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The Impact of Station Rotations in Second Grade Reading

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Abstract

Selecting a classroom approach which engages students and prepares them for success can be challenging for teachers. Educators must consider resources available for instruction as well as the demographics of their classroom. This action research study followed second grade students over a four-month period in a reading classroom that utilized the station rotation approach of blended learning. The reason for selecting the station rotation model of blended learning was to improve students' reading scores. It was a goal of this action research to see if a more active approach to teaching would help improve student reading skills. Students who participated in the blended learning classroom showed more improvement in comprehension and were more effective in gaining skills with the selected technology tool in this study.

Keywords: blended learning, reading, station rotation, Lexia Core5, action research

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The Impact of Station Rotations in 2nd Grade Reading

Adults, teenagers, and children prefer learning experiences that involve action. There is power in discovery and taking ownership of one's learning (Thorne, 2004). Learners prefer opportunities of exploration rather than listening to a lecture filled with facts. As stated in Thorne 2004, people "prefer conversations with others, either as a sounding board, or with someone who is like-minded who could help them explore their ideas further, adding to their picture, or reshaping certain aspects of it" (Thorne, 2004, p. 19). Along with learning through discovery, another essential learners of all ages require, is feedback. Adults, teenagers, and children want to learn through discovery, but they also want to know how they are doing and have access to coaching (Thorne, 2004).

If students learn best in environments which provide opportunities for discovery and feedback, then educators and school leaders need to be creative in establishing this type of setting. As stated in Thorne (2004),

"Learning is one of the most individual and personal activities that we ever undertake and yet most of us do it lumped together in learning environments that give us very little opportunity for individual coaching and support" (Pg. 20).

A hybrid or blended learning approach is a way teachers can add discovery and individualized feedback for their students. According to Kenney & Newcombe (2011), major reasons for implementing the blended learning technique are to "increase student engagement and involvement in the learning process and to improve student learning" (pg. 47).

Blended learning is gaining popularity partly because of improvements in technology (Wojciechowski & D'Orion, 2014) and the flexibility it provides in terms of the pace of student

learning (Eaton, 2020). Wojciechowski & D’Orio (2014) offers support by stating that a blended learning experience “must allow students to have control over when they complete their work, where they do the work, and more important, the pace at which they do the work (pg. 31).

Promising results also pique educators’ interest in a blended learning approach; as one report showed, students taking a blended learning algebra course improved by eight percentage points over those in a traditional course (Wojciechowski & D’Orio, 2014).

A blended learning approach can work in a variety of subject areas, including reading instruction. Fiester (2013), as cited in Macaruso et al. (2019), discusses the importance of students reading proficiently by the end of third grade so they do not face long-term academic struggles. Low reading scores have been a concern across the nation in recent years. The 2015 National Center for Education Statistics (NCES) as cited in Macaruso et. al., 2019 reported only 36% of fourth-grade students scored at or above proficiency level on the National Assessment for Educational Proficiency. Even more distressing are gaps found in reading achievement for students from low socioeconomic (SES) backgrounds (Prescott et. al, 2018). The NCES 2015 report as cited in Macaruso et. al., 2019, further states that 21% of SES students scored at or above proficiency level and 44% scored below 4th grade level. In a rural Iowa school district, students performed low on a screener given three times during the 2019-2020 year (AIMS web, now FAST). The national report card, along with results from this district’s local second grade classroom, instilled a desire for change and improvement in this district’s reading instruction in order to improve student achievement.

The overall purpose of this action research project is to determine the impact of the blended learning station rotation model on second grade students’ mastery of their FASTBridge

reading scores. In the years prior to this project, the 2nd grade classes have failed to meet FastBridge benchmark scores. The second grade reading curriculum is out of date, but the school district has a limited budget. When considering pedagogical changes impacting mastery, blended learning, more specifically, the station rotation model, was selected because it can potentially support another research area, fluency, while minimizing costs to the school district (Wojciechowski & D’Orion, 2014). Through small group instruction, the cooperating teacher and researcher can work with students on fluency goals. Another topic in this study is the use of Lexia Core5 and its impact on test scores. With the use of station rotations, Lexia Core5 can be used as the technology component of blended learning to determine if students’ reading scores improve.

This action research project will focus on the following questions:

- Can the implementation of the station rotation model positively impact FASTbridge test scores and help students meet 2nd grade standards in Lexia Core5?
- Can we use the station rotation model to better meet the individual needs of students through small group instruction?

Two definitions to consider throughout this action research study are station rotation and Lexia Core5 Reading. According to the Blended Learning Universe website, station rotation is defined as, “allow(ing) students to rotate through stations on a fixed schedule, where at least one of the stations is an online learning station” (Clayton Christensen Institute, 2020). According to the Lexia Core5 (2020) website, the Lexia Core5 Reading program “provides explicit, systematic, personalized learning in the six areas of reading instruction, targeting skill

gaps as they emerge, and providing teachers with the data and student-specific resources they need for individual or small-group instruction.”

This action research project will report how many students experience growth on their LexiaCore5 and FastBridge assessment scores. Quantitative data will be collected in a spreadsheet to organize scores as increasing, decreasing, or staying the same. Qualitative data will be collected in the form of observation notes.

Review of Literature

Introduction

There are many different viewpoints on how people learn. Most educators would argue that students who participate during class will understand a topic better. However, when faced with large class sizes and diverse needs of students, encouraging participation can seem daunting. Teachers who are trying to both encourage participation and manage a large class often need to modify their teaching style in order to meet the needs of their students. A hybrid or blending learning approach can improve student participation, preparation, and understanding.

Blended Learning

Many educational scholars have a similar yet unique twist to the definition of blended learning. Osguthorpe and Graham provide three themes in their blended learning model: “combining instructional modalities, combining instructional methods, and combining online and face to face instructions” (as cited in Ghazizadeh & Fatemipour, 2017, p. 607). Prescott et al. (2018), found that a blended learning approach of face-to-face instruction and digital technology provided their 641 treatment students with growth on the NWEA MAP reading test in all grades K-5.

Teachers may choose blended learning versus a “sit and get” classroom setting because blended learning is considered to be more engaging for students (Repetto et al., 2018, as cited in Macaruso, Wilkes, & Prescott, 2020). Another reason teachers favor blended learning is because every student may not learn best in a one size fits all classroom environment; the mix of online and face-to-face training could provide a more balanced approach to learning (Hilliard, 2015).

Research by Lenhard et al. (2013) looked at two approaches to increase reading comprehension skills among sixth grade students. The first approach was teacher directed and included multiple instructional strategies whereas the second approach included features of blended learning as it included a digital program. The study’s findings showed the blended learning approach made more of an impact on reading comprehension skills than the teacher-directed method (Lenhard et al., 2013).

While most studies mentioned have been short-term, there are a few longitudinal studies that have looked at blended learning (Macaruso et al., 2019). One longitudinal study was conducted over three years, starting with the 2014-2015 school year and ending in the spring of the 2016-2017 school year. The study followed 68 students from low SES backgrounds from kindergarten through the completion of second grade. This school district also used Core5 as the main component of its ELA blended learning instruction. Students’ reading performance was assessed with the Group Reading Assessment Diagnostic Evaluation (GRADE) at two times per school year, fall and spring.

