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Blended Learning's Impact on Student Performance and Engagement in a Middle School Language Arts Classroom

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Abstract

The purpose of this action research project was to determine if blended learning instructional practices enhance students' understanding of the content being studied and increase student engagement in a 7th grade English language arts classroom. The research questions being studied as a result of these purposes include: Is there a positive correlation between using blended learning techniques with middle school students and students' proficiency of the Iowa Core standards? Does using blended learning methods correlate to increased student engagement? Participants of the study were three sections of 7th grade language arts students from the teacher researcher's school district in rural Iowa. The population of students was diverse in academic need consisting of many students on Individualized Education Plans and 504 plans, as well as English learners. After completing a unit that used traditional teaching methods, students were summatively assessed and then began a second unit in which the teacher researcher employed the rotation model of blended learning. Quantitative data on the impact of blended learning was collected via the blended learning unit's formative and summative assessments. Qualitative data was collected through student interest surveys. The summative assessment scores from the unit that did not use blended learning were compared to the unit that did to check for student growth.

Keywords: blended learning, academic achievement, student engagement, rotation model, middle school

Blended Learning's Impact on Student Performance and Engagement in a Middle School Language Arts Classroom

A frequent question of teachers across America and the world pertains to how to increase students' proficiency with the standards, as well as how to deeply, meaningfully, and rigorously engage students in the learning process. In his research involving secondary education students, Pierce demonstrated that students' scores are not responding positively to traditional teaching methods such as direct instruction (2017, p. 2) Also, Lozano-Lozano and his team of researchers from the University of Grenada found that, when surveyed about classes in which traditional teaching methods were used, students noted a lack of interest, understanding, and connection to the content being studied (2020, p. 6).

Pierce continue by sharing that for students' proficiency and engagement to increase, it is necessary for teachers to examine their instructional practices and shed outdated ones to create a student-centered learning environment (2017, p. 1-3). One way in which to create this type of learning environment is to make use of blended learning. Blended learning is defined as the combination of face-to-face and digital instruction in which the focus is shifted from teacher-led instruction to student-led learning (Siko, 2014, p. 1). Blended learning got its roots in the 1990s as an influx of technology made the notion of creating digital learning opportunities possible (Zhonggen, 2015, p. 1). Since then, studies have shown that blended learning has grown from a distant hope to a very real model in which teachers use a mixture of classroom and online learning experiences to allow students a level of autonomy over the place, format and pace in which they interact with classroom content (Acree et al., 2017; Kazakoff et al., 2018).

The purpose of this action research project is to identify the impact of using blended learning teaching practices with middle school students on students' learning outcomes and

engagement. The literature has shown that it is possible to enhance both students' academic understanding and engagement through the use of blended learning (Lozano-Lozano et al., 2020; Fazal & Bryant, 2019; Camahalan & Ruley, 2014; Kazu & Demirkol, 2014; Chang et al., 2014; Lynch & Dembo, 2004; Pierce, 2017; Siko, 2014; Vaughan, 2007). A study that directly correlates to this action research project in grade-level, content covered and assessed, and diversity of population found that students made significant progress from pre-assessment to post-assessment regarding middle school writing tasks (Camahalan & Ruley, 2014, p. 6). The control group that did not receive instruction using blended learning practices only saw a fraction of the growth from pre- to post-assessment that students in the blended learning group did. Another study with a similar population to the researcher's population found that blended learning contributed to students' engagement and overall positivity towards the content and course design (Akgunduz & Akinoglu, 2016, p.113). As these directly connected studies saw great success with blended learning within the realms of academics and engagement, it was deemed appropriate to explore blended learning as a venue to enhance the academic experience of the students in the teacher researcher's classes.

Literature Review

Blended Learning Defined

In a study of blended learning best practice, Mortera-Gutirrez defined blended learning as a learning environment that fosters both face-to-face instruction and digital methods of instruction (2006, p. 314). Under a blended learning model, in-person learning is "blended" with technology-based instruction to best meeting the diverse needs of students. While these methods of instruction can look a variety of different ways, students commonly engage in face-to-face, in-person learning experiences through teacher-led instruction, collaborative group work with peers, and station-work in the classroom (Acree et al., 2017, p. 107). Students can engage in digital instruction through instructional videos, content on learning management systems, and the use of technology-based engagement platforms and tools (Acree et al., 2017, p. 107).

Different Blended Learning Models

One-size truly does not fit all, and this sentiment most certainly applies to blended learning instructional practices. Because of this, there has been a variety of blended learning models developed over blended learning's existence. Below, four approaches to blended learning are shared in more detail.

