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Effects of Educational Games on Sight Word Reading Achievement and Student Motivation

Justine M. Gibbon, Stacy Duffield, Jeanette Hoffman, & Justin J. Wageman

Abstract: Nine first-grade children at risk for reading failure were selected to participate in remedial reading interventions. These first-grade students scored below benchmark target and grade level expectancies on measures of early reading skills, including AIMSweb Nonsense Word Fluency and Northwest Evaluation Association Measures of Academic Progress (NWEA MAP) for Primary Reading, or received a teacher referral based on oral reading fluency scores. Interventions occurred four times a week for 11 weeks, and included 10 minutes of direct phonemic awareness instruction and 10 minutes of sight word games. Data were collected on students' oral reading fluency, sight word identification, and motivation to read. Students were found to be more engaged and voiced a preference for sight word card and board games over the tablet apps. Results indicated that games as interventions can accelerate sight word learning and are highly effective for sight word achievement in first-grade students when combined with direct instruction on phonemic awareness. The participants improved at a rate double that of previously studied, remedial first-grade students. Results also indicated that intervention games in remedial reading programs have a direct impact on student engagement, but not necessarily on a student's self-concept as a reader.

Keywords: at risk, beginning reader, sight words, sight word games, motivation



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Many students who struggle with learning how to read are placed into remedial reading programs to advance their¹ reading skills and help them catch up with grade level peers (Quirk & Schwanenflugel, 2004). In every classroom there are students who fall academically behind their peers and, year after year, the gap grows larger (Juel, 1988). Stanovich (1986), who described the widening gap between struggling readers and their peers as the Matthew effect in reading, best illustrates the importance of early intervention. He explained that children who experience early success in reading are more likely to seek out additional opportunities to read and will subsequently become even better readers. However, poor readers who struggle with learning to read often avoid reading, reducing their opportunities to improve. Struggling readers must be provided with opportunities to close the achievement gap before the gap widens.

Many researchers have discovered that early interventions can be effective under certain conditions. Gibson (2010) found that an early intervention program's success was dependent on three variables including the expertise level of the interventionist, the teacher's ability to analyze results of formative assessments, and the teacher's ability to revise and adjust instruction. Other researchers found that successful early intervention programs must include the following three major components: a monitoring system to assess student progress and growth, intense instruction with low student-teacher ratio, and explicit instruction for phonemic awareness and alphabetic principle (Menzies, Mahdavi, & Lewis, 2008). Additionally, students need to be motivated to learn to read. Researchers have confirmed the importance of motivation in literacy learning (see Saunders, 2013; Seglem, Witte, Beemer, 2013; Wall, 2014). Gambrell, Palmer, Codling, and Mazzoni (1995) identify two components of reading motivation: value for reading and

¹ We acknowledge that there is a gender spectrum and that myriad pronouns exist that we can use when referring to individuals in our writing. Throughout this article we will use the gender--neutral pronoun "they" in

an effort to recognize the fluid nature of identity and to not make assumptions about the ways that individuals identify or refer to themselves.

self-perceived competence, also termed self-concept.

The purpose of this action research study was to explore the effectiveness of an early intervention method to teach first-grade students how to identify sight words in isolation and in text. The researchers examined the use of games as an early intervention strategy to increase motivation, building upon established research about motivation and best practices in remedial reading interventions.

The Context of This Study

The first author of this work has been an elementary remedial reading teacher for five years in a small, rural school in the upper Midwest, working with students in kindergarten through sixth grade. In 2009, the Response-To-Intervention (RTI) team at this school began to address word-reading difficulties of students by adding the AIMSweb Reading benchmarking program from Pearson PLC. Through this program, approximately 400 elementary students are screened three times a year using the reading fluency benchmark assessments. Since AIMSweb is a nationally normed assessment, students who score below the 25th percentile are identified as at-risk for reading failure.

When students qualify for remedial Title I services, their strengths and areas of need are identified through assessment such as sight word inventories, phonemic awareness assessments, spelling surveys, or running records, detailed data analysis of standardized assessments such as Northwest Evaluation Association Measures of Academic Progress (NWEA MAP) and AIMSweb, and classroom teacher input. After individual student needs

are identified, interventions and activities are planned that address those specific needs. Students are provided with instruction that helps them develop study skills, reading strategies, and other learning tools. Students' reading progress is measured through a variety of assessments, and instruction is adjusted as needed. Reading fluency is measured weekly by documenting words read correctly (WRC) per minute and by calculating the rate of words improved per week.

The main objective of this remedial program is to assist students in achieving grade level reading expectations, such as scoring above the 25th percentile on AIMSweb benchmarks and receiving satisfactory or "on-target" mark on their classroom report card. Most first-grade students identified for remediation struggle with sight word acquisition and retention, especially in the first half of the school year. Some of these students continue to struggle year after year with expected fluency growth. Their inability to identify sight words in isolation or in text impedes their reading fluency and comprehension and eventually leads to frustration and loss of self-confidence. Learning to read can be a frustrating and discouraging experience for children who struggle with basic reading skills (Charlton, William, & McLaughlin, 2005). With this in mind, we questioned if basic reading skills could be learned in a way that made the learning experience more enjoyable and reduced frustration. This action research study, therefore, explored the effectiveness of educational games on sight word knowledge and retention in first-grade students, and the effects educational games had on struggling students' motivation. We seek to answer the following two questions:

1. What are the effects of sight word intervention games in remedial reading programs on sight word reading achievement in first-grade students?
2. What are the effects of intervention games in remedial reading programs on first-grade student motivation?