The Macaruso et al. (2019) study found students made improvements each school year. Students would be working below or at grade level in the fall and end the year having completed all grade-level skills and even working above grade level (Macaruso et al., 2019). Even more

interesting are the conclusions made based on low performers' growth. Only 9% of the already low performers remained low in their scores; the other 91% scored either high or average. Fifty percent of the low performing students were able to increase their score by 15 points or more (Macaruso et al., 2019).

Another long-term study was conducted by Connor et al. (2013). It attempted to address an additional research area: the accumulation of individualized student instruction (ISI) over time. Results showed students who spent more years in individualized reading instruction made significantly greater gains in reading: "Students who were in ISI reading classrooms for all three grades achieved significantly higher fitted reading scores by the end of third grade compared with students who were in control classrooms all 3 years" (p. 8). This emphasizes the importance of quality reading instruction throughout early grade levels.

Station Rotation Model

In a classroom setting, blended learning may include station rotation, lab rotation, flipped classroom, or individual rotation. In a station rotation model, students move in small groups to different stations, where at least one station utilizes technology. This use of technology is a key component of a station rotation approach. It allows for adequate independent practice, which may not be possible in a typical classroom setting, as mentioned in a study on literacy instruction in kindergarten through grade 5 in a title I urban elementary school. (Prescott et al., 2018). A student is able to receive targeted and adapted instruction during an online station which may provide a more engaging environment to develop skills (Maxwell & White, 2017). Academic gains of students involved in a station rotation model of blended learning are very encouraging. According to a pilot study by Walne (2012) completed on station rotation models, "the overall

number of students who performed at a proficient level after participating in this study increased their level by a minimum of 10% with some nearing 40%” (as cited in Mahalli et al., 2019, p. 28).

A station rotation model includes “fixed schedules in which all students rotate to all learning stations” (Maxwell & White, 2017, p. 4). A classroom will have multiple stations to rotate through during a class period. One benefit to the station rotation model is teachers have the opportunity to differentiate instruction. The qualitative study by Maxwell and White (2017) emphasize this benefit by stating “teachers can work with students in small-group settings on a daily basis. This unlocks time for teachers to individualize instruction for students at varying levels of mastery” (p. 4). Another benefit to the station rotation model is teachers are allowed more flexibility in working with their students (Gil & Garcia, 2011, as cited in Mahali et al., 2019). In the Maxwell and White (2017) study, a teacher was observed making continuous changes within her station rotations due to the lack of student collaboration and the minimal feedback she was providing her students. She was thankful for the flexibility the administration provided her in order to make the necessary modifications in order to meet the needs of her students.

Lim (2015) reinforces the argument for the station rotation model of blended learning: “The station rotation model is one of the most common blended learning model(s) that schools find practically less complex to be implemented and adapted” (p. 130). Teachers using station rotations help their students remain active as independent learners without having to rely on the teacher for the information (Mahilli et al., 2019). Lim’s research participants consisted of 45 students in a 10th grade classroom in Thailand. Students had various levels of English

proficiency as they participated in three station rotation tasks: whole class instruction, small group discussion, and pair work. Lim concluded numerous beneficial learning attitudes from the station rotation model. Some of those include: students were attentive to listen, students showed enthusiasm and ownership while feeling challenged and motivated, and reserved students participated more actively than during pre-test observation (Lim, 2015). Lim also noted “lower proficiency and disinterested students were more alert than in traditional class” (2015, p. 135).

Technology Component of Blended Learning

In the United States, blended learning and hybrid learning can be used interchangeably to describe a pedagogical approach combining face-to-face instruction with technology (O’Byrne & Pytash, 2015). Blended learning differs from a traditional classroom instruction, where the teacher is always the leader of instruction. In the blended learning model, Adistana & Dwiyoogo (2007) describe two different learning environments learners are exposed to: a guided, face-to-face environment and an online learning environment. A feature of the blended learning mode “is that it is designed to couple the use of digital technology with teacher-led instruction” (Macaruso, Wilkes, & Prescott, 2020, p. 2849).

The digital component of blended learning allows teachers “to adapt their instruction to meet individual students’ needs, including those at-risk for academic failure” (Mararuso et al., 2020, p. 2840). Online learning programs are integrated learning systems (ILS). ILS are adaptive; they can modify instruction based on learning differences of students in a classroom. According to Putman, 2016, “if a student masters a skill, the student progresses to the next skill. If the student fails to master a skill, the computer adapts and presents remedial information, reassessing until the student achieves mastery of the skill” (p. 1154). Putman’s research looked at

a specific type of ILS, Istation, to determine if regular use increased early literacy achievement in kindergarten students. 72 kindergarten students were split into treatment and control groups where the treatment group received digital instruction and the treatment group received traditional literacy instruction. The study concluded that the technology component, Istation, had a statistically significant effect on kindergarten students' literacy skills and technology should supplement but not replace classroom teachers (Putman, 2016).

The technology component of blending learning allows teachers to differentiate their instruction. By differentiating instruction, teachers are able to make instructional decisions based on the specific learning needs of their students (Macaruso et al., 2019). Yusoff et al. (2017), supports the need for differentiation by pointing out that not all teaching methods work for every student as each learner has diverse needs. In Yusoff's study, 65 students in an Introduction to Statistics class were split into two different blended learning styles: an original form of blended learning and a redesigned form of blended learning. The redesigned blended learning approach was tailored to the diverse needs of the students; needs which were discovered through a questionnaire. Not only were the students in the redesigned group low performers, but they were also all kinesthetic learners. Therefore, this group received more activities throughout the blended learning instruction than the original blended learning class. Yusoff and company found the students in this redesigned model outperformed those in the control group (Yusoff et al., 2017). When implemented correctly, blended learning can provide teachers with access to immediate data helping teachers monitor student progress and make decisions to personalize instruction (Schechter et al., 2017).

Blended Learning Implementation

Hilliard (2015) argues students in a blended learning classroom receive instruction tailored to their skills, progress is monitored, teachers can view real-time data, and most importantly, teachers are properly trained. In Hilliard's qualitative study on blended learning in the collegial classroom, she found it essential for faculty to have timely and continuous professional development and support while implementing blended learning (Hilliard, 2015).

If school districts have support in place to help teachers with blended learning activities, such as technology integrationists and instructional coaches, the obstacles teachers encounter through blended learning can be overcome. Ertmer et al. (2012) discusses the type of support needed for successful implementation of a blended learning environment should include "administrative, technological, professional, and peer" (p. 425). In addition to instructional coaches and technology integrationists, school districts are developing professional learning communities and teachers are being proactive in turning to social networks to learn with their peers (Ertmer et al., 2012).