The first and foremost blended learning model is called the rotation model. In the rotation model sub-category of blended learning, the teacher switches between, or rotates, using face-to-face instruction and online instruction to teach students through a variety of stations in that are primarily in the classroom (Acree et al., 2017, p. 104) These stations can include face-to-face small group instruction with the teacher, a lab exercise, a flipped classroom video lesson, and a hands-on activity (Acree et al., 2017, p. 108). The teacher creates the content for the learning stations ahead of time, and students move through these stations at their own pace. In an ideal

rotation model, the activities at these stations would be differentiated to meet the diverse learning needs and preferences of students, as offering students access to personalized learning is one of the hallmarks of blended learning (Acree et al., 2017, p. 108). Either that or each station would be different in in nature.

Another unique model of blended learning is the flex model. Under the flex model of blended learning, students primarily navigate classroom content online (Acree et al., 2017, p. 108). This model allows students the most freedom and flexibility out of the blended learning models as students can work through the videos and exercises created for them by their teacher at their own pace and place (Acree et al., 2017, p. 108). A teacher in this blended learning scenario is given the flexibility to work with targeted students in small groups or on an individual basis as the other students work through the curated online content (Acree et al., 2017, p. 108).

The a la carte model is a third sub-category of blended learning. While the a la carte model is not used as frequently in K-12 schools as the rotation or the flex models, it is a good option for students who want to enrich their learning experience in a certain content area beyond the instruction that they are receiving at school. The a la carte model allows for students to take an online course in addition to a course of the same subject area that they are enrolled in a traditional in-person format at school (Acree et al., 2017, p. 108). The purpose of this model is to provide students with multiple opportunities to extend their learning and challenge themselves. The classroom teacher does not play a role in this model as the teacher of the a la carte course is an outside, online-based teacher.

The last model of blended learning to be discussed is the enriched virtual model. Similar to the a la carte model, this model of blended learning is not as common as the first two as it requires the students to be working online in a setting that is potentially outside of school (Acree

et al., 2017, p. 108). In addition to students completing the majority of their coursework online, students' online experiences are enriched through infrequent face-to-face meetings and learning experiences. The teacher in this model would primarily teach the online course while also planning in-person activities to enhance the learning occurring online (Acree et al., 2017, p. 108).

Blended Learning vs. Flipped Classroom Instruction

Many educators frequently understand blended learning methods and a flipped classroom approach to be reciprocal in nature when thinking of trending learning designs. While these two approaches share many similarities, they are not fully interchangeable when considering the elements that comprise classroom set-up, instructional delivery, and the students' and teacher's roles in the classroom. As elements of this action research project may be perceived as flipped classroom instruction, it is important to clarify the two and their impacts on students and teachers.

A flipped classroom, like blended learning, is a relatively new approach to teaching, gaining ground with educators in the last five to ten years (Schmidt & Ralph, 2016, p. 1). Flipped teaching "flips" the traditional gradual release model of "I do, we do, you do" to "you do, we do, I do" to efficiently utilize class time and more deeply and thoughtfully engage students in the learning process (Schmidt & Ralph, 2016, p. 1). To do so, teachers prepare video content for students to watch and activities for students to complete at home or outside of class time. Then, students who have been asked to take steps to learn classroom content outside of class are able to come to class and utilize the full period for problem-based learning types of activities that center on collaboration, creativity, critical thinking, and communication (Schmidt & Ralph, 2016, p. 1).

Schmidt and Ralph demonstrated in their 2016 study of flipped classroom learning that approaching instruction in a flipped manner has lead to increased student engagement, collaboration skills, and communication skills (2016, p. 4) It also meets students where they are at in the learning process by giving them a certain extent of flexibility over the place and timing of their learning experience (Schmidt & Ralph, 2016, p. 4). Schmidt and Ralph also found that students' academic proficiency in a wide-range of content areas significantly improved under flipped learning practices, and it was also noted that nearly every teacher who piloted flipped learning with their students would do so again because of the many benefits it demonstrated throughout the study (2016, p. 2-3).

Blended learning, much like flipped learning, utilizes technology and video content to instruct students rather than traditional direct instruction. It also gives students autonomy over the pace, place, and time of their learning (Acree et al., 2017). These two shared elements of blended learning and flipped classroom learning are often found in all common models of blended learning within the design of the classroom; however, where flipped learning differs from blended learning is in the expectation to complete about half of the expected work outside of the classroom. In a blended learning model, especially in the rotation model, these videos and activities will be accomplished at certain stations throughout the physical classroom (Acree et al., 2017). This takes some of the burden of the work expectations outside of school off of students while still allowing them to engage in content in these unique and efficient manners.

History of Blended Learning

Blended learning is a relatively new concept to the world of education; at least in the format it is most commonly known in now (a combination of face-to-face instruction and technology-based instruction), making its debut in the early 2000s as technological advancement

was widespread and the role of technology was on the rise in school settings (Acree et al., 2017, p. 104). As computers and tablets made their ways into schools at a rapid rate, many educators realized the power technology could have in transforming the educational process as it has been known. To begin this transformative process, it important to note the basic impact of technology on students' learning before noting how blended learning has evolved in the school setting.

