Effect of Blending Learning on Student’s Percent Increase in Assessment Scores

By

LINDSEY CRACRAFT

Submitted to

The Educational Leadership Faculty

Northwest Missouri State University Missouri

Department of Educational Leadership

College of Education and Human Services

Maryville, MO 64468

Submitted in Fulfillment for the Requirements for

61-683 Research Paper

4-22-2015
Abstract

Educators everywhere are implementing technology as a resource and aid to instruction in their classrooms. Teachers are encouraged to use social media, apps, and other computer programs to help their students succeed. It’s imperative that students are given opportunities to demonstrate what they know using multiple tools. The question is can educators implement technology consistently in the classroom to assist in the academic and social achievement of all students? One school district chose to implement this idea in one 5th grade elementary classroom. These teachers and students were each presented with a Chrome Book to use as their device to support blended learning in the classroom.

Within this study, data was collected and analyzed to see the effects on student success rate with blended learning and the traditional classroom. MAP data was collected from 5th grade classrooms. One classroom implemented blended learning for a year and another a traditional model. The purpose of the study was to see if student achievement increased with adding blended learning into daily classroom instruction.

A t-test was administered and assessed to see the possible effect on student achievement with an added blended learning component. The t-test results indicated that there isn’t a significant change in student achievement when a blended learning model is added in the classroom.

Blended learning is an increasingly popular systematic philosophy on instruction that adds in technology components to support the daily instruction in the classroom.
Introduction

*Background, Issues and Concerns*

To complete this study, it's important to know if blended learning will positively or negatively impact student achievement in the elementary classroom. Schools around the United States have already begun implementing blended learning into their daily classroom activities. This is a different learning philosophy than what conservative school districts see on a day-to-day basis. While many other classrooms at the secondary level have attempted blended learning in this particular district, it has never been attempted in an elementary classroom. The fifth grade teachers at the chosen school will be asked to pilot Chrome Books with their fifth grade students. They will be given tools to implement and assess whether or not they will help student achievement in the classroom.

Many parents and teachers voiced their concerns with the blended model approach this classroom would use. The concern for the blended learning classroom was that students would be in front of a computer screen all day and that online programs would replace instruction. Parents also stated their concerns for social interactions with peers and handwriting.

The teachers in this classroom are also implementing an open classroom model where all three classrooms will be combined together into one classroom. All students would be a part of one class with three teachers, but the focus would be teaching “whole-group” lessons in smaller groups. This was also a concern for parents and teachers.
Practice under Investigation

The practice under investigation is if blended learning in an elementary school has an effect on student achievement in the classroom.

School Policy to be Informed by Study

The school policy being informed by the study is to decide if blended learning will have an effect on student achievement in the classroom.

Conceptual Underpinning

The blended learning model consists of three 5th grade classrooms in an elementary school. Within these classrooms, the students are exposed to several different types of computer-based or web-based programs to enhance face-to-face instruction. Some of the specific programs this classroom implemented were iReady instruction, iReady diagnostic, Dreambox, Raz-Kids, Reflex Math, and Lexia. Each of these programs are designed to assist with instruction in reading and math in the classroom. Based on the blended learning concept, student success should increase with the implementation of a reading and math program to enhance student achievement.

Statement of the Problem

The problem is if blended learning has a positive or negative effect on student achievement.

Purpose of the Study:

The purpose is to research the topic of implementing one-to-one technology within the elementary classroom and with that implementing a blended learning model. The school district researched is experimenting with this program in upper elementary
and secondary education. Each 5th-12th grade student has their own tablet or laptop they use throughout the day. The test scores were compared to see if there is a change in last year’s 5th grade class to this current 5th grade class that now has their own devices.

Research Question(s):

Is there a significant difference in student performance between students taught with a blended model and students taught with a traditional delivery model.

Null Hypothesis(es):

There is not a significant different in student performance between students taught with a blended model and students taught with a tradition delivery model.

Anticipated Benefits of the Study:

During this study, evidence is needed to find that the one-to-one device is successful in the 5th grade classroom. If not, the hope is to collect data to share with the school so they can improve the program. If proven effective, other teachers in this school district may try it in their classroom and if test scores increase, then that proves that it can be affective in multiple grade levels.