In a study by Maxwell and White (2017), five teachers found ways to meet the needs of their students through station rotations. They found that while station rotations look different in each classroom, district support was a key to success for station rotations. A 7th grade language arts and history teacher at the Bella Romero Academy of Applied Technology in Colorado is one of five teachers who were studied. This instructor had been developing a blended learning classroom and mentioned the importance of administrative support: "I have a lot of trust from my administration. Getting to the [the right model] takes a lot of time and building the right school culture" (Maxwell & White, 2017, p. 8).

Professional development for implementation of new strategies is the catalyst to proper integration. The qualitative study by Ertmer et al. (2012) explains external barriers were more of an issue than internal barriers. The twelve teachers observed in this particular study rated their attitudes and beliefs towards implementing blended learning and technology as a non-barrier. In fact, five of the twelve teachers communicated their attitudes and beliefs were the guiding forces when effectively implementing the technology piece in their station rotation model (Ertmer et al., 2012).

It is clear that the passion and drive for teachers to execute blended learning in their classrooms effectively needs to start with an internal motivation; however, support for teachers is equally important.

The Teacher's Role in Blended Learning

Another variable to consider is whether teachers are implementing research-based strategies with fidelity and have been trained properly to apply strategies successfully (Connor et al, 2013; Grey et al, 2020). "Understanding what effective teachers are actually doing in the classroom and how to support sustained effective instruction for all students as they progress through school is a national challenge" (Connor et al, 2013, p. 2).

Grey et al. (2020) provides research pertaining to the preparation of teachers and embracing co-teaching to support implementation of blended learning. "The forms of co-teaching most commonly observed where one teach/one assist, station, and parallel teaching" (Grey et al., 2020, p. 299). Another positive is each teacher can focus more intently on their small groups and better prepare material in case of differentiation needs amongst their group members. Students can also

benefit from teachers using the small group station as they are able to hear content being explained from two different points of view rather than one (Grey et. al, 2020).

Blending Learning and Subpopulations

One major argument for blended learning is the support it offers to English Learners (EL) students and those from low-socioeconomic status (SES) backgrounds. Prescott et al. (2018) mentions being engaged in the blended learning program provides EL and low SES students the opportunity to master reading skills and possibly close the gap with their peers. The results from Prescott's study showed that 5 out of the 6 grade levels made significant gains on a standardized reading test following completion of the blended learning program, and results were even better for EL's. In all but first grade, the gains for EL students were as good as or slightly better than English-speaking students (Prescott et al., 2018).

Two earlier studies further support these findings. Schechter et al. (2015) studied two first-grade classes and two second-grade classes where one of the classes was assigned to a treatment group and the other class to a control group. One of the main differences between the treatment and control groups was the use of Core5. In the treatment classroom, students used the online program as a center activity following a rotating schedule. In contrast, the control classroom remained engaged in regular ELA instruction. Over the course of approximately eight months, results indicated that "treatment students demonstrated gains that were significantly higher than gains achieved by the control students, particularly in the area of reading comprehension. An ELL sub-sample displayed even greater gains than the group as a whole" (Schechter et al., 2015, p. 194).

Another study was conducted in 2015 with second grade students from a California Title I school. During the 2014 school year, this school's demographics included 96% Hispanic, 77% EL, and 93% socioeconomically disadvantaged students (Wilkes et al., 2015). Among the second grade students in the treatment group, Core5 was used as the intervention part of the ELA curriculum. The beginning of the study showed 84% of the intervention students were one or more grade levels behind. At the end of the study, 29% had reached end-of-year benchmarks in Core5, while an additional 41% were working at their grade level (Wilkes et al., 2015). Even though this study was conducted for less than half a school year and was limited to one grade level, the results suggest a blended learning approach can lead to significant improvements in reading skills.

Other studies have attempted to address the limitations of small sample sizes. One study opened their research to consider the impact of Core5 on kindergarten students. According to Wilkes et al., 2020, kindergarten and first grade students in an urban district were split into treatment and control groups so they could determine if students in schools using Core5 perform better than students receiving instruction in a traditional setting. The study found the implementation of Core5 contributed to better reading gains (Wilkes et al., 2020). Marcaruso, Wilkes, and Prescott's (2020) study showed a similar finding in a large population of 3721 students split into treatment and control groups. Their findings concluded blended learning can support reading skill development and the technology component (Core5) also strengthens reading development when compared to a traditional classroom.

Early elementary students, who were classified as low SES and used Core5 showed greater gains than students in a control group on a standardized reading test. Over a three-year

longitudinal study, (Macaruso et al., 2019) reports “mean performance on the standardized reading test improved 10 standard score points from the fall of kindergarten (Year 1) to the fall of second grade (Year 3)” (p. 14). This study further emphasizes the impact Core5 had on low performing kindergarten students as “nearly all performers scored in the average range or better by the end of second grade” (p. 14).

Blended Learning Obstacles

Educators must survey the needs of their students before deciding which blended learning model is best suited for them: rotation, flex, a la carte, or enriched virtual (Clayton Christian Institute, n.d.). Just as teachers survey the most effective blended learning model, they also need to be vigilant of the technology they are implementing and realize not all students are going to be engaged. O’Byrne & Pytash (2015) emphasize the importance of technology choice:

It should be noted that simply by adding technology to instruction does not mean that all learners will be motivated or engaged. Integrating technology into the classroom should not drive instructional decision making; rather, pedagogical goals and objectives should determine whether a hybrid model is the best instructional design. (p. 138)

Butcher (2016) also mentions technology challenges of blended learning by listing obstacles of infrastructure within the institute and student detachment from learning because of screen distractions. A study by De Jong, Savin-Baden, Cunningham, and Verstegen discuss six issues to designing blended learning activities and one of the mentioned challenges is technology know-how (as cited in Yusoff et al., 2017). It is important for a teacher to weigh the pros and cons of any technology component they may add to their station rotation model as well as modeling appropriate use and laying out expectations of technology usage within their

classroom. By communicating expectations and modeling appropriate use, teachers can facilitate a smooth transition to blended learning.

Outside of the technology aspect of blended learning, another drawback is the amount of time required of teachers to develop their course content. The added responsibilities of blended learning include: “re-examining course goals; developing online and face-to-face activities that are integrated and aligned with the goals; finding ways to assess students’ understanding and mastery of the course material; and creating ways for students to interact” (Kenney & Newcombe, 2011, p. 46). According to Kenney and Newcombe, incorporating blended learning was beneficial to the learning process, but the amount of time added due to professional development and grading became overwhelming. Therefore, it is imperative there is adequate assistance in place for teachers wanting to integrate blended learning.

Gaps in the Research

Although many resources provide vital information about the importance of blended learning in the reading classroom, there is one area lacking solid feedback. In all of the resources discussed thus far, it is difficult to find a study examining how the station rotation model using Lexia Core5 affects second grade FastBridge comprehension and fluency test scores. Sources have mentioned incorporating a curriculum that ties Lexia Core5 as a station and increased test results, but no research has been done or reported on whether these increase second grade scores on the FastBridge test. This may be an area that will take more time and research.

Another necessary area of research is finding strategies to implement blending learning with limited resources. The studies presented in this review come from educational settings where support and resources are readily available. To further support the argument for blended

learning, additional studies will need to be completed that address strategies for adopting blended learning with limited support (Kenny & Newcombe, 2011).