Some of the first research on the impact of technology within the school setting looked to students' and parents' attitudes towards and success with using technological devices, such as computers or tablets, for educational purposes. In a study completed by a South African University, nearly 300 students in a middle and high school setting were given iPads to use in the classroom and at home to complete educational tasks (Laher & Boshoff, 2017, p. 202). Upon finishing a year using the iPads for these purposes, students and parents were surveyed concerning the usefulness of the technology, how easy the device was to use, and their level of enjoyment using the technology for school tasks. In the study, it was found that technology had an overall positive impact on students' attitudes concerning technology in the school setting (Laher & Boshoff, 2017, p. 205). All of the 7th-grade students surveyed, an age group directly correlating to the research of this capstone paper, stated that they would like to continue using iPads for school purposes in the future (Laher & Boshoff, 2017, p. 207).

Since the basic implementation of technology has been shown to be successful in school settings (Laher & Boshoff, 2017), the use of technology has been taken to a deeper level through the integration of blended learning instructional practices. Blended learning began as substituting paper copies for digital platforms when distributing, working-on, submitting, and grading assignments (Acree et al., 2017, p. 104). This can commonly be done using learning management systems such as Canvas, Blackboard, or Google Classroom. As these formats of

using technology with students proved to be helpful for students and teachers alike (Acree et al., 2017, p. 104), teachers began to question how they could further use technology to deepen students understanding and personalize the learning experiences of students (Acree et al., 2017, p. 104). This realization made way for blended learning: a unique and effective way to engage students in rigorous yet individualized and primarily student-led learning experiences (Kazakoff et al., 2018, p. 431).

Blended learning, as it is commonly known today, has developed into the variety of methods mentioned under the "different blended learning models" heading of this capstone project; however, these varying methods center on a few key elements. First of all, learning utilizes both face-to-face instruction as well as technology-based instruction (Kazakoff et al., 2018, p. 431). The primary reason for this dueling structure is to intentionally design learning in a way that efficiently structures the format, time, place, and pace of instruction for both students and teachers alike (Pierce, 2017, p. 1).

This leads to the second key element of blended learning, as it is most commonly known today, which is that learning under a blended learning model strives to be personalized to each student's learning needs (Pierce, 2017, p. 2). In a blended learning approach to instruction, the teacher takes a more passive role in the instructional process while students take a more active role as they engage in the purposeful learning activities that their teacher has designed and move through at a relatively autonomous level and pace (Pierce, 2017, p. 1-3). While the students are navigating rigorous learning exercises that are meant to take them on a path to proficiency of the standards being addressed, the teacher has more freedom to assist students as they use the online platforms and/or to work with targeted groups of students in small groups.

Blended learning continues to develop today and require futures research, as there are numerous new advances in technology and educational practice. In an aforementioned study performed by a South African University, iPads were the primary technological target of the research; however, it was noted that as new technology comes out, such as advanced models of laptops and iPads, new websites and tools, as well as technology that we cannot even imagine as it has not yet been created, future research would be necessary to study the role of these new devices within a blended learning model (Laher & Boshoff, 2017, p. 211). Also, many studies are limited in size, diversity of their population, and resources. Many studies (Golden & Karpur, 2012; Schmidt & Ralph, 2016; Cherry, 2010; Lynch & Dembo, 2004; Mortera-Gutierrez, 2006) noted that additional research would be required to study blended learning's role beyond the blind spots these studies lend themselves to having.

In addition to the advancements in technology and pedagogy that require future study, the impact of blended learning on many special populations within schools needs to be studied further, as populations such as special education students and English leaners were frequently not the primary subjects of studies concerning blended learning. Even the studies that do feature these special populations have found that more research is needed. For example, in a 2018 study completed by elementary school teachers regarding the impact of blended learning on special populations such as English language learners, it was found that future research into blended learning is needed to assess the impact blended learning practices have on EL's language growth (Kazakoff, et al., 2018, p. 443).

Benefits of Blended Learning on Students' Academic Performance

Blended learning has been shown to have a significant positive impact on students' academic understanding (Lozano-Lozano et al., 2020; Fazal & Bryant, 2019; Camahalan &

Ruley, 2014; Kazu & Demirkol, 2014; Chang et al., 2014). In a study of blended learning's impact on high school students' writing, it was shown the majority of students were proficient with the writing concepts after engaging in blended learning instruction in comparison to the students who received traditional forms of instruction (Camahalan & Ruley, 2014, p. 6). In another study that analyzed the impact of blended learning on 6th grade math students' standardized test scores, it was shown that students who were in the blended learning math class had an increased mean growth on their MAP scores from fall to spring. Students in the control group only had a lower mean growth on the same standardized assessment. Another study led by a Turkish team of researchers found that the test group and the control group of 12th grade math students under study all scored similarly on the pre-test; however, concerning the post-test, the test group, who received math content using blended learning methods, scored higher on average than the control group who did not receive blended learning instruction (Kazu & Demirkol, 2014, p. 83). These studies show that blended learning has been shown to directly correlate to increased student understanding in middle and high school settings.

