DOES THE USE OF VIRTUAL FIELD TRIPS INCREASE VOCABULARY AND
COMPREHENSION SCORES FOR STUDENTS WITH LEARNING DISABILITIES?

By
Mary Oyler

Submitted to
Professional Education Faculty
Northwest Missouri State University Missouri
Department of Professional Education
College of Education and Human Services
Maryville, MO 64468

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Abstract

This study was completed to determine whether the use of virtual field trips has a significant impact on the student comprehension and vocabulary achievement when working with students with learning disabilities. Seven students with learning disabilities in reading were chosen to participate in this study. Weekly comprehension assessment scores from when students were learning with traditional instructional models were compared to weekly comprehension scores from when students were participating in virtual field trips. Findings from this study show that the use of virtual field trips does have a significant impact on student comprehension and vocabulary achievement. The findings from this investigation support the conceptual underpinning from John Dewey’s theory that students learn best by doing. After reviewing literature and the data from this study, it has been found that the use of virtual field trips should be an instructional strategy that teachers are using.
Introduction

Background, Issues and Concerns

Students with learning disabilities, specifically in the area of reading, tend to struggle with comprehending text read at their independent reading level, as well as learning new and more complex vocabulary terms. This makes it difficult for students with learning disabilities to keep up with their same-age peers because the complexity of the grade-level text is too difficult. This can also result in poor classroom and state test scores. Researchers and teachers are continually trying to find new strategies to help students with learning disabilities comprehend the text that they read. As the use of technology in the classroom increases, virtual field trips are becoming more and more common as an instructional tool to help students acquire knowledge in various areas and increase their vocabulary and comprehension skills.

A research study was conducted at a suburban elementary school. There are approximately 649 students that attended the school at the time. Of those students, 83.8% were Caucasian, 6.2% were Hispanic, and 10% were from other origins. The school in the study had 195 students who were eligible for free and reduced lunch, which was 29.7% of the school’s population. Class sizes averaged 19 students per teacher.

Many of the students that attended the school at the time were inconsistent with attendance and were in a temporary living situation. This made it difficult for learning to be consistent when students were moving in and out or were often not at school.
Practice under Investigation

The practice under investigation was the use of virtual field trips for students with learning disabilities. The investigation looked at pre comprehension and vocabulary scores from when students were being taught using traditional models of instruction, as well as post comprehension and vocabulary scores while students were using virtual field trips as an instructional tool.

School Practice to be Informed by Study

The school practice to be informed by this study was whether or not the use of virtual field trips and technology help to improve vocabulary and comprehension for students with learning disabilities.

Conceptual Underpinning

When using virtual field trips, students with learning disabilities will increase their vocabulary and reading comprehension.

When students use virtual field trips, they are much more engaged than when they are learning in the Reader’s Workshop model. The hands-on style of learning will keep students focused as they learn new words. As students learn new vocabulary, they will be able to understand the text being read more easily.

Statement of the Problem

Students with learning disabilities tend to have a difficult time learning new vocabulary and comprehending text read independently.
Purpose of the Study

Vocabulary development is a large part of language arts today. Vocabulary helps students to better understand words, therefore a larger vocabulary helps students to better comprehend what they have read. Students with learning disabilities tend to have smaller vocabularies and lack interest in building their vocabulary repertoire. This lack of word knowledge can cause a delay in comprehension skills. This study is to investigate how the use of virtual field trips can help build students’ vocabulary and reading comprehension, as well as their interest in learning new words. This study will also tell if the use of one to one technology does help students to better comprehend text.

Research Question(s)

1. Is there a significant difference in vocabulary and comprehension between students who participated in virtual field trips compared to students who did not participate in virtual field trips?

Null Hypotheses

The use of virtual field trips does not have a significant impact on student comprehension and vocabulary skills and scores.

Anticipated Benefits of the Study

As teachers begin to implement more and more technology in their classrooms, we often ask ourselves, “How can we use technology as a learning tool?” If virtual field trips are an effective use of technology, as well as an effective way to build vocabulary and comprehension, it will give teachers an
engaging way to instruct and differentiate learning for all students at their
independent level.