Definition of Terms

Blended Learning: Blended learning is a form of education where students receive face-to-face instruction from a teacher and then instruction from an online component.

Summary

Blended learning is a popular education topic throughout the world. Many educators in secondary education and above have experimented with this movement in
their classrooms. The idea and plan is that students’ success will increase due to the increased technology instruction, paired with face-to-face instruction.

This study was completed on a classroom of 5th grade students. These students were each given a Chrome Book to complete activities, assignments, and assessments throughout the school day. These students also received typical daily instruction from their teacher over 5th grade standards. The students in this classroom were exposed to programs such as, iReady, Dreambox, Lexia, the performance series, and many creation computer programs.

The hope is the data will consistently show a positive change or negative change in student achievement to prove whether or not blended learning affects student achievement.
Review of Literature

Blended learning in the classroom is a concept that began as a higher education idea and now transferred down into elementary grades. Several theorists, experts, educators, and administrators. According to Kuo, Bland, Schroder, and Walker (2014), blended learning is an approach that combines face-to-face interactions with technology-based learning. Within their article, the blended learning model approach structure is described in a classroom. Blended learning can also be referred to as hybrid learning and it's based upon face-to-face interactions 67% of the time and technology interactions 33% of the time. Many educators have implemented this model into their classrooms to enhance reading and math instruction. With that, project-based learning is also implemented with the new technology resource.

The classroom may also be set up in a variance of ways. While the idea is to have the technology portion less than 50% of the time, teachers want to use the technology-based pieces as a way to enhance their instruction. Blended learning gives educators the opportunity to build differentiated instruction based on individual student needs. Blended learning in a classroom incorporates daily instruction in small or whole group lessons, and then a technology portion where students are receiving interventions, practice, or enrichment time based on their specific needs. A survey was completed in 2010 and a third of the nation’s schools offered some kind of online learning (Heibsch & Levin 2011). While this started out as an concept for higher education, several high schools, middle schools, and elementary schools have adopted this idea in their schools.
While many teachers and districts choose to incorporate technology through computer-based reading and math programs, other choose to implement technology as through web-based programs that focus more on creativity. In the article, Using Blended Creative Teaching, many teachers choose to experiment with blogs and online quizzes to incorporate technology in their classroom. They decided to use online journals, such as blogs, instead of paper and pencil assignments (Lou, Chen & Shih, 2012). Using technology in the classroom to add to instruction helps engage students and reinforce ideas of students sharing what they know using different avenues.

Blended learning isn’t just implemented in secondary education. Many elementary classrooms have taken on the challenge to introduce young students to technology-based programs that will enhance reading instruction. According to Barshay (2011), school districts all over America are advocates of blended learning in the elementary school. In fact, a specific school in Los Angeles, California has implemented a one-to-one technology program, based on blended learning. The kindergarteners in Kipp Empower (elementary school) uses laptops and a reading program to help students achieve in English Language Arts goals specific to their grade level. This article demonstrates the versatility of blended learning in the classroom. Many of the other educators and experts focused on blended learning in the secondary classroom. Barshay illustrated the importance of introducing students to blended learning and technology to prepare students for the technological advances in our society.

In Boles’s (2011) article, Using Technology in the Classroom, she encourages teachers to make the best of the technology they are given and use what works in their classroom with students. She states, “It would be a shame in this day and age to hand
students those old, smelly mimeo pages” (p. 5). This is very similar to Barshay’s ideas on implementing technology at a younger age to prepare them for the future. To add to the classroom, many teachers have also begun flipped learning. A flipped classroom blends in-class activities, with an online component that’s based out of the home. This approach would be similar to Levin and Heibsch’s ideas to engage students using blended learning. According to the article, *A Half-Flipped Classroom or an Alternative Approach*, a flipped classroom’s online component typically consists of a video lesson sent home with students. The students would complete their assignment at home and bring it to class the following day to discuss (Westermann, 2014).