Future Directions

The studies mentioned have looked at impacts of blended learning over a school year as well as a longitudinal study. These studies have focused on the early elementary grades and secondary education. It would be interesting to research the benefits for students in the upper elementary grades, middle school, and high school grades. Another factor affecting longitudinal studies is summer slide (Macaruso et al., 2019). This is especially true for low-performing students. Summer slide was a factor to consider in the longitudinal study mentioned (Macaruso), but future studies are needed to investigate if summer learning programs can mitigate the effects of summer slide.

Whereas it is encouraging to see the impact blended learning has had on subpopulations, such as EL students and low SES students, it is important to remember some of these results come from studies with a low sample size. As more research is conducted, the case for blended learning approaches as a means to improve student participation, preparation, and understanding can be strengthened.

Methods

Participants

This action research study took place within a second grade classroom in a small northwest Iowa district in Sioux County. The 2019 Department of Education District Summary states there are 609 students enrolled in grades K-12 in this district. A demographic breakdown of students affirms 72.7% of students are white, and 25.6% are Hispanic. Of the student

population 14.3% are EL students, and 36.8% of students are considered low SES (Iowa Department of Education, 2019). The treatment classroom consisted of fifteen students: 8 boys and 7 girls. The control group had sixteen students: 9 boys and 7 girls. Within the fifteen students in the treatment group, there were 5 EL students and 3 Title 1 reading students. The control group consisted of 6 EL students and 4 title 1 reading students.

Intervention

The Early Literacy Implementation (ELI) legislation in Iowa requires teachers in grades K-3 to provide students with a 90-minute reading block. In addition to these 90 minutes, classrooms must also implement a 30-minute intervention time for students (Early Literacy Implementation, 2018). In this particular second grade classroom, the blended learning station rotation model was incorporated into the 120 minutes of reading. The reading block began with a 25-minute lesson from the teacher on a comprehension skill or reading strategy for a particular week. After students were provided direct instruction, they moved into their first station rotation. The three twenty-minute stations included additional direct instruction from the teacher on skills, a hands-on activity that could be completed individually or with a partner, and the online component of Lexia Core5. Following the first 20-minute station, students moved into another 20-minute station. At the conclusion of the second station, students received a 10-minute whole class phonics skill lesson. Following the direct instruction, students moved into their final 20-minute station. This was followed by a five-minute wrap-up or conclusion led by the teacher. One particular goal in executing the station rotations was to keep students from working independently for more than two stations in a row. Therefore, the 10-minute phonics lesson was incorporated between rotations two and three. (See Table 1 below.)

Table 1*2nd Grade Station Rotation Schedule*

	Group 1	Group 2	Group 3
Whole Group 8:15-8:40	Whole Class		
Rotation 1 8:40-9:00	Small Group	Lexia Core5	Word Work
Rotation 2 9:00-9:20	Word Work	Small Group	Lexia Core5
Phonics Lesson 9:20-9:30	Whole Class		
Rotation 3 9:30-9:50	Lexia Core5	Word Work	Small Group

Once the 120-minute reading block was implemented, the focus turned to the intervention time. Students were placed in ability groups based on the FastBridge assessment scores given in September. Second graders identified as non-proficient in fluency received the most attention during the intervention time. Students who did not demonstrate proficiency on the CBMR FastBridge fluency screener experienced weekly progress monitoring in addition to engaging in an intervention specific to fluency called Six Minute Solution.

Second graders began adapting to the station rotation model and used stories from the existing curriculum in order to obtain training in the station rotation model. The training portion was extremely important for the students to grasp this approach and experience success. The training period provided both the teacher and students the confidence to successfully execute the station rotation model.

Measurement and Data Collection

It was the goal of this action research to collect data from FastBridge and Lexia Core5 (Core5) over the course of five months, October 2020 through February 2021. FastBridge is the state of Iowa approved screener used three times each year: September, January, and April. FastBridge is an endorsed assessment used for instructional decision making (Illuminate Education, 2020). In this study, FastBridge data was collected as quantitative data. Because the 2019-2020 school year was shortened due to COVID-19, the school district administered the FastBridge assessment later in September than normal in hopes of providing teachers more time to work with students. This assessment provided teachers a report showing whether students were proficient in reading comprehension and fluency. FastBridge data was collected in the fall before full execution of the station rotation model and was collected again in the winter after approximately 12-13 weeks of full implementation. FastBridge was chosen as a screening tool since it shows evidence of validity and reliability. The reliability coefficients “show promise for producing little test error” (Christ, 2015, p. 20). Four types of validity were considered with the FastBridge assessment: content, criterion, predictive, and discriminant validity. The validity of FastBridge assessments in reading is supported with current research and is an ongoing process (Christ, 2015).

In addition, second grade students took a placement test through Core5 during the first week of this school year (August 25). This online placement test determined what grade level students would begin at based on their current mastery of skills. Core5 is a structured platform providing students with individualized instruction. According to Schechter et al. (2017), Core5 “is an adaptive program for Pre-K through grade five comprising student-directed online

activities and teacher-implemented offline lessons and enrichment activities” (p. 561). The program is designed to address the six areas of reading: phonological awareness, phonics, structural analysis, fluency, vocabulary, and comprehension (Macaruso et al., 2019). Core5 includes online activities and progress monitoring along with teacher-led lessons and paper-and-pencil tasks for independent work (Prescott et al., 2018). Core5 was chosen as a reading program because it is located under the Evidence for ESSA as a “Strong” program for students in grades K-8 (Lexia Learning, 2020). It provides teachers with differentiated instruction and support in the classroom. As the website states, “Lexia’s research-proven program provides explicit, systematic, personalized learning in the six areas of reading instruction, targeting skill gaps as they emerge, and providing teachers with the data and student-specific resources they need for individual or small-group instruction” (Lexia Learning, 2020).

Mills (2018) states, “adapt rather than adopt curriculum materials” (p. 133). Test questions at the conclusion of each story were teacher-created and included the skill(s) being addressed for the week so scores from the tests were collected along with the skills mastered. Unfortunately, because these assessments were teacher made, there is no information available on the validity or reliability of this piece of data.

One independent variable in this study is the use of blended learning, more specifically the station rotation model. One goal in this study is for 2nd grade students’ FastBridge test scores to increase through the administration of this classroom approach. Two dependent variables in this study include FastBridge test scores and 2nd grade Core5 skills. FastBridge test scores are measured as proficient or non-proficient. The number of skills mastered on Core5 are measured as increasing or staying the same. See Appendix A and B for sample items.

One item to note is that the blended learning model included the use of online learning and in this study, the online component was the Core5 program. Core5 was used to provide quantitative data. Its results provided a breakdown of skills students are working on as well as individualized strengths and weaknesses. Data was automatically collected in Core5 and analyzed weekly to determine if students were in need of intervention lessons during Reading I & E time.