Definition of Terms

Virtual Field Trips- when students go on a field trip, either independently or with
a guided instructor, online. This can be a guided tour or exploration of assigned
websites on a specific topic.

Reading Comprehension- the level of understanding of a text

Vocabulary- the body of words known to an individual person

Learning Disability- a condition giving rise to difficulties in acquiring knowledge
and skills to the level expected of those of the same age, especially when not
associated with a physical handicap.

Summary

A study was conducted to find if the use of virtual field trips helps to
improve comprehension and vocabulary skills for students with learning
disabilities. If the t-test determines that there is a significant difference in the
comprehension and vocabulary scores of students that use virtual field trips and
students that did not, teachers will have a new way to differentiate learning for all
students. Since teachers are implementing technology more and more in their
classrooms, this will give teachers a way to do so that is effective and engaging
for students.
Review of Literature

Students with learning disabilities have struggled for many years to keep up with their peers. The increasing complexity of text makes it very difficult for students with learning disabilities to read and comprehend grade-level text, and therefore these students begin to fall behind not only in reading but also in all subject areas. Part of this problem is that students with learning disabilities have poor vocabulary knowledge and a decreased ability to retain information.

Many researchers have studied strategies to help students with learning disabilities not only grow their vocabulary knowledge, but also their comprehension skills. As teachers begin to implement more and more technology in their classrooms, many researchers have explored the use of instructional technology to help with this problem. Using technology as an instructional tool gives students an effective and engaging way of learning. Warner and Jones (2011) state, “This integration of technology can add a novel twist to the vocabulary instruction I experienced in high school and capitalize on the learning styles of this generation of students.” (p.7) Our students live in an age where there is technology all around them. When we can effectively implement technology in our classroom as an instructional tool, we are not only giving our students an alternate way of learning but also preparing them to be successful in the world they live in.

Many teachers have looked at how this use of instructional technology can help students with learning disabilities build their knowledge and skills in all academic areas. Smedley and Higgins (2005) state, “As technology advances, so does the potential it holds for education. Special education is making use of these new developments in a
Instructional technology works well for students with disabilities because it is engaging and can be easily modified to each student’s instructional level. Students often see technology as a break in their day, but we can also use it to instruct students in a meaningful way.

Virtual field trips are a form of instructional technology that has been studied increasingly over the past decade. A virtual field trip is when students go on a field trip, either independently or with a guided instructor, online. This can be a guided tour or exploration of assigned websites on a specific topic. Virtual field trips are a great instructional tool for a variety of reasons.

One reason that field trips are a great instructional tool is that most of them are free. With increased budget cuts, field trips are often limited to teachers. When using a virtual field trip, the possibilities are endless. Secondly, virtual field trips are engaging for students. Students learn best when they are actively engaged in their learning. The use of virtual field trips helps to get students excited about what they are learning. Thirdly, virtual field trips are easy to differentiate. They allow for students to work at their own pace and at their own levels. Finally, when using virtual field trips, students can travel to places that are far away and experience things that they never could have experience before. Zanetis (2010) points out, “I know of approximately 300 museums, science centers, historical sites, and similar organizations that offer interactive virtual field trips to schools.” (p. 21) The possibilities are endless for our students when we implement virtual field trips.

Teachers may worry that virtual field trips will take a significant amount of time to plan, and at first, they will. Although, once teachers have more and more experience
with planning virtual field trips, it will get easier and take less time. Teachers can even have students plan virtual field trips for themselves and other students in their class. They should follow a system for planning virtual field trips and make sure that they include key elements. “Best practices for using virtual field trips are similar to best practices for any other effective activity: they require proper planning, include constructive and cooperative learning, ask an answer questions, encourage children to problem solve, include and engage all children, connect to the curriculum, and provide a range of experiences that allow children to use and build new skills.” (Kirchen, 2011, p. 26)

Teachers need to make sure to follow the appropriate steps when planning. The first step is to set a clear purpose and goal for the field trip. Teachers then need to research the site, collect resources, and plan exactly what they expect of the students. Next, the teacher will construct the field trip site. The fourth step is to prepare students for the field trip. Lukes (2014) states, “Visiting a new location can be stressful if students don’t know what to expect. The same is true of virtual environments. Preparing students by demonstrating how to navigate through the virtual field site will reduce their ‘cognitive load,’ allowing them to focus on making observations and learning content, rather than on the virtual field trip format itself.” (p. 27)