Relevant Research on Supporting Struggling Readers

It is well known that struggling readers need extra support and practice before mastering common sight words frequently found in print (Charlton et al., 2005). However, struggling readers who have not mastered basic reading skills, such as phonemic decoding skills, may need more support to become motivated readers (Ehri, 1998; Menzies et al., 2008; Quirk & Schwanenflugel, 2004). Also, children in their first years of schooling often over-estimate their reading abilities and may not be aware if they are reading below grade level (Coddington & Guthrie, 2009; Fives et al., 2014).

Repetition and multiple exposures to new words, up to 15 times, are crucial to vocabulary development (Allen, 1999; Marzano, Pickering, & Pollock, 2002) and struggling readers need even longer and more repeated exposure to new words and skills (Ehri & Saltmarsh, 1995; Golick, 1973). However, such students often become bored of drills or tire of practice.

Most remedial teachers face the challenge of keeping students' anxiety and frustration at bay while encouraging them to stretch their

understandings by practicing new skills. These children consider reading to be complicated and may become discouraged with school. Therefore, it is necessary to include a motivational component in remedial reading programs that will help students to maintain, and possibly increase, gains in conjunction with participation in a supplemental reading program (Quirk & Schwanenflugel, 2004).

Sight Words

In addition to the concerns of fostering reading motivation, students need to develop fluency. Sight word acquisition is an important component of fluency. Sight words are high frequency words that a strong reader will automatically read from memory by sight without decoding (Ehri, 2005). A major obstacle all beginning readers must face is learning to read words automatically and accurately from memory (Ehri, 2014), because the automatic recognition of words without pausing leads to better reading fluency and comprehension.

Children are taught to read words in several ways. According to Ehri (1998, 2014), there are four strategies beginners use when reading unfamiliar words. In the first, readers use their alphabetic knowledge to apply a decoding strategy. Decoding involves sounding out the letters and blending them into sounds. The second strategy for reading unfamiliar words is analogy. Analogizing involves finding in memory a similar spelling of a familiar word to read the unknown word.

“Most remedial teachers face the challenge of keeping students' anxiety and frustration at bay while encouraging them to stretch their understandings by practicing new skills.”

For example, reading fall by its similarity to ball. Another strategy for reading unfamiliar words is by prediction. Readers use initial letters, picture clues, or context clues to anticipate what the unknown word might be. Finally, words that have been read before are read from memory. In the fourth strategy, these words are referred to as sight words because the sight of the word is retrieved automatically from memory.

Research suggests the most effective way to learn sight words is not to memorize the shape or visual features, but rather involves phoneme awareness, or a conscious effort to bond letters to the sounds. Letter-sound correspondences are the tools the brain uses to form connections (Clay, 1991; Ehri, 1992, 1998; Morris, Bloodgood, Lomax, & Perney, 2003). However, some children have difficulty creating those connections between print and speech, and they may require additional practice before mastering sight word learning (Ehri & Saltmarsh, 1995). Sight word practice can be approached in a variety of ways, but one approach that may address both practice and learning motivation is educational games.

Motivation and Educational Games

Games provide a way to keep students engaged and motivated in thinking about and applying concepts and skills, and increase student attention and motivation through active engagement and hands-on participation (Wells & Narkon, 2011). As Golick (1973) stressed, children must take an active part in the learning process. The relatively risk-free environment leaves the student free to practice new skills in a fun, structured learning environment. Past research has shown reading achievement is directly related to a student's motivation to

read. Morgan and Fuchs (2007) reviewed and tested existing evidence of a bidirectional relationship between reading skills acquisition and motivation. They reported a reliable correlation between children's reading skills and feelings of motivation. Students who are actively engaged in the reading process use essential reading skills while experiencing enjoyment and fun. Reading practice is not only essential in becoming a proficient, motivated, and engaged reader (Gambrell, 2011; Sullivan et al., 2013), but also in providing an environment that motivates students to become active participants in their learning.

Kang and Tan (2014) found educational games in the classroom to be intrinsically motivating for students, and that the motivation extended or transferred to the subject matter itself. When students are provided the opportunity to learn through games, intrinsic motivation is created by the activity itself; no external factors, like rewards or punishments, are necessary (Deci & Ryan, 2002). Providing learners with a choice of activity can also increase their enjoyment and motivation (Deci & Ryan, 2002; Saunders, 2013; Turkay, Hoffman, Kinzer, Chantes, & Vicari, 2014). Students who had more opportunities to choose the learning game exhibited more intrinsic motivation and enhanced engagement (Cordova & Lepper, 1996; Turkay et al., 2014). Using games in curriculum ensures all participants are winners because all have the opportunity for involvement and engagement in a fun learning experience (Allery, 2004).

