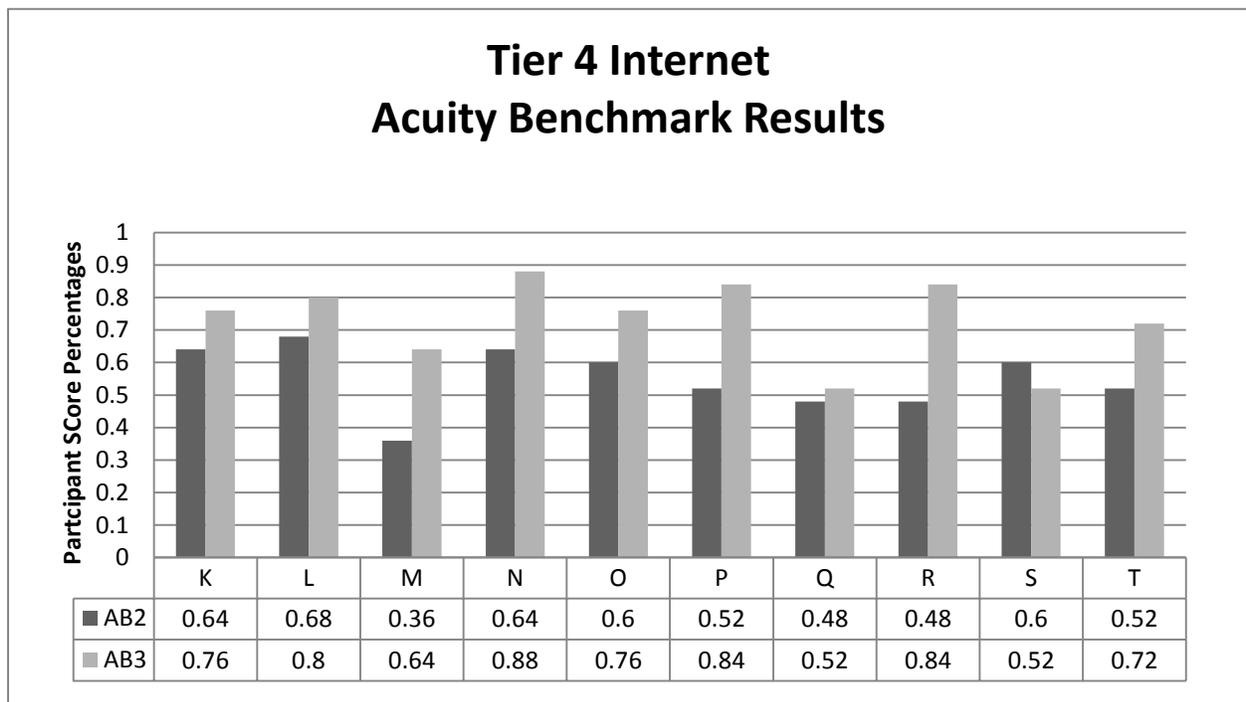
The Two-Way ANOVA output for the Acuity Benchmarking data in Table 10 did not suggest any relationship to achievement between Second Life and the Internet. Specifically speaking, the educational process (EdProc) was insignificant. The only general significance noted by the researcher was in regards to Tiers, but even then, the significance was not relevant enough, because the difference was .005 or less. The Acuity results firmly suggested that one process did not offer an advantage over the other in regards to academic achievement.

Table 10. ANOVA Results from Pre and Post Acuity Benchmark Tests

➡ Univariate Analysis of Variance

Between-Subjects Factors

		N
Tier	1	21
	2	20
EdProc	1	20
	2	21

Tests of Between-Subjects Effects

Dependent Variable: BenchTwo

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.117[a]	4	.029	2.098	.101
Intercept	.229	1	.229	16.435	.000
BenchThr	.016	1	.016	1.124	.296
Tier	.003	1	.003	.183	.671
EdProc	.040	1	.040	2.872	.099
Tier * EdProc	.038	1	.038	2.694	.109
Error	.502	36	.014		
Total	15.331	41			
Corrected Total	.619	40			

a. R Squared = .189 (Adjusted R Squared = .099)

Despite the insignificance detected in the ANOVA results in terms of reading comprehension, I did find that the students' self-efficacy had increased. As per my classroom observations, the students were incredibly motivated by the technology use in class, especially with Second Life. According to their journals, the children were excited about learning and felt the technology benefitted them. Further statistical work may uncover this finding. Although the ANOVA suggested no difference, that does not mean there was none. The limitations of the study, such as brevity, the small number of participants, the lack of differentiation amongst student ability, and prior use of Internet research in the classroom might have flawed the results of the experiment.