Next, teachers need to assess the students on what they learned. This can be done formally and informally. One example from Adebokum, Parker, Burgess, and Robinson is, “Teachers can assess the extent to which students understand the content of the field trip by providing students with an index card and asking them to write a paragraph describing what they gained or learned from the program and another paragraph
Virtual Field Trips 10

describing what they did not understand about the program.” (p. 56) Finally, teachers should follow-up with students to answer any further questions they may have.

Many researchers have conducted studies to find how effective virtual field trips actually are for our students. One study conducted by Blachowicz and Obrochta (2005) in an elementary classroom to determine how easy virtual field trips are to plan as well as how students reacted to them. Overall, the students’ scores went up on the specific content area and the students asked if they could learn more. The students were engaged the entire time and enjoyed the learning experience.

Tuthill and Klemm (2002) studied various literature on virtual field trips as an alternative to regular field trips. They found that there is value to actual field trips but virtual field trips are a great alternative when budgets, time, and travel options are limited. They also found that when using virtual field trips most teachers are able to take their students on more field trips than they could if they only used actual field trips.

Beck, Dennis, and Parette Jr. (2011) studied how instructional technology can help students with learning disabilities and at-risk students. They found that many students, who used instructional technology, grew their basic academic skills tremendously within just two months. Results from the study also concluded that instructional technology can help all students improve their content knowledge, but especially at-risk students.

“Although the pervasiveness of ICT’s in all aspects of 21st-century life is quite clear and well accepted, it is less clear how teachers might successfully integrate technology into literacy instruction and specifically vocabulary instruction.” (Dalton & Grisham, 2011, p. 306). The research shows that virtual field trips can be an effective
strategy to use in classrooms. They are an easy way for teachers and students to use technology to improve on many academic and life skills.
RESEARCH METHODS

Research Design

A study was conducted to gather quantitative data on whether or not the use of virtual field trips helps to improve vocabulary and comprehension skills for students with learning disabilities. The independent variables were the learning disabilities and reading levels of the students in the study. The dependent variable was the vocabulary and comprehension post assessment scores. If virtual field trips are found to have a significant impact on student comprehension and vocabulary growth, teachers should be informed of this instructional strategy to implement in classrooms.

Study Group Description

Seven students with learning disabilities in the areas of basic reading skills, reading fluency and reading comprehension were chosen to participate in this study. Students were in grades three and four and had various reading levels. The students were grouped based on their instructional reading levels.

Data Collection and Instruments

The research began in the fall of 2013 when pre-assessment data was collected. Students were being instructed in a small-group special education setting. Students worked in groups of five on various reading skills. Students took a weekly comprehension assessment at their independent level to progress monitor on Individualized Education Program goals. This data was collected for first and second quarter of the school year. Students were also given a Word Café pre-assessment in January 2014 to assess the number and complexity of vocabulary terms that students knew.
Once the pre data was collected, the virtual field trips were implemented. Each student had an individualized virtual field trip based on the social studies or science unit that was being covered in the regular education classroom. The virtual field trips were at each student’s instructional reading level. Students completed the virtual field trips on the computers in the special education classroom.

Data was collected weekly to monitor the progress that students were making. The students continued to take a weekly comprehension assessment at their instructional level. At the end of the eight-week study, students took a post Word Café assessment.

Statistical Analysis Methods

A t-test was conducted to determine if the use of virtual field trips has an effect on the vocabulary and comprehension skills of students with learning disabilities. The data was broken into two categories: pre-assessment data and post-assessment data. The alpha level was set at 0.25 to test the null hypothesis. There is no significant difference in vocabulary and comprehension between students who participated in virtual field trips compared to student who did not participate in virtual field trips.
FINDINGS

Two t-tests were conducted to show whether or not the use of virtual field trips has a significant impact on student vocabulary and comprehension achievement. The following charts, tables, and graphs depict the findings from the study.