Another dependent variable in this study is specific student needs. Since the blended learning approach provides an environment for individualized learning plans for students, data was collected through FastBridge and Core5 in order to determine if the station rotation model improved test scores and Core5 skills. Analysis of the aReading (comprehension) scores and CBMr (fluency) scores from FastBridge reading tests displayed the effects of blended learning.

Along with these quantitative measures, qualitative data was collected to describe the station rotation model as well as help others understand the classroom routine. This data was collected throughout the months of implementation from the cooperating teacher, the researcher, and an instructional coach. The instructional coach took notes as a passive observer as they were present only to observe the structure of the reading block. In order to ensure validity, all observers listened frequently, talked little, wrote early, recorded accurately, and reported fully (Mills, 2018).

Review Board

This action research project involved people as participants, but it also met the three criteria to qualify for an exemption. First, the research posed minimum risk to the participants, who were second grade students. Students were not asked to participate in ways differing from a

normal school day. Second, the research was conducted in a local elementary school; more specifically, in second grade. Finally, all students had access to an online learning platform called Lexia Core5 and were placed in small groups throughout the research (Electronic Code of Federal Regulations, 2018). The data collected was used at parent-teacher conferences to show parents areas of strength and areas for improvement with their students.

Findings

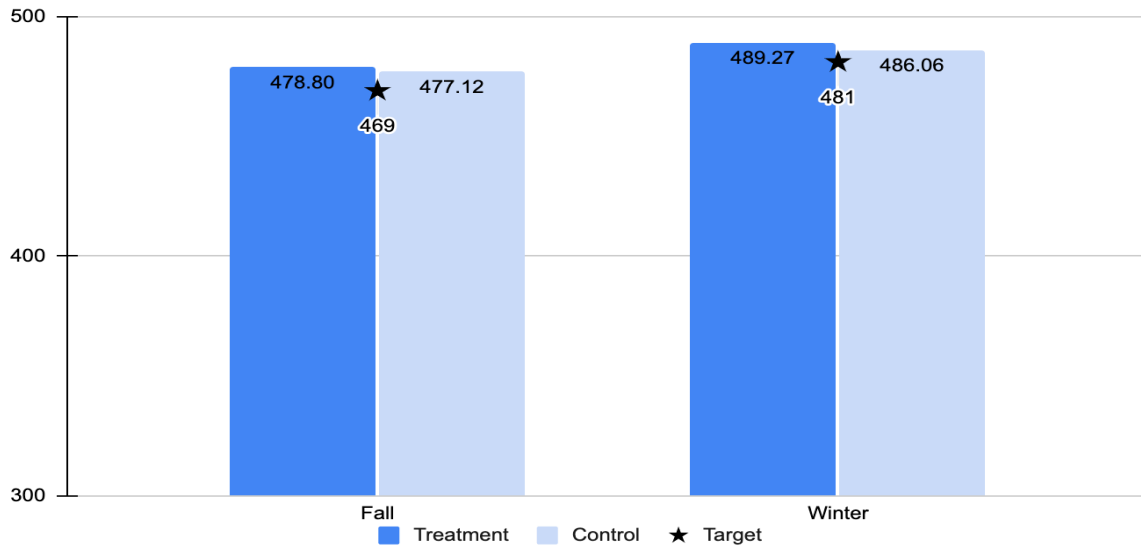
Quantitative Data Analysis

The purpose of this research was to determine if the implementation of the station rotation model helped increase FastBridge test scores and helped students meet 2nd grade skills in Lexia Core5. The results were measured by using the aReading (comprehension) comprehensive score and the CBMr (fluency or words per minute) score on the FastBridge reading test. This study took place over a 15-week period and assessed two classrooms of second grade students: the treatment group and the control group.

The students in the treatment group had an average score of 478.8 in the fall on the aReading test. The target score for the 2nd grade aReading test in the fall was 469. Students in this same group had a mean score of 489.3 in the winter with the target score being 481. On average, this group increased 10.5 points from the fall to the winter. Students in the control group had a mean score of 477.1 on this same test in the fall and scored 486.1 in the winter. The control group showed growth as well with a mean increase of 8.9 points. A summary of these results can be seen in Figure 1.

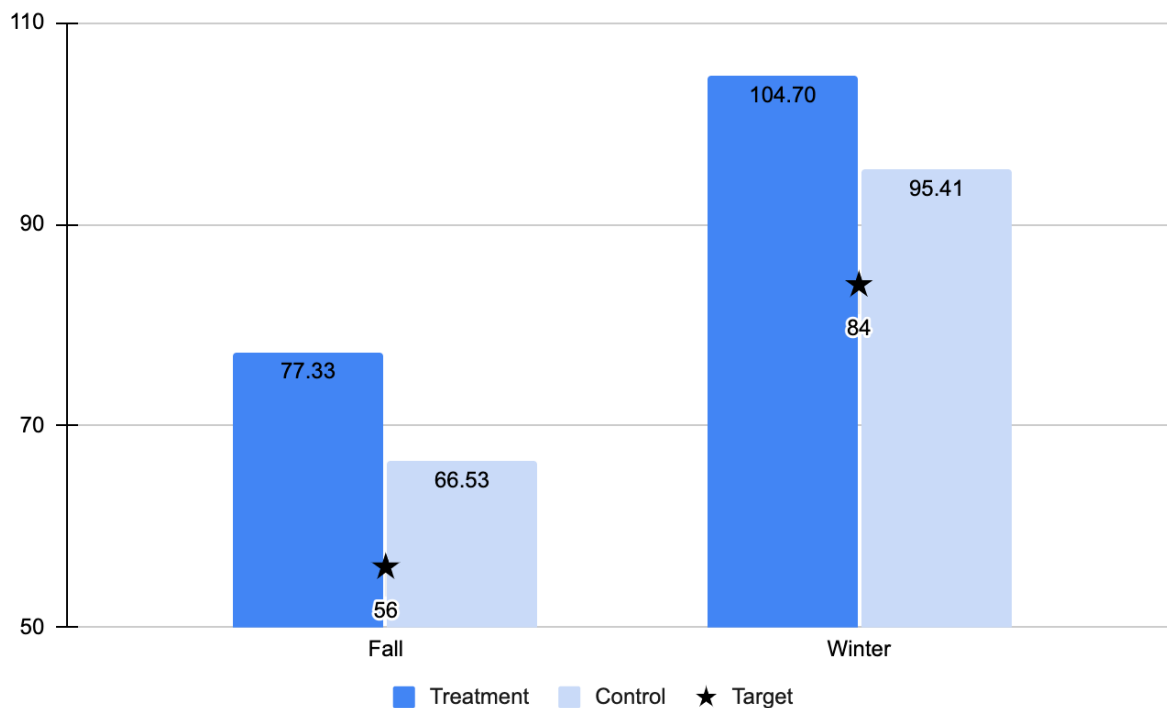
Figure 1

FastBridge aReading Comparison



The CBMr or Fluency test was also administered to students in both groups. Students in the treatment group had a mean score of 77.3 words per minute in the fall and increased to 104.8 words per minute in the winter. In the control group, the fall mean score was 66.5 words per minute and the winter average score grew to 95.4 words per minute. (See Figure 2.) The target or goal was 56 words per minute in the fall and 84 words per minute in the winter. The FastBridge assessment benchmark for growth is an increase of 28 words per minute from fall assessment to the winter exam. Overall, the treatment group showed an average growth of 27.5 words per minute, with 7 out of 15 students meeting the growth goal.