This increase in student understanding, when compared to students' understanding under a traditional model of teaching, has been attributed to a variety of factors per a study completed by Pierce in 2017. The first factor towards student success is that under a blended learning approach, there is a thoughtful purpose attributed to each learning activity, and when the learning objectives of a lesson are clear, student learning is increased (Pierce, 2017, p. 1). Teachers also have more clarity with and a better grasp of what they are teaching when each activity is designed purposefully. When teachers have a good handle on what they are teaching, they are better able to assess what students do and do not know and how to proceed with that valuable knowledge in ways that will assist students (Pierce, 2017, p. 1-2).

Another factor that Pierce's study shares regarding the success of blended learning towards students' academic achievement is attributed to the differentiated nature of the activities students participate in, especially in a station rotation model (2017, p. 2). Since students are no longer subjected to the traditional one-size fits all approach commonly found with direct instruction, teachers are given more flexibility with their plans to understand and meet the needs of all students and students are, most frequently, able to move through class at an autonomous pace rather than sitting and listening to the same lecture and completing the same activity as other students.

In Cherry's 2010 study concerning online learning's impact on high school classrooms, it was noted that students are much more active participants in their education under a blended learning model (2010, p. 210). Blended learning is formatted in such a way that students are physically moving more frequently to different stations to complete certain activities and are more engaged whether in thought, speech, or action in the learning at hand when compared to a traditional learning environment (Camahalan & Ruley, 2014, p. 6). Active learning of this nature has been associated with increased student scores (Camahalan & Ruley, 2014, p. 6).

Benefits of Blended Learning on Students' Levels of Engagement

Blended learning has been shown to positively correlate to students' engagement in the learning process and increased engagement can lead to increased academic achievement, decreased numbers of behavioral issues, and increased feelings of satisfaction with a course (Lynch & Dembo, 2004; Pierce, 2017; Ellis, 2016; Akgunduz & Akinoglu, 2016; Lozano-Lozano et al., 2020; Camahalan & Ruley, 2014; Siko, 2014; Chang et al., 2014; Vaughan, 2007). In a study of second-year undergraduate students enrolled in film studies at a university, it was found that the majority of the students classified their blended learning experience as "deep" on a

quantitative student survey (Ellis, 2016, p. 1107). In an additional study of college-aged students, students engaged in thirteen lessons under a blended learning format. On the post-assessment survey of the course, students noted satisfaction in the following categories: general satisfaction, clarity of instructions, learning methods, time to complete assignments, and understanding of the content (Lozano-Lozano et al., 2020, p. 4-6). In a study in which 7th grade math students were the subjects, the majority of students denoted in a post-unit qualitative survey that blended learning was engaging, enjoyable, and they hoped their teacher would use these methods again in the future (Camahalan & Ruley, 2014, p. 7). Finally, in a survey given to students in a collegiate setting who had experienced blended learning instruction, it was noted that they found they had increased flexibility with time and improved understanding because of the learning activities presented in a blended learning environment (Vaughan, 2007, p. 84).

Increased engagement and overall student enjoyment of a course that utilizes blended learning can be attributed to a few significant factors. The first is that the learning is designed to meet each learner's needs (Camahalan & Ruley, 2014, p. 2) through the use of learning stations, group sessions with the teacher, leveled online tools, and video tutorials to meet each students needs. When this is the case, students have less chance of being off-task, disinterested, or overwhelmed with the material. Another reason for increased student engagement in a blended learning environment is that new technology tools, when used properly and rigorously, have the potential to draw students into the learning process (Camahalan & Ruley, 2014, p. 2). Most digital tools and resources require action from students, making them active not passive participants in the lesson at hand. A final reason that students are increasingly engaged in a blended learning classroom is that they are discovering the information for themselves (Pierce, 2017.) Yes, a teacher in a blended learning environment will curate a learning experience for

students, but through the student-led and student-paced activities, students are required to grapple with concepts using their resources and come to an understanding with the teacher simply acting as facilitator.

Methodology

Participants

This action research study was implemented in a 7th-grade English language arts classroom in a small town in southeastern Iowa with a population of approximately 7,200 people. The specific participants of the study included three sections of 7th-grade language arts students. The first section, referred to as block 3/4 due to the class periods the block occurs during, has twenty-four students in it. The second section, referred to as block 5/6, consists of twenty-seven students. The third and final section, block 8/9, has twenty-four students. This makes for a total of seventy-five students participating in the research project.