Students need variety in repetition to make the learning experience meaningful. Educational games can provide that variety and give students an interesting and hands-on learning experience. Sight word games

provide beginning readers with multiple repetitions of high frequency words essential for reading success. For students who struggle with reading, variety in sight word repetition is important to promote engagement and motivation, and is a key element in creating a meaningful learning experience, as it keeps students interested, gives meaning to the word acquisition process, and provides a hands-on learning experience (Allen, 1999; Garris, Ahlers, & Driskell, 2002). Games add an element of fun to the learning process allowing the student to relax and feel comfortable with expressing ideas or feelings. However, in order to be effective, educational games must include a clear goal that is consistent with a learning objective. If designed with an instructional goal in mind, games can provide effective instruction.

Methods

The research team designed a quantitative action research study to be carried out in Justine's classroom using the established premise that educational games can increase both learning and motivation. The action research framework provided the opportunity for deep investigation of classroom practice. Sagor (2000) suggests that the main impetus for conducting action research is for improving educational practice. He also clarified that action research is conducted not only by, but also for the researcher. The research team included a classroom teacher and researchers from a nearby university who have experience with reading instruction and assessment. Through action research, "practitioners look systematically at ways to deal with issues they are close to" (Hendricks, 2006, p. 3). The researchers followed the seven-step inquiry process described by Sagor (2000) that includes the following: selecting

focus, clarifying theories, identifying research questions, collecting data, analyzing data, reporting results, and taking informed action. The type of data collected is determined by the purpose of the study and can be qualitative or quantitative in nature. Hendricks pointed out that there has been debate about the usefulness of action research for advancing knowledge but argued that because "practitioner studies study context...it is reasonable to conclude that their results are applicable to settings with similar contexts" (p. 5).

Participants and Setting

This study took place October 2015 through December 2015 in a small, rural district that serves several nearby communities. There is a single elementary school for grades kindergarten through six with approximately 400 students. About 97% of the students in the district are White. The district meets qualifications for targeted Title I services, which allows point-based selection and teacher referral. At the time of the study, there were 72 children in the first grade, and 9 children qualified for Title I services. These first-grade students were identified as at-risk for reading failure scoring below benchmark target and grade level expectancies on measures of early reading skills such as AIMSweb Nonsense Word Fluency and NWEA MAP for Primary Reading, or they received a teacher referral based on oral reading fluency score (words read per minute). Participants included four female and five male White students from four first-grade classrooms.

Intervention Procedures

The U.S. Department of Education (Gersten et al., 2009) recommends intensive small group instruction for students who score below the benchmark target on universal screenings.

These small groups should meet between three and five times a week for 20 to 40 minutes. Following these recommendations, the intervention sessions took place four times a week for 20 minutes each session. The remedial reading sessions were scheduled during non-instructional time, so students did not miss core classroom instruction from their primary teacher. During the 20-minute session, students received 10 minutes of direct sight word instruction from Justine, the remedial reading teacher. Students progress faster in reading when they are taught to analyze speech sounds (Moats, 1995).

Therefore, Justine purposely provided explicit instruction on phonemic awareness in order to strengthen alphabetic knowledge and increase word identification skills, which included blending and segmenting activities.

Phonemic awareness provides struggling readers with the tools necessary to break the code, so students were referred to as Word Detectives. Word Detective time included listening to sounds that make up a word and blending those sounds. For example, the word

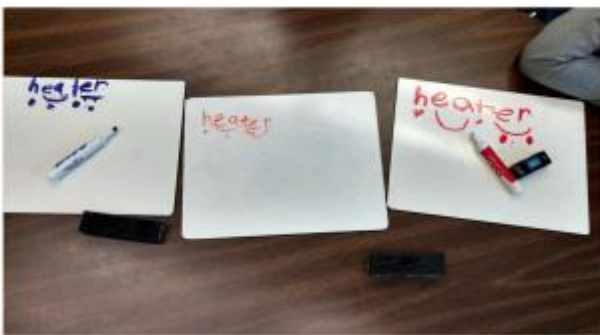


Figure 1. Students' phonemic awareness detective word

/h/.../ea/.../t/.../er/ was stretched, students would listen, blend the word, and write the word *heater* on their white board (see Figure 1). During Word Detective time, students would also be responsible for segmenting a given word. For example, as a flashcard was held up with the word *look* on it, students would read the word out loud, segment the word /l/.../oo/.../k/, and count the sounds. As students became increasingly skilled at identifying phonogram teams representing one sound (e.g. /ea/ makes the long e sound), they would copy more complex words and use Word Detective skills to break down tricky words they might come across in reading.

The supplemental instruction also included reviews of common phonograms such as *th*, *wh*, *sh*, *ee*, *ay*, and *er* that represent phonemes frequently found in the district's reading text, Houghton Mifflin Harcourt's *Journeys* (2014), with an emphasis on the Unit I and Unit II high frequency words as well as 1st 100 Fry, and Dolch word lists. After 10 minutes of explicit sight word instruction, students participated in 10 minutes of sight word games.