**t-Test Analysis Results for Comprehension Scores**

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Mean D</th>
<th>t-Test</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower 50% (n=17)</td>
<td>87.2</td>
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<td></td>
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<td></td>
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<tr>
<td>Lower 50% (n=16)</td>
<td>81.6</td>
<td>5.6</td>
<td>1.4</td>
<td>33</td>
<td>0.168</td>
</tr>
</tbody>
</table>

Note: Significant when p<=0.25

A sample of seven students with learning disabilities in the area of reading were selected to investigate whether or not the use of virtual field trips has a significant impact on comprehension skills. Data was collected from pre and post comprehension assessments. There were a total of five assessments given to each student while using virtual field trips, which resulted in a total of 35 data points. The independent variable was the pre-assessment scores and the dependent variable was the post-assessment scores. The mean for the lower 50% was 87.2 and the mean for the lower 50% was 81.6. The difference between the two groups, Mean D, was 5.6 and the t-test was 1.4. The df was 33. The null hypothesis states that virtual field trips do not have a significant impact on student comprehension scores. The p-value is 0.168, which is less than the alpha level of 0.25. This means that virtual field trips do have a significant impact on student comprehension skills.
t-Test Analysis Results for Vocabulary Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Mean D</th>
<th>t-Test</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower 50% (n=3)</td>
<td>66.7</td>
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<tr>
<td>Lower 50% (n=4)</td>
<td>48.0</td>
<td>18.7</td>
<td>1.4</td>
<td>5</td>
<td>0.209</td>
</tr>
</tbody>
</table>

Note: Significant when p<=0.25

A sample of seven students with learning disabilities in the area of reading were selected to investigate whether or not the use of virtual field trips has a significant impact on vocabulary skills. Data was collected from pre and post vocabulary assessments. The independent variable was the pre-assessment scores and the dependent variable was the post-assessment scores. The mean for the lower 50% was 66.7 and the mean for the lower 50% was 48.0. The difference between the two groups, Mean D, was 18.7. The t-test was 1.4 and the df was 5. The null hypothesis states that virtual field trips do not have a significant impact on student vocabulary skills and scores. The p-value is 0.209, which is less than the alpha level of 0.25. This means that virtual field trips do have a significant impact on student vocabulary skills and scores.
Diagram 1 shows the growth in student achievement from when students were not using virtual field trips and from when students were using virtual field trips. The average student comprehension score went up from an average of 54% accuracy to an average of 80% accuracy while using virtual field trips. The average student vocabulary score went up from an average of 47 words to 63 words. Diagram 1 gives a visual representation of these increases. This again shows that the use of virtual field trips has a significant impact on student comprehension and vocabulary achievement.
CONCLUSIONS AND RECOMMENDATIONS

The findings from this study show that the use of virtual field trips has a significant impact on student comprehension and vocabulary achievement.

The null hypothesis was rejected in this study. The p-value of 0.168 was much lower than the alpha level of 0.25 on the t-test for the comprehension data. We saw that students increased their comprehension scores by more than 30% from when they were not using virtual field trips to when they were using virtual field trips. The p-value of 0.209 was slightly lower than the alpha level of 0.25 on the t-test when looking at the vocabulary data. The average number of words that students accurately knew increased by an average of 16 words from the pre-assessment to the post-assessment after students used virtual field trips for 16 weeks.

The conceptual underpinning of the theorist John Dewey is supported from this study. John Dewey believed that humans learn best by doing. When using virtual field trips, students are receiving a hands-on way of learning. This is a very interactive instructional tool, which highly engages students. The data from this study supports that when students are actively engaged in the learning process and doing hands-on work, they perform better on required tasks.

Further research could be done to support the theory of John Dewey. A great way to look at the impact that learning by doing has on student achievement would be to look at how students who are instructed with project-based learning perform on state assessments compared to those students who receive traditional instructional methods.

From this research, it is suggested that schools provide professional development to teachers on how to implement virtual field trips in their classrooms. Once teachers
know what virtual field trips are and how to implement them, they would have endless possibilities. Teachers would be able to see assessment scores increase significantly. Using this technology would also help to prepare our students for future jobs that they may one day hold. With virtual field trips the possibilities are endless.
References