Out of the seventy-five students, two students are African American (one student is in block 5/6 and one student is in block 8/9), one student is Hispanic (block 3/4), one student is Asian (block 3/4), and the remaining seventy-one students are white. In block 3/4, there are thirteen girl students and eleven boys. Block 5/6 has thirteen girls and fourteen boys. Block 8/9 rounds out the three sections with thirteen girls and eleven boys. Three students are considered English learners (EL), and all three EL students are in block 8/9. Nine students are identified for special education services and have Individualized Education Plans (IEPs) that detail learning disabilities in the areas of reading and writing. These students are evenly spread throughout all three blocks. There are also four students on 504 plans to address varying health needs. Two of these students are in block 3/4, one is in block 5/6, and the remaining student is in block 8/9. The middle school that this study took place at has been identified as a low-income school

district with 44.2% of its students receiving free and reduced lunch prices (Iowa Department of Education, 2020).

Measures

Baseline data for this action research project was collected prior to the start of the blended learning unit. When the action research project began, students will have just completed the first unit of the year in 7th grade ELA concerning elements of plot, characters, setting, and the different types of conflict. The instruction for this unit was done using traditional teaching methods and assessment procedures (i.e. direct instruction, primarily teacher-led learning, little flexibility with pace and place of the learning, test taking). To conclude the unit, students took a summative assessment (traditional multiple choice and short answer test) concerning the content addressed in the unit. These student summative assessment scores are the baseline data points to be analyzed for growth upon the completion of the next unit that employed blended learning teaching methods.

The assessment for unit two, the unit that students were introduced to blended learning practices, was a 5-paragraph essay. While a 5-paragraph essay is a more traditional assessment format, the instruction students received in regards to the content of a 5-paragraph essay was given using blended learning practices. Students were graded on their essays using a standards-based rubric. These assessment scores were compared to the summative assessment test scores from unit one. If growth is seen between students' performance on the second assessment, blended learning techniques may be attributed to the success.

Another measure that was used to collect data is quantitative and qualitative student interest surveys. These surveys were used to address the second research question guiding this

action research project: Do blended learning practices correlate with increased levels of student engagement? These surveys were given intermittently throughout the unit, in correlation to the use of new blended learning methods and/or blended learning technology tools. These surveys were given via Google Forms. They anonymously assessed students' attitudes concerning, perceptions of, and engagement with blended learning. The surveys used a mixture of Likert scales, multiple choice, and short answer questions to assess students' levels of engagement with blended learning (see appendix).

Procedures

This action research project began with identifying the need for change in instructional practices. As blended learning has been shown to increase student understanding and engagement, it was chosen as a venue for change. Once a need was determined, student selection began. It was decided that the anonymous participants of the study would be the 7th-grade language arts students mentioned and described in the participants section above. These students were selected primarily due to accessibility, as well as the researcher's investment in these students' educational and personal success. Many studies have demonstrated that blended learning can be utilized at a variety of academic levels (Lozano-Lozano, Fernandez-Lao, Cantarero-Villanueva, et al., 2020; Fazal & Bryant, 2019; Camahalan & Ruley, 2014; Kazu & Demirkol, 2014; Chang, Shu, & Liang, et al., 2014); however, so participants in future studies or a replicated study would not necessarily need to be of the same grade-level or academic content area. It was determined that all sections of the researcher's 7th-grade language arts classes would be the subjects of the research as this allowed for an increased study size and a more thorough representation of the impact of blended learning.

Prior to implementing the unit using blended learning instructional practices, students engaged in a unit using traditional teaching methods. Students' summative assessment test scores were used as the baseline scores to assess academic growth under blended learning practices. Upon the completion of this first unit, the action research study began into the guiding research questions of this unit: Is there a positive correlation between using blended learning techniques with middle school students and student proficiency of the Iowa Core standards? Does using blended learning methods correlate to increased student engagement?

After researching the many models of blended learning. The teacher researcher decided that the rotation model of blended learning was the most appropriate approach for their classroom. This decision was made as the rotation model allows for the effective combination of both face-to-face and online instruction (Acree et al., 2017, p. 104). The rotation model also allows students a smooth introduction and transition into a classroom structured using blended learning techniques, as students may not be used to this learning structure and may require scaffolding.

The study lasted a total of four weeks. In the first week of the study, students were given a brief overview of some of the classroom changes to anticipate in the coming week (i.e. more student-led learning activities, flexibility in pace and assignment choice, increased use of technology). They then began to work through the content of the unit (basics of a 5-paragprah essay, informative essay writing techniques, grammar focuses, etc.) using the rotation model. To do so, students rotated through a variety of activities and/or stations that lead students though standards-based content using blended learning platforms such as Nearpod, Peardeck, and Edpuzzle, pre-recorded mini lessons from the teacher that students can watch and rewatch at

their own pace, small group instruction based upon formative assessments with the teacher, and independent work time to draft pieces of writing.

These aforementioned activities comprise weeks two through four. At the end of week four, the last week of the action research project, students submitted their final piece of writing for grading. This piece of writing was students' summative assessment. On the final day of the unit, students were asked to complete student interest surveys on Google forms regarding their perceptions of and engagement with blended learning. The scores from this mix-methods survey, and all of the other student-interest surveys, were used as data indictors of as well.