Once students were familiar with classroom routine and expectations, Justine differentiated the intervention sessions for optimal learning experience. Minor adjustments were made in student grouping based on words-per-minute fluency and sight word inventory accuracy rates for a homogeneous approach. The sight word games also varied depending upon students' abilities. The lowest performing group played sight word games with single word repetition for a longer period of time, and the higher performing groups progressed to games with sight word phrases or games including more difficult words from the Dolch or Fry word list. Students also had opportunities to choose

sight word games to increase student engagement and intrinsic motivation. The games utilized in this study provided students with repetition and repeated exposure of high frequency words from the curriculum materials used in the classroom.

Sight Word Games

The educational games selected for this study were carefully considered based on several criteria. They had to include opportunities for many repetitions of sight words appropriate for beginning readers, they had to be age appropriate, and games were excluded if the word list did not include a majority of sight words from *Journeys* Units I and II, Fry 1st 100 word list, or Dolch word list. Additionally, games were excluded if directions were too complex for students to understand in a short amount of time, did not provide students with a challenge, or mirrored a drill and practice activity.

Card games. Teacher-made card games such as Pop for Sight Words, Smelly Socks, Fry Baseball List 1, Boom, Zap, and Snowman Slap for students to play with in this study. These games involve students taking turns drawing a card and reading the sight word or sight word phrase aloud. If they read it correctly, they get to keep the card. But if it is read incorrectly, they have to put the card back in the pile. Play continues until someone draws a card directing that all cards must all be returned to

the pile.

Board games. Board games included games such as BINGO, [Sight Word Checkers](#), and [Zingo!® Sight Words](#). Zingo!® Sight Words is a game patterned from the familiar game, BINGO.

Tablet apps. Lastly, several sight word apps were incorporated into this study because Justine’s previous experience with first-grade students revealed that tablet time was motivational and a great incentive. A variety of apps from iTunes were downloaded to a tablet. Although a different format, the tablet games were chosen with the same criteria as the board and card games. Apps were excluded if directions were too complex for students to understand in a short amount of time. Examples of sight word apps used for this study included [Tablet Sight Word List – Learn to Read Flash Cards and Games](#), [Sight Words 2: 140+ Learn to Read Flashcards and Games App for Kids](#), [Sight Words by Little Speller](#).

Instrumentation

Several sight word data collection instruments were used. AIMSweb is an online data measurement system offered from Pearson (2015). The tool from AIMSweb called Reading-Curriculum Based Measurement, or R-CBM, was used to monitor reading fluency. The R-CBM is a standardized oral reading fluency assessment that is administered for



Figure 2. MRP=R student answer visual aid for positive feelings to negative feelings

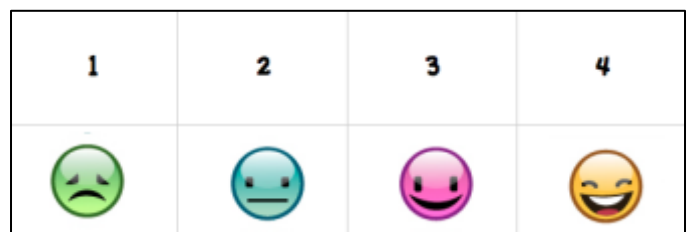


Figure 3. MRP-R student answer visual aid for negative feelings to positive feelings

benchmarking in the fall, winter, and spring and for progress monitoring throughout the school year. On the benchmark assessment, atypical first-grade student will read 6-13 words correctly per minute in the fall and 19-36 words correctly per minute in the winter.

AIMSweb progress monitoring probes are used for frequent checks of progress for students identified as at-risk. The grade level probes are oral reading passages ranging from kindergarten through eighth grade. All Title I students are monitored at instructional level or learning level, and the first-graders in this study were monitored at their learning level with kindergarten progress monitor probes. The probes were not created or modeled after a specific sight word list such as the Dolch or Fry word list, therefore, a variety of sight word games were used in this study to provide students with the experience needed to succeed with classroom reading activities and outside reading materials.

Justine measured students' reading achievement in the regular education classroom by individual guided reading levels. Students' guided reading, or instructional reading levels, were identified through the use of the Fountas and Pinnell (2012) guided reading leveling system, which ranges from A to Z, with A representing the lowest level of rigor expected from a reader and Z representing the highest level. A typical first-grade student enters first grade at a level C or D and graduates to second grade at a level J (Fountas & Pinnell, 2012). Although each child learns to read at an individualized pace, first-grade students who meet grade-level expectations will read at level D or E in December. In addition to the guided reading level system, Justine administered a teacher-made sight word inventory three times

throughout the study. The sight word inventory included the first 70 high frequency words listed in Units I and II from the first-grade *Journeys* reading curriculum.

Student motivation was measured in two ways. At the beginning and conclusion of the study, a modified version of the Motivation to Read Profile-Revised survey or MRP-R (Malloy, Marinak, Gambrell, & Mazzoni, 2013) was administered. The MRP-R is an instrument designed to provide teachers with a dependable and efficient way to assess reading motivation in the classroom. The MRP-R was adjusted to provide a user-friendly survey appropriate for first-grade readers, without interfering with the integrity of the original survey. The modifications included an auditory presentation of the questions, visual aids to illustrate feelings (see Figures 2 and 3), and large fill-in the bubble recording sheets (see Figure 4).