Many of these experts have implemented and trailed parts of blended learning in his or her classroom. Each article outlines the different aspects of technology implementation in the classroom, whether it’s a secondary or an elementary classroom.
Research Methods

Research Design

A quantitative study was created to see if blended learning would create more positive student achievement. The independent variable is the status of the students, either blended learning or traditional learning. The dependent variable is student success rate.

Study Group Description

This study group consisted of a classroom of 5th grade students in an elementary school. This particular elementary school is located in the Midwest and in a well-known suburban area. The school district has 11,800 students serving grades kindergarten through 12th grade from multiple ethnicities, such as Caucasian, Hispanic, Asian, etc. In the school district, there is a 2.50% of students who are Asian, 5.70% who are Black, 5.00% who are Hispanic, 0.60% who are Indian, and 83.90% who are Caucasian. 21.1% of the student population in the district is on free/reduced lunch. The school district is composed of 11 elementary schools, 4 middle schools, 2 high schools, an alternative high school, and an early childhood education center. The school district was awarded for being a high performance school district in Missouri and is the 2nd fastest growing district in the state.

This particular school consists of about 380 students in a suburban area of the district. The 5th graders in this classroom were introduced to the blended learning model in 2013 in their classroom.
Data Collection and Instrumentation

The data collected was taken from MAP assessment scores from 2013 to 2014. Blended learning began in this school in 2013. The data is based on students’ progress on the MAP assessment with blended learning and without blended learning.

Statistical Analysis Methods

A t-test was completed to measure the MAP assessment scores from 2013-2014. The alpha level was recorded at 0.25.
Findings

Within this section, the data and findings for the t-test are noted in the analysis. Data was collected to see the difference between student success rate in a blended learning model classroom and a traditional classroom model using MAP test scores. Student scores were compared and analyzed to see if either model increased or decreased student achievement.

**t-Test Analysis Results for Student Achievement with Blended Learning**

<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>Blended (n=57)</td>
<td>661.246</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional (n=62)</td>
<td>657.774</td>
<td>3.47</td>
<td>.063</td>
<td>117</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Note: Significant when p<=0.25

The t-test analysis results compare student achievement with a blended learning classroom and traditional model. According to the table, there were 57 students in the blended learning model classroom and 62 students in the traditional model classroom. The mean for the blended learning classroom is 661.246 and the mean for the traditional classroom is 657.774. The mean D is 3.47. The t-test is .063 and the degree of freedom is 117. The p-value is 0.27.

The p-value ended up being 0.27. The alpha level is 0.25. When the p-value is less than 0.25, it can be assumed that there is a significant difference between the blended learning classroom and the traditional classroom. The p-value is 0.27, which is
greater than 0.25; therefore, there isn’t a significant difference between the blended learning classroom and the traditional classroom.
Conclusions and Recommendations

The results from the t-test indicate that there is not a significant different in student achievement between the blended learning classroom and traditional classroom. Therefore, the null hypothesis is not rejected. It’s important to remember that this program has only been implemented for one year and data might change for the coming years. Since the alpha level was a 0.25 and the p-value was 0.27, which proves that there is no significant change in the rate of student success.

The conceptual underpinning stated that the blended learning model consists of three 5th grade classrooms in an elementary school where students are exposed to different types of computer-based or web-based programs to enhance instruction. Based on the results from the t-test, the programs that the blended model classroom implements do not create a significant change in student achievement scores. Despite what research and educators state, student success does not increase with the reading and math programs implemented.

The teachers completing this pilot continue for at least 3 more years to see if test scores change. Research shows that implementation of a new program needs time to settle. Therefore, it could take more than one year to show a change in student achievement. It’s important for teachers to continue to try new ideas that could benefit their students and education is consistently changing. Implementing technology has become a must in almost every district.

It’s encouraged that those teachers involved with the pilot to test scores after this coming MAP assessment to see if there is a significant change in student success rate. After the program has been implemented, we might see a different change in student
achievement that we didn’t see the first year. Other schools and classroom have seen those positive effects and it would motivating to know if blended learning creates positive student growth.
References


doi:10.1080/01587919.2015.955265


Using blended learning to engage students and improve outcomes. (2011). District Administration, 47(10), 46-47.