Data Collection

Data Analysis

For this action research project, the teacher researcher used both quantitative and qualitative data points to assess the impact of blended learning practices on students' academic performance and classroom engagement. These mixed-method forms of data collection were dispersed intermittently throughout the blended learning unit as well as at the end of the unit in the form of students' summative assessment, which was an informational essay. The methods of collecting data intermittently throughout the unit involved short student interest surveys designed to measure students' engagement with blended learning practices as well as their perceptions of blended learning technology tools and teaching practices. Another method of collecting data as the unit progressed was in the form of short, quantitative formative assessments that measured students' understanding of the content at hand (informational writing practices). To summarize, three data points were used: formative assessment scores, summative assessment scores, and student interest surveys.

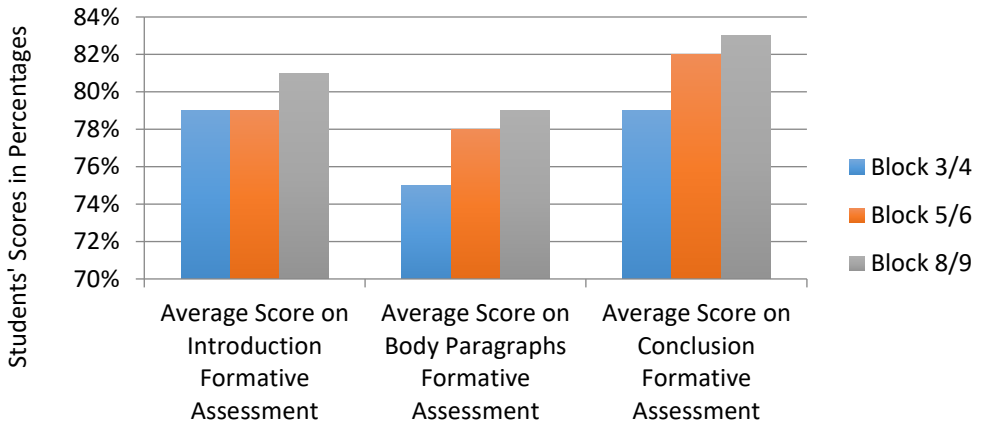
Formative Assessment Score Analysis

Three times throughout the unit, students were given a formative assessment after engaging in instruction and subsequent writing exercises using the rotation model of blended learning. One formative assessment occurred after the introduction paragraph portion of the informational essay unit, another after the body paragraphs section of the unit, and the final after the conclusion paragraph section of the unit. Students were assessed through their writing of a five-sentence paragraph. Students' writing needed to embody the necessary elements of the type of paragraph they were writing (introduction, body, or conclusion) and was graded on a five-point scale using a standardized rubric. For example, for the introduction paragraph, a proficient

student receiving a 100% (5/5 points) on the assessment would have drafted a proper hook sentence, three outline sentences, and a thesis sentence per the guidelines previously taught and practiced. Figure 1 depicts the averages per block on the three formative assessment checks.

Figure 1

Average Student Formative Assessment Scores



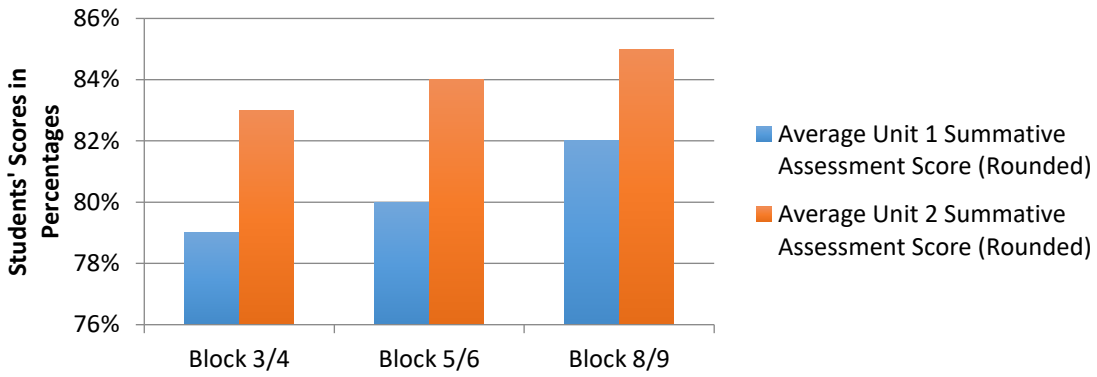
It was inferred that students performed better on the introduction paragraph and conclusion paragraph formative assessments because the way students were taught to write these paragraphs was very formulaic. The teacher researcher observed through informal observations that students were more successful when given clear direction via video clips from the teacher that students watched and re-watched at their own pace and per their own needs during the rotation model of blended learning. It was found through the student interest surveys (discussed more in depth at a later point in this section) that students enjoyed these instructional clips from the teacher, especially in comparison to direct instruction, because of how each lesson catered to their specific needs and how they were able to pause and apply certain elements of the lesson to their writing practice as they viewed the video content.