All questions and answers administered as a part of the MRP-R remained the same and in the same order. Each question with answer choices was read aloud, and students were provided with a large fill-in the bubble-recording sheet for their answers. As each question was read aloud, a face rating scale was held up to provide a visual aid for students' answer choices. Figure 2 represents pictures corresponding to the answers from

1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	2	3	4
2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	2	3	4
3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	2	3	4

Figure 4. Sample MRP-R student fill-in the bubble recording sheet

questions 1, 3, 4, 7, 8, 10, 15, 16, and 20 that are worded from strongest positive feelings to strongest negative feelings, and Figure 3 represents pictures corresponding to the answers from questions 2, 5, 6, 9, 11, 12, 13, 14, 17, 18, and 19, which are worded from negative to positive.

Motivation was also measured with a performance checklist created by the researchers. Categories noted students' cooperation, respect, direction following, participation, on-task behavior, and attitude. Justine filled out one checklist for each student at the conclusion of the session. This checklist provided researchers a structured guide for reflection on students' behavior. To record time on task, it was noted if students were engaged during the 10 minutes of play. If they did not require any redirection, they were considered on-task the whole time. However, if students were redirected once during the 10 minutes of play they were considered on-task most of the time; or if they needed 2 to 3 redirections, they were considered on-task some of the time. The researchers determined that observation provided a reliable tool in identifying time on task given the short duration of the session and low student-teacher ratio.

Data Collection

The researchers used three measures to answer the first research question, "What are the effects of sight word intervention games in remedial reading programs on sight word reading achievement in first-grade students?" The primary measure was the sight word inventory, which was administered three times throughout the course of the study. The second measure, AIMSweb R-CBM, measures oral reading fluency, which indirectly

measured sight word acquisition. It was administered weekly. For increased validity, the guided reading level was used as the third measure to show students' reading growth. Guided reading levels were assessed in October and December.

We used two measures to answer the second research question, "What are the effects of intervention games in remedial reading programs on first-grade student motivation?" First, students were surveyed at the beginning and conclusion of the study using the MRP-R. Second, to gain insight and perspective on each student's motivation for reading and playing games, and the relation between motivation and type of game used, a performance checklist was used to document students' behavior each session. There were 32 total sessions, and the students participated an average of 29 times.

Findings

The main interests of this study were motivation and academic progress made by struggling first-grade readers who participated in sight word intervention games. Descriptive statistics were determined to be the most useful way to summarize the findings and data from this study. Frequencies were used to describe the oral reading fluency scores including the number of errors read and rate of improvement, students' guided reading level, and the observational checklist. Percentages were calculated for the MRP-R and time-on-task observation. Both frequencies and percentages were used to illustrate the academic gains and losses recorded on the sight word inventory.

Sight Word Achievement

Table 1 presents sight word acquisition data. Changes can be seen by comparing the baseline R-CBM score (M = 6 WPM) to the ending R-CBM score (M = 40 WPM).

Development and advancement in sight word knowledge can be observed from the accuracy percentages on the sight word inventory administered three times during the study (M = 55%, M = 84%, & M = 98%). Classroom achievement in reading was measured by student's guided reading level, and 89% of students met classroom expectation of D or E (Mo = D).

Table 2 summarizes the participants' AIMSweb R-CBM oral reading fluency ROI goal and the actual ROI trend. It also compares the ROI goal mean and actual ROI mean to previous first-grade remedial reading students from the past four years. The actual ROI trend for previous students was calculated within a timeframe similar to the study's participants, September through December.

An average student (25th percentile to 75th percentile) will improve by 0.94 to 1.83 words per week. The formula used to calculate a struggling first-grader's R-CBM oral reading fluency goal (Baseline Score + [# of weeks x ROI]) will typically include a ROI of 0.94 to 1.5.

The ROI goal is the slope of the goal line. This ROI goal is the rate a student should be able to maintain in order to reach the end of the year goal. During goal setting, the AIMSweb system provides the ROI percentile associated with the goal selected, which can help avoid setting a goal too easy or too difficult to achieve. In general, students with a very low baseline score tend to have lower ROIs unless they are receiving supplemental instruction.

Some teacher discretion must be used during the goal setting process. The amount of growth needed to reach proficiency and a student's past performance should be considered when selecting a ROI goal.

The participants' initial ROI goal ranged from 0.97 to 1.18, and actual ROI growth ranged from 1.20 to 3.96. The actual ROI trend was considerably higher (M = 2.81) than the ROI goal (M = 1.10). There was also a considerable difference between previous first-grade remedial reading students' actual ROI (M = 1.39) and the participants' actual ROI (M = 2.81).

Motivation

The MRP-R assesses two essential components of motivation to read: a student's self-concept as a reader and the value of reading. At the beginning of the study, students' self-concept ranged from 75% to 100% (M = 86.6%), and the value of reading ranged from 60% to 100% (M = 94.1%). At the conclusion of the study, the students were surveyed again to assess their motivation to read. Students' self-concept ranged from 60% to 93% (M = 80.5%), and the value of reading ranged from 73% to 98% (M = 83.4%). The mean total at the beginning of the year was 85.3%, and the mean total at the end of the year was 81.8%, indicating there was a -3.5% decrease in motivation to read.