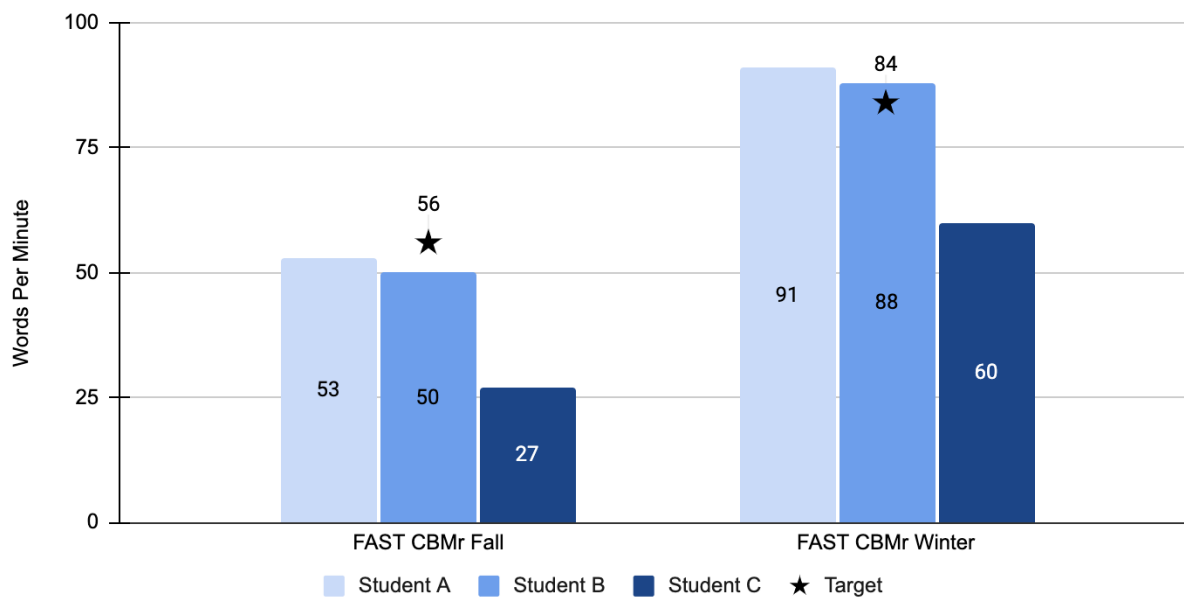
Figure 2
FastBridge CBMr Comparison



The classroom teacher and researcher added an intervention during the station rotation block for students who fell below the target score of 56 in the fall on the CBMr fluency test. The intervention was Six Minute Solution and was administered by a paraprofessional four days a week. In the treatment classroom, three students scored below the target score in the fall (see Figure 3) and shortly afterwards began the Six Minute Solution intervention. After approximately 13 weeks applying the intervention, students were tested again. The three students in the treatment group who were consistently practicing fluency made significant gains. Student A read 53 words per minute (wpm) in the fall, 3 wpm below target. However, in the winter, student A read 91 wpm, 7 words above the target score of 84. Student B read 50 wpm in the fall and increased to 88 wpm by winter. Student B went from 6 words below target to 4 words above target in that short time. Finally, student C read 27 wpm in the fall and showed

growth of 33 wpm by winter arriving at 60 wpm. Whereas student C did not reach the winter reading target, they still met the growth goal of 28 wpm.

Figure 3
Fluency Intervention Group Comparison



At the beginning of the year, students were given a placement test through Lexia Core5. This assessment tested reading skills to determine each student’s grade level. Eight out of 15 students or 53.33% of the treatment group began working below grade level and 7 students or 46.67% of the treatment group were working at the second grade level. No students in the treatment group were working above grade level in the fall. The treatment group showed significant improvement in the winter. 53.33% of the group was now working at grade level while 46.67% was working above the second grade level. (See Figure 4.) Students in the control group were also given the same placement test in the fall. Six out of 16 students or 37.50% began the year working below grade level, 9 students or 56.25% began at grade level, and 1 student began above grade level. In the winter, 3 out of 16 students or 18.75% of the students were working below grade level, 8

students or 50% were at grade level, and 5 students or 31.25% were above grade level. (See Figure 5.)

Figure 4
Lexia Core5 Grade Level Material (Treatment Group)

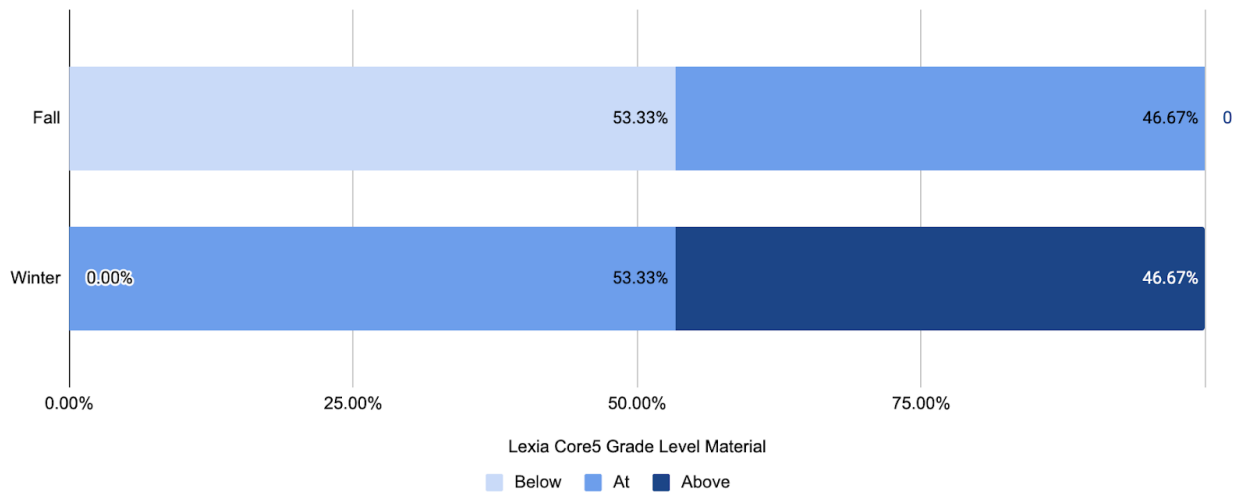
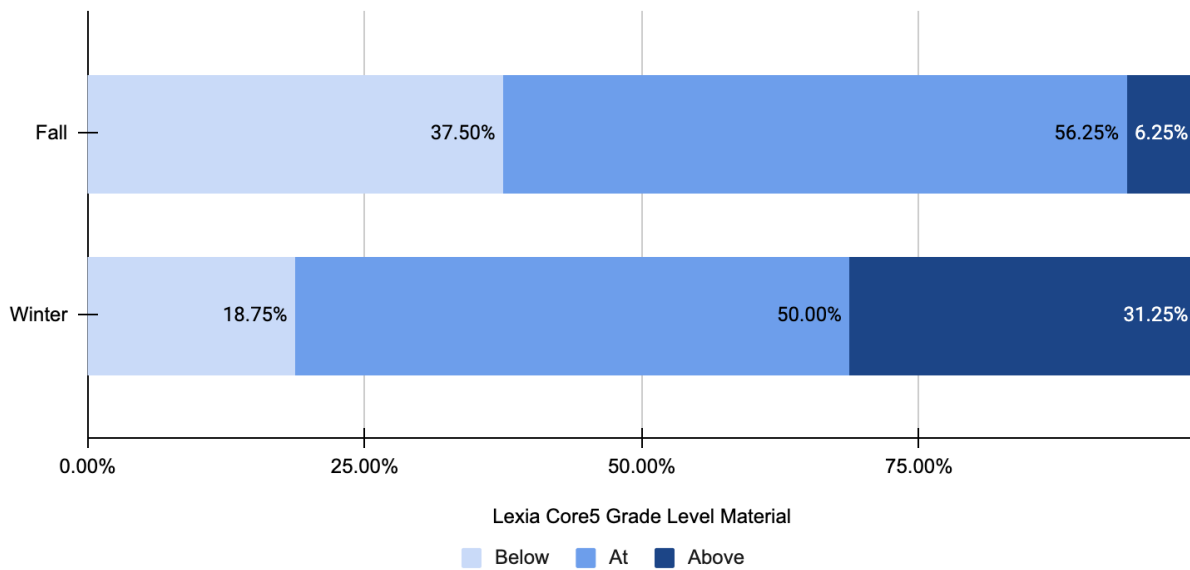