Summative Assessment Score Analysis

As mentioned previously, students' summative assessment came in the form of a five-paragraph essay that was to include the elements of informational writing tied to the seventh grade language arts writing standards that were covered in the first portion of the unit. The essays were graded using a standards-based rubric, and the results of the assessment were quantitative in nature. The results were compared to the summative assessment scores from the previous unit (unit one) as a way to assess the impact of blended learning on students' academic understanding. Based upon the results of the aforementioned assessments, a dependent groups *t* test was performed and revealed that there was a statistically significant difference in unit one's summative assessment scores, which occurred after using traditional teaching methods, (M = 80.4% SD = 11.1% n = 75) as compared to unit two's summative assessment scores (M = 84.3% SD = 8.8% n = 75) that followed a unit completely characterized by blended learning instructional practices with moderate effect size, $t(74) = 4.56$, $p < .05$, $d = .38$. On average there was a 4.3% point difference between the groups. The results of students unit one and unit two summative assessments are displayed in figure 2.

Figure 2

Average Summative Assessment Scores



From the unit one summative assessment to the unit two summative assessment students showed signs of growth in their understanding of the standards being taught. This growth, in combination with the feedback from the student interest surveys, showed that improvements in students' academic understanding can be directly attributed to the use of blended learning practices as students were more deeply engaged in a personalized learning experience causing them to academically flourish. This positively answers the initial research question that inquired whether blended learning techniques could positively impact students' academic achievement.

Student Interest Survey Score Analysis

Students were given three interest surveys throughout the course of the unit that used blended learning practices. One occurred after the first week of instruction, the second was given halfway through the unit, and the third was given after the summative assessments were complete. The surveys employed both Likert scale and open-ended questions. Each survey began with Likert scale questions such as, "On a scale of 1-5, how engaging did you find the technology tool _____?" (Nearpod and Edpuzzle were surveyed here) and "On a scale of 1-5, how do you feel your learning about _____ (intro, body, and conclusion paragraphs) improved after engaging in _____ (video lectures, a Nearpod, a Edpuzzle, small group time with teacher, discussion group) activity?" Other questions were asked in a multiple choice format such as, "Which do you find more interesting and helpful to your understanding: the teacher standing in front of the room teaching about a topic to everyone or the teacher making short videos about different topics for you to watch on your own?" The surveys would end with short answer questions that were often opened ended such as "What do you like about the changes made to how we learn in this unit?" and "In what ways have the structure and activities of this unit improved your understanding of writing an informational essay?" Table 1

shows students' results, on average, to the aforementioned Likert scale and multiple-choice questions.

Table 1

Average Scores on Student Interest Survey per Question

Question	Average Score (out of 5 on Likert scale questions)	
On a scale of 1-5, how engaging did you find the technology tool Nearpod when learning about the three different types of paragraphs?	Block 3/4: 4.04 Block 5/6: 4.11 Block 8/9: 4.20 **Average: 4.11**	
On a scale of 1-5, how engaging did you find the technology tool Edpuzzle when reviewing hooks, outline sentences, and thesis statements?	Block 3/4: 3.70 Block 5/6: 4.14 Block 8/9: 4.02 **Average: 3.95**	
On a scale of 1-5, how do you feel your learning about conclusion paragraphs improved after viewing [the teacher's] mini video lessons?	Block 3/4: 4.40 Block 5/6: 4.15 Block 8/9: 3.92 **Average: 4.15**	
Which do you find more interesting and helpful to your understanding: the teacher standing in front of the room teaching about a topic to everyone or the teacher making short videos about different topics for you to watch on your own?	Students who preferred teacher led lecture: Block 3/4: 23% Block 5/6: 17% Block 8/9: 21% **Average: 20.3%**	Students who preferred mini lessons via video: Block 3/4: 77% Block 5/6: 83% Block 8/9: 79% **Average: 79.6%**

The results from the Likert questions on the student interest surveys show a positive correlation between student engagement and blended learning practices that answers the second research question of this action research project. These results were further supported by the feedback given under the short answer sections of the survey. Common responses to the question, "What do you like about the changes made to how we learn in this unit?" included students feeling like they had more autonomy over their learning, there was an increased use of technology for learning activities, and they more deeply enjoyed the activities and design of the unit. When posed the question, "In what ways have the structure and activities of this unit

improved your understanding of writing an informational essay?" students frequently noted the specific mini video lessons and ability to work in a small group with the teacher to be helpful in improving their understanding of informational writing practices.