The items for which students most frequently picked a negative response were items 4 ("My friends think reading is: really fun, fun, OK to do, or no fun at all"), 5 ("I read: not as well as my friends, about the same as my friends, a little better than my friends, or a lot better than my friends."), and 6 ("I tell my friends about the good books I read: I never do this, I

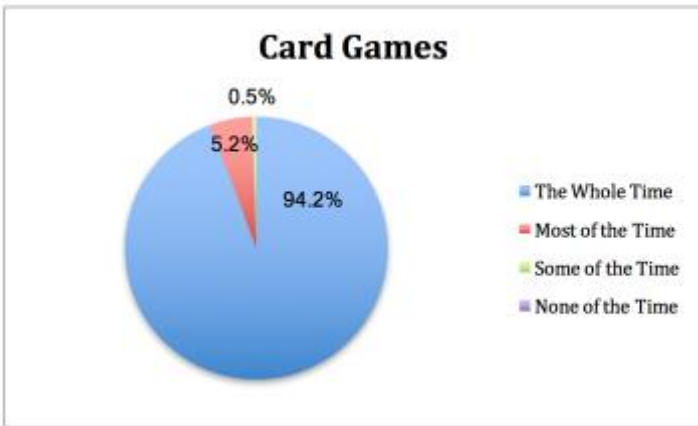


Figure 5. On-Task Behavior During Card Games

almost never do this, I do this some of the time, or I do this a lot.”) on both the beginning and exit survey. These items are peer related. Each question had a total of six or seven negative responses, whereas, other questions ranged from 0-4 negative responses (Mo = 3). A complete list of MRP-R questions can be found in Appendix A.

Students’ value of reading remained virtually stagnant with a percent change of -.5%, but self-concept as a reader regressed -7.9%. The student with the most noticeable difference was Hunter, who decreased 40% in self-concept. Hunter was later diagnosed with ADHD. Table 3 provides an overview of the MRP-R results from the beginning of October and end of December.

On-Task Behavior. The performance checklist included categories for cooperation, respect, direction following, participation, perseverance, on-task behavior, and attitude. When the checklists were totaled and categorized by students, there were little to no differences between student behaviors except in one category, on-task behavior. Table 4 summarizes students’ on-task behavior during all categories of sight word games.



Figure 6. On-Task Behavior During Board Games

When the checklists were totaled and categorized by type of game (board, card, or tablet), there were little to no differences between types of game except in one category, on-task behavior.

During the time spent playing sight word card games, students were categorized as on-task the whole time 95.6% of the time (see Figure 5), as opposed to the time spent playing sight word board games, where students were categorized as on-task the whole time 93.8% of the time (see Figure 6). Figure 7 shows that during the time spent playing sight word apps on the tablets, students were categorized as on-task the whole time only 84.8% of the time.

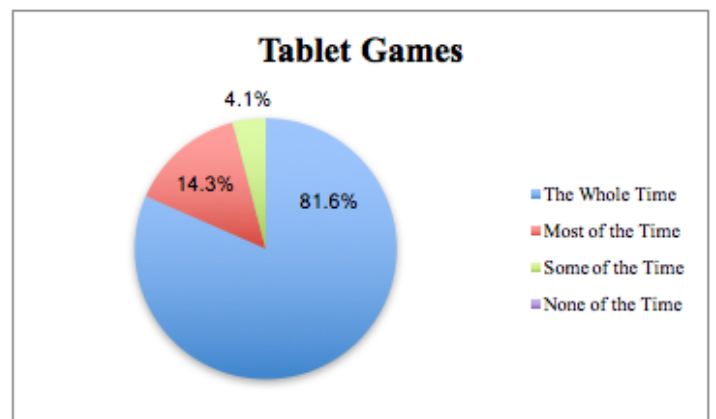


Figure 7. On-Task Behavior During Tablet Games

Discussion

Consistent with past research, the results of this study indicate sight word intervention games in remedial reading programs are highly effective on sight word achievement for first-grade students (Dickerson, 1982; Erbey et al., 2011; Ersland, 2014; Kaufman et al., 2011; McLaughlin et al., 2009; Sullivan et al., 2013). Participant's WPM advancement was remarkable, averaging 2.84 words per week. Previous first-grade remedial students improved at a rate of 1.39 words per week, indicating the children in this study progressed in oral reading fluency twice as fast as previous remedial students at the same school. Eight out of nine participants also achieved at least 96% mastery of the sight word inventory and reached the classroom guided reading level expectations of D or E.