Figure 5
Lexia Core5 Grade Level Material (Control Group)



Another comparison in this study was the amount of Lexia Core5 units completed per hour

between the treatment and control groups. The treatment group completed 154 Lexia Core5 units in 757.47 minutes or 11.32 units per hour. In comparison, the control group completed 153.53 Lexia Core5 units in 919.71 minutes or 9.27 units per hour. (See Table 2.) This illustrates the treatment group had a technology emphasis as one of their station rotations each day was Lexia Core5. It should be noted that students in the control group were also receiving Lexia Core5 minutes, but its use was less programmed into their class time each week.

Table 2*Lexia Core5 Unit Analysis*

Treatment Group				Control Group			
Student	Units Gained	Total Minutes	Units Per Hour	Student	Units Gained	Total Minutes	Units Per Hour
A	119	532	13.42	A	28	437	3.84
B	129	687	11.27	B	207	829	14.98
C	401	1045	23.02	C	74	588	7.55
D	233	1025	13.64	D	51	604	5.07
E	60	493	7.30	E	380	1789	12.74
F	151	710	12.76	F	168	1116	9.03
G	141	789	10.72	G	298	1228	14.56
H	30	499	3.61	H	252	1194	12.66
I	285	1089	15.70	I	225	1299	10.39
J	245	999	14.71	J	30	634	2.84
K	77	567	8.15	K	121	928	7.82
L	126	766	9.87	L	152	923	9.88
M	70	617	6.81	M	139	925	9.02
N	145	904	9.62	N	108	666	9.73
O	98	640	9.19	O	163	918	10.65
				P	106	870	7.31
Average (Treatment)	154	757.47	11.32	Average (Control)	153.53	919.71	9.27

Discussion

Summary of Major Findings

The findings of this study indicate that station rotations provide positive results in 2nd grade with reading comprehension, fluency, and Lexia Core5 skills. According to Figure 1, students in the treatment group grew more on their reading comprehension test than the control group. Because of station rotations, students were able to receive individual direction and support on Lexia Core5. This provided the teacher with more time to meet the needs of individual students. It also showed the teacher students were more invested in their learning which in turn, affected their reading comprehension scores. This qualitative analysis is consistent with the results from the study done by Mahali et al. (2019): “[The study] also found that blended learning can facilitate flexibility and make students learn more actively and urge their curiosity” (p. 23).

These findings were similar to the results found with 2nd grade fluency scores. In the treatment group, three students scored below benchmark in the fall. Shortly thereafter, Six Minute Solution was implemented with those particular students. As Figure 2 summarized, those students made significant progress in fluency in the 10-weeks intervention time frame. During the intervention, students were completing Six Minute Solution tasks four days each week. The application of station rotations in the structure of this classroom allowed time to fulfill the needs of students with fluency deficits.

The classroom teacher realized allowing her students structured time through a station rotation to work on skills in Lexia Core5, directly affected the amount of skills students were able to obtain. This statement is proven by Table 1. Table 1 illustrates students in the treatment group were given less time to work on Lexia Core5 in comparison to the control group; however, they were able to pass more units. In the control group where Lexia Core5 was conducted in a

less structured format to the treatment group, there were less skills obtained by this group.

Therefore, the structure of station rotations provided the students with the time to efficiently and effectively work on Lexia Core5.

Overall, the layout of station rotations and systematic implementation of Lexia Core5 proved to increase test scores and students acquired significant gains on skills in Lexia Core5. Even with the irregularities of COVID-19 protocols this school year, the station rotation model of Blended Learning has demonstrated a positive impact on second grade students' reading comprehension and reading fluency scores.

Limitations of the Study

With any research, limitations played a role. As previously mentioned, there was only one researcher in this project; therefore, the researcher's personality, experience, and choices of what to implement and modify could have influenced the findings.

Another limitation within the research is that data was collected from one grade level and not multiple grade levels. The sample size was small in comparison to all second grade students in our county and should be applied only within this context. The results from this action research study will not be generalizable. Mills (2018) reminds us the nature of action research is not to "generalize from the outcomes of a study in one classroom, one school, and one district to all similar classrooms in the state or county" (p. 161). Therefore, the findings focus on improving reading abilities of the students within this particular second grade class.

Knowledge of technology presented another challenge to this study. One of the stations during the implementation of blended learning involved technology, and most of the second-grade students required a lot of reminders and instruction during this station. Because students

varied in their abilities of operating an iPad, the classroom teacher and researcher built in training time so the students were capable of using the technology station efficiently and effectively. However, as data was collected in the winter, it was apparent students did not use their time wisely or make adequate progress on Lexia Core5.

Since the researcher never taught second grade and the classroom teacher is a veteran, whatever changes needed to be made, were at the discretion of the classroom teacher. The setting of this study is not the researcher's classroom; thus, any instantaneous modifications or adjustments were made by the classroom teacher. The working relationship between the classroom teacher and researcher remained professional throughout the research and was guided by students' needs. Collaboration through the blended learning implementation was consistent; however, the researcher and classroom teacher did not always agree. In those moments, the classroom teacher ultimately had control of decisions. This is not an overwhelming limitation, but since the cooperating teacher has over 35 years of teaching experience, at times the researcher and classroom teacher had different views on instructional strategies.