Discussion

The study has demonstrated that blended learning instructional practices positively impact students' academic understanding and classroom engagement. The data from the quantitative formative and summative assessments, in comparison to the assessments of the previous unit that did not employ blended learning practices, demonstrated an increase in students' scores after receiving instruction in a blended learning format. In addition to these quantitative increases in scores, students also indicated on the mixed-methods student interest surveys that they had an increased level of engagement and satisfaction with using blended learning technology tools and the rotation model in their English language arts class. As both measures indicated a positive correlation between blended learning and students' academic performance and engagement, blended learning is attributed as a key factor in these successes.

It is important to note that all three blocks of the teacher researcher's language arts class showed improvement on all three growth indicators (formative assessments, summative assessments, and student interest surveys). Block 3/4 showed the greatest average growth at a 4.6% increase on assessment scores. Block 8/9 showed the smallest average growth at a 2.9% increase on assessment scores. The lack in growth between the two blocks could be attributed to the fact that block 8/9 has the highest number of students identified for special education and English language services. While these students receive accommodations and specially designed instruction to work on targeted areas, their learning needs and current levels of understanding could have factored into to a lower class average overall.

There were a few slight challenges to the data as it was collected and demonstrated through this study. The first challenge being that the assessments are not fully assessing the same content and skills. While some of the content and skills from unit one overlap with those

from unit two, there are a variety of different concepts in each unit. This means that students' understanding of the same content did not increase (for the most part, as there were some overlapping content/skills) but rather their understanding in general increased from unit one to unit two under blended learning practices. To counter this challenge in the data, it was found that students' academic understanding did increase from formative assessment #1 to formative assessment #3 in all three classes. This demonstrates that blended learning practices can impact students' learning from beginning to end of instruction on the same content.

Other limitations to the study include the confines of the teacher researcher's study size and population diversity. Even though the study gathered data from nearly eighty participants, the study size was fairly limited especially when considering the diversity of the study population, as most students were primarily white and considered to be general education students. Additionally, the classroom was inclusive in nature, meaning that general education students and special education students comprise the make-up of the classroom. Because of the varied learning needs of all students, those who struggle academically as well as those who are exceptional academically may have impacted the data averages.

Future Research

Future research could be held to see the long-term effects of blended learning on middle school students. As the time period of this action research project was relatively short in nature (4 weeks), research could continue into the remainder semester and into the second semester to see if blended learning continues to have a positive effect on students' academics and engagement outside of the confines of this unit. Sustaining research into blended leaning practices could also be beneficial to understand the true impact of blended learning technology tools on student engagement. These tools did show a direct correlation between tool use and student engagement; however, as these tools were novel, they may have inherently drawn students in. By continuing to use said tools to work with students and by continuing to assess the impact of these tools on students' engagement, the truth behind whether these tools are actually engaging or simply just new and shiny will hopefully become clearer.

Conclusion

The results of this action research study demonstrated that blended learning teaching techniques have a direct positive impact on 7th grade language arts students' academics and engagement. Deep, rigorous, and engaging learning is a key component to any classroom, and it has been shown that blended learning can help to make this vital aim a reality. The students of this study were not the only ones positively impacted by these instructional changes. The teacher researcher, through their work to continuously grow, learn, and improve found that making the shift from traditional teaching practices to blended learning, a research-based approach to improving learning outcomes, was not only extremely beneficial to their students but also made their work more enjoyable as they were seeing their students succeed and dive head-first into the learning at hand in ways that were appropriate and beneficial to each student. The teacher researcher also found that their time was used in more decisive ways, which added elements of purpose and accomplishment to their teacher researcher's work. As a whole, blended learning was a positive for all parties involved.

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Appendix

Questions from the student interest surveys.

I want your feedback!

Your opinions are so important to me. This is an anonymous survey, so please give your honest and detailed opinion regarding the following questions.

* Required

On a scale of 1-5, how engaging did you find the technology tool Nearpod when learning about the three different types of paragraphs? *

	1	2	3	4	5	
It was not an interesting or helpful tool.	◯	◯	◯	◯	◯	It drew me in and I learned a great deal from it.

On a scale of 1-5, how engaging did you find the technology tool Edpuzzle when reviewing hooks, outline sentences, and thesis statements? *

	1	2	3	4	5	
It was not an interesting or helpful tool.	◯	◯	◯	◯	◯	It drew me in and I learned a great deal from it.

On a scale of 1-5, how do you feel your learning about conclusion paragraphs improved after viewing mini video lessons? *

	1	2	3	4	5	
Did not improve at all.	○	○	○	○	○	They were extremely beneficial to my learning!

Which do you find more interesting and helpful to your understanding: the teacher standing in front of the room teaching about a topic to everyone or the teacher making short videos about different topics for you to watch on your own? *

- ○ the teacher standing in front of the room teaching about a topic to everyone
- ○ the teacher making short videos about different topics for you to watch on your own

List additional comments (positive or negative), questions, or concerns regarding the changes made to our classroom during this unit. *

Your answer

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