This research supports the findings of Menzies et al. (2008) that struggling readers can benefit greatly from early intervention and additional practice, and games as interventions can accelerate sight word learning considerably when they are combined with direct instruction on phonemic awareness. Similar to the studies of Clay (1991), Ehri (1992, 1998), and Morris et al. (2003), the results of this study verify direct instruction on phonemic awareness is essential for sight word development in first-grade students. Substantial gains were made in words read per minute in late November and throughout December. During this time, students gained proficiency in sight word recognition and word decoding abilities. Words read per minute can fluctuate from week to week depending on a student's background knowledge of the passage and student's current wellbeing. However, as the participants made large gains in WPM, growth was continual and unwavering. By the end of the study, the participants averaged 40

WPM. As Griffith and Olson (1992) pointed out, phonemic awareness provides struggling readers with tools to break the code in reading. As supported by past research (Charlton et al., 2005; Dickerson, 1982; Erbey et al., 2011; Ersland, 2014; Falk et al., 2003; Kaufman et al., 2011; Koran & McLaughlin, 1990; Meadan et al., 2008; Sullivan et al., 2013; Wells & Narkon, 2011), the findings of this study indicate that sight word games are highly engaging and provide students with an environment for active learning that motivate active participants. Overall, the participants were categorized as on-task 90.1% of the time. Contrary to the research of Getting and Swainey (2012), students were 10.4% less likely to be documented for being on-task the whole time while playing tablet sight word apps compared to traditional card and board games. Students were observed as on-task the whole time 95.6% of the time during sight word card games and 93.9% of the time during sight word board games, whereas, students were categorized as on-task the whole time 84.8% of the time while playing tablet sight word apps.

Students were more engaged and voiced a preference for the sight word card and board games over the tablet sight word apps. This might be explained by the 1:1 ratio of tablets in the school's first-grade classrooms and students becoming desensitized to the stimulation of tablet games, or simply because tablet games are an individual experience and are, therefore, less desirable to the students than the social experiences afforded by traditional card and board games.

The results of this research also indicate that intervention games have a direct impact on student engagement, but not necessarily on a student's self-concept as a reader. The

findings of the MRP-R survey revealed students' self-concept as a reader decreased - 7.9%. This outcome is explainable by the hypothesis that children's perception of their reading abilities will be inflated in the first years of schooling (Coddington & Guthrie, 2009; Fives et al., 2014) but gradually decreases as children get older (Mata, 2011) and become more aware of their abilities in relation to peers. The researchers noted that the first grader students in this study were highly aware of their guided reading level and often compared their reading level to their peers, noting their own much lower level. Additionally, Kaniuka (2010) found at-risk students who participated in remedial programs had significantly higher scores with regard to value for reading and self-concept as a reader. This suggests that children start school with a deflated sense of self-concept, which naturally decreases over time. It is likely that the length of this study did not allow enough time for student perceptions to rebound. However, it is important to note, self-concept will decrease more rapidly if reading difficulties persist over time and remedial support services are not provided. Remediation is essential for a struggling reader's success because the more one reads, the better reader one becomes (Gambrell, 2011; Juel, 1988; Stanovich, 1986).

Sight word games were a powerful intervention tool for sight word achievement and engagement in this study. Participants advanced in their oral reading proficiency two times faster than previous remedial students, and overall, they were on task 90.6% of the time. However, participants regressed in their

self-concept as a reader, an important aspect of student motivation that sight word games did not positively affect.

Limitations of the Study

There were limitations in this research. The sample size was limited to 9 participants. The elementary students in this study varied in gender, but participants were not racially diversified, as all students were White. Geographic location was also limited to a small, rural school district in the upper Midwest. Not unlike other research, this study was also vulnerable to bias and subjectivity in assessment practices. In addition, the researchers align with student-centered

instructional practices, which brought them into the study with the belief that using games to promote literacy learning had a reasonable likelihood of success.

Conclusion

Several implications emerge from these findings. Providing children with engaging sight word games coupled with direct phonemic awareness instruction will result in accelerated sight word growth and acquisition. Participant's WPM advancement was noteworthy, averaging 2.81 words per week, whereas previous first-grade remedial students improved at a rate of 1.39 words per week, indicating the children in this study progressed in oral reading fluency twice as fast as previous remedial students at the same school.

Unfortunately, even as struggling first-grade students are supported with remediation and improve upon sight word achievement and

“Student engagement stems from the active challenge and social interaction experiences during the play of the game.”

reading fluency, these children will experience a decrease in self-concept over time. This may be due to the comparisons that are naturally made during certain types of educational games. An interesting finding is that students preferred games of group practice in this study. During these social interactions, students were able to compare their abilities to their peers, resulting in a more realistic perception of their self-concept (Coddington & Guthrie, 2009; Fives et al., 2014; Mata, 2011).

Finally, as classrooms fill with technology, it is important to note that students are not

necessarily more engaged with devices in hand. Student engagement stems from the active challenge and social interaction experienced during the play of a game. Tablet games are an individual experience and are, therefore, less desirable to the students than the social experience afforded by traditional card and board games.

The task of teaching reading is complex, but teachers must not overlook other contributing factors to a student's success such as building confidence, engagement, and fun.