Qualitative Findings: The researcher received insightful comments from student

journals. Learners were asked about their educational process preference. Of the 41 students

questioned, 72.22% stated they would rather use Second Life to conduct research.

Student E responded, "I would rather use the online video game (Second Life), because it

is fun, interacting, and we get to see everything for ourselves."

Student AD said, "I would rather use Second Life because I can experience the

information rather than just read it."

Ten students disagreed. Student X said, "I would rather use the Internet to conduct

research because I feel I can get more information from educational websites."

Student AO responded, "I would use the Internet because I don't want to be distracted by

a video game."

In terms of self-efficacy, 91.6% of the learners said they were confident about their

educational experience, especially because of the technology use. Student O stated, "I would feel

confident using the technology I operated today because I learned so much. It was an easy

experience, and I would be able to show another student how to use the Internet to do research,

because I don't think it would take that long to teach.

Student I said, "Second Life was a lot of fun, and I would definitely want use it again. I'd

feel confident teaching another student what to do (using the game)."

One of the three learners that disagreed stated, "I would not feel confident using the

technology I used because I have not used it enough."

Overall, I felt the sixth graders were incredibly motivated by the technology use. Since I frequently incorporate technology in my classroom lessons, the students are accustomed to 21st Century tools. It is important to mention that at the beginning of the year, I teach all of my students how to conduct online research, cite sources, and create PowerPoint presentations with summarized information. I believe this gave the Internet students an advantage, because none of the sixth graders had ever used Second Life before. There was a definite learning curve for the Second Life students.

Personally, I attempted to enhance my Number the Stars unit by having my students conduct research on Kristallnacht to build background knowledge on WWII events. In reality, the United States Holocaust Memorial Museum in Washington, D.C. contains eye-opening exhibits that teach visitors the perils of anti-Semitism. In addition, the USHMM explains how to prevent genocide and other crimes against humanity. I frequently have my students view the USHMM site (view Appendix A5), but I found the Holocaust Museum in Second Life to be an engaging resource for my students, especially because the video game allowed the sixth graders to have an experience they otherwise would not have been able to have. For these reasons, I developed the research project that pitted Second Life against the Internet. Even though the investigation was laborious, the project was worth the time. Either way, using technology in the classroom is advantageous. Next year, I would like to introduce Second Life to my students earlier in the school year and attempt this experiment again.

While observing the students, I found both the Second Life and Internet students to be driven and inspired. They genuinely enjoyed working together and using technology while learning the content. The Internet participants networked well, were thorough in their research and note-taking, and thought about pieces of information that needed to go in their PowerPoint

from day one. While walking around the room, I overheard Student Am say, "Hey, I just found a really good video of a Holocaust survivor. Go to this link and watch it. It's interesting!"

Student N declared, "I really want to focus on the meaning behind Kristallnacht. We know the literal meaning is "night of broken glass." I found a great picture of a Jewish business with shattered windows that I want to use. Is it okay with everyone if I used the definition and picture for our group's opening slide? I think it would make an impact."

The Second Life members also communicated with one another in a constructive and positive manner, were detailed in their investigations, and carefully contemplated what material was vital to their PowerPoint presentation. Student A said, "I'm in the synagogue, which is a Jewish place of worship. The walls are blackened because the Nazis torched the building. The Germans also destroyed sacred scrolls."

Student AD asked, "Has anyone found the secret hiding place? If you go to the elevator in this building, there is a secret room where Jewish families hid. It's kind of like Anne Frank! This is so cool! I want to explain this to everyone in our PowerPoint."

All participants did an excellent job in creating their PowerPoint slide with pertinent Kristallnacht information. I believe this was due to three factors: the sixth graders created their rubric, so they understood what elements needed to go into their project; the learners had conducted research in the past and already knew how to create PowerPoint presentations; lastly, the students had fun using technology for their project, which motivated them to work together and accomplish their learning goals.