The biggest challenge to this action research study was COVID-19. The district began the 2020-2021 school year on time using face-to-face instruction with few restrictions. At one time, there were a high number of COVID-19 cases in the county, at which point the district mandated facemasks at all times even when social distancing. Social distancing requirements impacted the study, as one small group rotation was designed for students to pair up and work on skills using manipulatives would be shared with other groups. To manage the roadblock of working in small groups, the researcher found clear plastic shields for the classroom teacher to use during the

group station. Although the shields made working with students a little more difficult, it allowed them to still work in small groups.

A final limitation was the number of factors affecting student attendance over the duration of the study. Students missed lessons not only due to COVID-19 factors (illness or contact tracing), but they also missed class because of school related activities and snow days. Late starts due to weather minimized the amount of time students were able to spend in their station rotations.

Further Study

Past research has looked at impacts of blended learning over a school year as well as over multiple years. These studies have focused on the early elementary grades. It would be interesting to research the benefits for students in the upper elementary grades. Another factor affecting longitudinal studies is summer slide (Macaruso et al., 2019), especially true for low performing students. Summer slide was a factor to consider in the longitudinal study mentioned, but future studies will need to investigate if summer learning programs can mitigate the effects of summer slide.

Whereas it is encouraging to see the impact blended learning has had on subpopulations, such as EL students and students from low SES backgrounds, it is important to remember some of these results come from studies of a low sample size. As more research is conducted, the case for blended learning approaches improving student participation, preparation, and understanding can be strengthened.

Conclusion

Students prefer learning experiences involving action and opportunities of discovery. Most students are not able to learn concepts on their own, which is why it is imperative for teachers to be creative in their instructional strategies and how they establish their classroom environments. A blended learning approach incorporating station rotations is a way educators can add discovery and differentiated instruction into their classrooms. This study set out to determine if the station rotation model can increase student FastBridge test scores and help students meet 2nd grade standards in Lexia Core5, as well as if the station rotation model can better meet the needs of students through small group instruction.

The study confirmed the station rotation model can increase 2nd grade students' FastBridge test scores. The combination of whole group instruction, small-group instruction, technology, and independent practice provided real-time feedback for the teacher. This allowed the teacher to make modifications for the entire class as well as individual learners.

The structure of station rotations provided the classroom teacher with ample time to incorporate Lexia Core5 consistently as a technology station. Prior to station rotations, the students were allowed to work on Lexia Core5 at random times throughout the day if time allowed. This type of structure did not allow students a setting where they could effectively use the program and experience success. Through the change in format and the execution of blended learning and station rotations, students were provided with a 20-minute station dedicated solely to Lexia Core5. This directed time proved to be pivotal in the effectiveness of Lexia Core5. Students met more skills in less time compared to the control group.

Overall, this study showed station rotations can have a positive impact on second grade students' reading scores. There are many different instructional models teachers can utilize in their classrooms, but blended learning has proven to be successful. The combination of teacher-led, small group, and technology stations can meet the needs of diverse learners, specifically in the area of elementary reading instruction.

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Appendix A

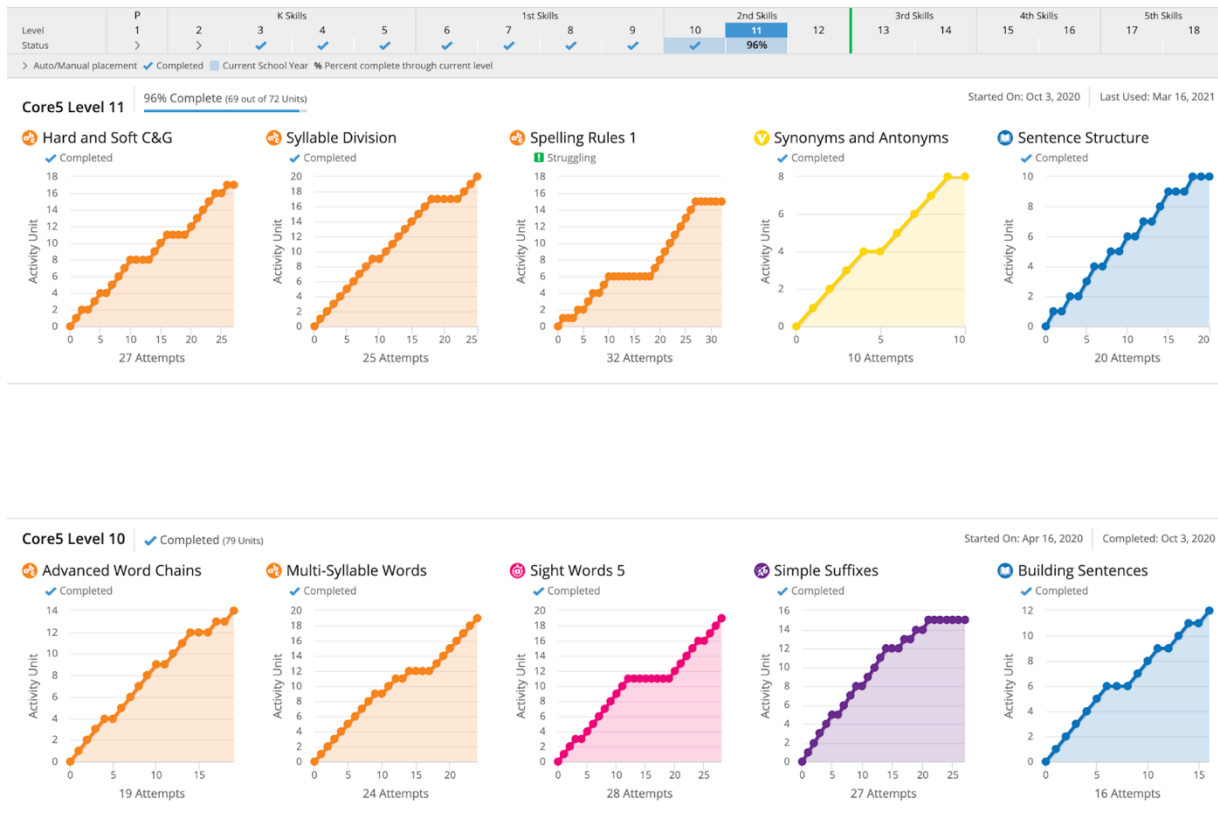
Sample Group aReading FastBridge Report

Fall Score	Winter Score	Spring Score	School %ile	District %ile	National %ile
482	☆ 501		82	82	72
☆ 500	☆ 519		99	99	95
☆ 500	☆ 509		88	88	86
! 452	! 476		24	24	31
! 457	! 468		3	3	21
! 455	! 470		9	9	23
☆ 488	491		58	58	56
!! 442	! 475		21	21	30
☆ 506	☆ 509		91	91	86
	! 477		27	27	33

Note. This report shows a group of students’ aReading test scores from the fall and winter FastBridge scores. Exclamation marks indicate students who are not proficient.

Appendix B

Sample Student Core 5 Skills Report



Note. This report shows a second grade student working on second grade content (Level 11).

The report detail shows that this student struggled with spelling rules and was in need of small group instruction.