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Table 1

Summary of 1st Grade Remedial Students' Sight Word Achievement

Student Pseudonym	Beginning WPM	End WPM	Sight Word Inventory #1	Sight Word Inventory #2	Sight Word Inventory #3	Beginning Guided Reading Level	End Guided Reading Level
Peter	8	27	49%	81%	97%	A	C
Jaxon	7	43	71%	83%	99%	B	D
Crystal	3	35	39%	76%	96%	A	D
Hunter	9	35	53%	94%	100%	B	D
Kurt	4	43	66%	93%	100%	B	D
Faith	3	45	43%	81%	93%	B	D
Paula	6	45	59%	84%	99%	C	E
James	4	46	50%	79%	97%	C	E
Harper	9	40	64%	89%	100%	D	E
Mean	6	40	55%	84%	98%		
Mode						B	D

Table 2

Summary of rate of improvement for words read correctly per week

Student Pseudonym	ROI Goal	Actual ROI
Peter	1.15	1.20
Jaxon	1.09	2.74
Crystal	1.18	2.91
Hunter	1.09	2.35
Kurt	1.09	2.82
Faith	1.18	3.12
Paula	1.18	3.82
James	0.97	3.96
Harper	0.97	2.63
Mean	1.10	2.84
Previous Students	1.16	1.39

Table 3

Summary of Participants' MRP-R Scores

Student Pseudonym	Beginning MRP-R Score			End MRP-R Score			Percent Change	
	Self- Concept	Value	Total	Self- Concept	Value	Total	Self- Concept	Value
Peter	85%	90%	88%	75%	83%	79%	-11.8%	-7.8%
Jaxon	90%	88%	89%	88%	78%	83%	-2.2%	-11.4%
Crystal	93%	100%	96%	85%	90%	88%	-8.6%	-10.0%
Hunter	100%	85%	93%	60%	83%	71%	-40.0%	-2.4%
Kurt	80%	70%	75%	78%	73%	75%	-2.5%	4.3%
Faith	93%	93%	93%	90%	88%	89%	-3.2%	-5.4%
Paula	98%	88%	93%	93%	98%	95%	-5.1%	11.4%
James	65%	80%	73%	68%	78%	73%	4.6%	-2.5%
Harper	75%	60%	68%	88%	80%	84%	17.3	33.3%
Mean	86.6%	94.1%	85.3 %	80.5%	83.4%	81.8%	-7.9%	-1.5%

Table 4

Summary of Participants' On-Task Behavior

Student Pseudonym	The Whole Time	Most of the Time	Some of the Time	None of the Time
Peter	96.0%	3.7%	0%	0%
Jaxon	96.7%	3.7%	0%	0%
Crystal	90.6%	9.4%	0%	0%
Hunter	72.4%	24.1%	3.4%	0%
Kurt	96.5%	3.4%	0%	0%
Faith	100.0%	0%	0%	0%
Paula	88.9%	11.1%	0%	0%
James	100.0%	0%	0%	0%
Harper	89.3%	10.7%	0%	0%

Appendix A

Motivation to Read Profile - R

Name: _____ Date: _____

Teacher: _____

A. I am in _____.

- 2nd grade
- 3rd grade
- 4th grade
- 5th grade
- 6th grade

B. I am a _____.

- boy
- girl

1. My friends think I am _____.

- a very good reader
- a good reader
- an OK reader
- a poor reader

2. Reading a book is something I like to do.

- never
- almost never
- sometimes
- often

3. When I come to a word I don't know, I can _____.

- almost always figure it out
- sometimes figure it out
- almost never figure it out
- never figure it out

4. My friends think reading is _____.

- really fun
- fun
- OK to do
- no fun at all

5. I read _____.

- not as well as my friends
- about the same as my friends
- a little better than my friends
- a lot better than my friends

6. I tell my friends about good books I read.

- I never do this
- I almost never do this
- I do this some of the time
- I do this a lot

7. When I am reading by myself, I understand _____.

- everything I read
- almost everything I read
- almost none of what I read
- none of what I read

8. People who read a lot are _____.

- very interesting
- sort of interesting
- sort of boring
- very boring

9. I am _____.

- a poor reader
- an OK reader
- a good reader
- a very good reader

10. I think libraries are _____.

- a really great place to spend time
- a great place to spend time
- a boring place to spend time
- a really boring place to spend time

11. I worry about what other kids think about my reading _____.

- a lot
- sometimes
- almost never
- never

12. I think becoming a good reader is _____.

- not very important
- sort of important
- important
- very important

13. When my teacher asks me a question about what I have read, _____.

- I can never think of an answer
- I almost never think of an answer
- I sometimes think of an answer
- I can always think of an answer

14. I think spending time reading is _____.

- really boring
- boring
- great
- really great

15. Reading is _____.

- very easy for me
- kind of easy for me
- kind of hard for me
- very hard for me

16. When my teacher reads books out loud, I think it is _____.

- really great
- great
- boring
- really boring

17. When I am in a group talking about books I have read, _____.

- I hate to talk about my ideas
- I don't like to talk about my ideas
- I like to talk about my ideas
- I love to talk about my ideas

18. When I have free time, I spend _____.

- none of my time reading
- very little of my time reading
- some of my time reading
- a lot of my time reading

19. When I read out loud, I am a _____.

- poor reader
- OK reader
- good reader
- very good reader

20. When someone gives me a book for a present, _____.

- I am very happy
- I am happy
- I am unhappy
- I am very unhappy