Conclusions

Even though there were no significant reading comprehension gains during this study, I noticed the larger benefit of using Second Life to motivate students. The sixth graders

thoroughly enjoyed using the educational video game. On several occasions, I overheard students stating they "loved using Second Life." I even heard a few sixth graders say, "Second Life makes me want to come to class." The aforementioned statements are illustrations of student engagement. I am extremely optimistic as to the future use of Second Life in the classroom in terms of motivation; however, since this was a pilot study, further research must be conducted in order to determine whether or not Second Life is truly beneficial to students in terms of increasing self-efficacy and reading comprehension. Despite verifying the null hypothesis and not my own, the sixth graders' attitudes have changed with the use of Second Life. Further statistical research may support my hypothesis; however, I feel it is prudent to conduct a long term longitudinal study to successfully demonstrate any advantages of Second Life.

There were several limitations during the exploratory research. The first constraint was the limited amount of time allotted for the study. Initially, a three month long research period with multiple projects was to transpire; unfortunately, the internet in the school building was down for almost two months, which drastically reduced the project. Another restraint was the limited number of participants. My sample size was only 41 students, which is small. To compound this matter, the sixth graders who partook in the research were average and above average in intelligence.

I would like to expand this study to obtain more significant data on the benefits of Second Life in a sixth grade reading classroom. The period of research must take place over the course of several months. During this time, it will be necessary for the learners to complete multiple projects in Second Life. I will include all sixth grade students from Bridge Street Middle School, which will boost the number of participants to approximately one hundred and ten. If all sixth graders are able to participate, I will also be able to discover how Second Life benefits gifted

scholars, below average students, and pupils with disabilities in addition to the average and above average learners. These measures should ensure conclusive results, which will allow me to determine whether or not Second Life significantly increases self-efficacy and reading comprehension.

If additional studies prove to be effective, I will ask Ohio County School's technology coordinator if Bridge Street can acquire the funds to create and implement a Second Life private island. It is my goal to develop virtual classrooms on Second Life, just as "Bama Xue" did for the University of Southern Alabama. My sixth graders would definitely be more motivated to participate in virtual world activities and discussions with Avatars.

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Appendices

Appendix A: Websites

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A2 http://maps.secondlife.com/secondlife/US%20Holocaust%20Museum1/1/35/26

A3 http://www.ushmm.org/museum/exhibit/focus/kristallnacht/

A4 http://classtools.net/main_area/fruit_machine.swf

A5 http://www.ushmm.org/

Appendix B: Self-Efficacy Survey

6th Grade Reading Self-Efficacy Survey

Name:_____

Please circle the choice that is closest to how true you think each statement is for you. Rate your degree of each statement by circling a number from 0 to 10 using the scale given. **There are no right or wrong answers.**

1. I can always answer literature questions correctly if I try hard enough.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

2. I can express my ideas freely in reading class without feeling embarrassed.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

3. I am able to take what I have learned in previous lessons and apply it to a new reading lesson.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

4. I feel confident working with other students on group work using technology in reading class.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

5. I find it interesting to use technology during reading class assignments.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

6. Even after I have tried my best and failed a reading task, I will still try the assignment again.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

7. Using technology in reading class is easy for me.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

8. I can successfully complete research during reading class while using technology.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

9. I keep trying, even when I struggle to complete online reading assignments.
0   1   2   3   4   5   6   7   8   9   10

Not at All   *Sometimes True*   *Yes!*

10. I have a positive attitude when I am using technology in my reading class.

0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

11. I feel confident using educational materials and technology I need to succeed in reading class.

0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

12. I achieve higher scores in reading class when I am able to use technology.

0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

13. I feel confident in my ability to answer comprehension questions in reading class.

0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

14. Using technology improves my reading ability.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

15. I believe technology is vital in reading class because it is motivating and fun.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

16. I feel that using technology in class increases my reading abilities.
0   1   2   3   4   5   6   7   8   9   10
Not at All   *Sometimes True*   *Yes!*

Appendix C: Student Journal Questions

Journaling Questions

Name:_____

1. List the following: 3 things you learned today; 2 things you'd like to learn more about; and 1 question you still have.
2. What was your favorite part of your learning experience today?
3. If you were to conduct research again using Second Life or the internet, what would you do differently?
4. In your opinion, are you more confident in learning material while using technology? Why or why not?
5. Would you rather use an online video game or use the internet to conduct research? Why?
6. Do you believe that using Second Life or the internet to conduct research was motivating and fun? Why or why not?
7. Would you feel confident using the technology you operated today again? Would you feel comfortable showing another student how to use the internet or Second Life? Explain.