Measuring Changes in Motivation in Response to an Online Repeated Reading Intervention with Self-Monitoring

David N. Longhurst

Utah State University

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MEASURING CHANGES IN MOTIVATION IN RESPONSE TO AN ONLINE REPEATED READING INTERVENTION WITH SELF-MONITORING

by

David N. Longhurst

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in Psychology

Approved:

______________________ ____________________
Gregory Callan, Ph.D. Maryellen McClain Verdoes, Ph.D.
Major Professor Committee Member

______________________ ____________________
Tyler Renshaw, Ph.D. D. Richard Cutler, Ph.D.
Committee Member Interim Vice Provost of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2022
ABSTRACT

Measuring Changes in Motivation in Response to an Online Repeated Reading Intervention with Self-monitoring

by

David N. Longhurst, Master of Science

Major Professor: Dr. Gregory Callan
Department: Psychology

Many students in grade school do not meet mastery levels of reading, which has important implications for academic achievement and overall quality of life after formal education. Although there are many important reading skills, reading fluency is a significant predictor of reading comprehension. Different motivational constructs contribute to the prediction of school achievement, such as self-efficacy, interest, and goal orientation. The COVID-19 pandemic shifted academic activities to a virtual landscape, and many students have struggled to adapt and achieve mastery levels of reading. There is also limited research and few measurement tools to identify whether online interventions used to increase fluency lead to an increase in motivation. This study takes a traditional face-to-face repeated reading intervention, and is modified into an online format, with self-monitoring. This study also measures changes in motivational constructs of self-efficacy, interest, and goal-setting through microanalysis. Results show a response to this virtual intervention, with significant positive changes occurring in proximal self-efficacy of elementary age participants. Other motivational constructs such as distal self-efficacy, interest and goal-setting did not show significant changes across the intervention. The results of this study may empower practitioners to adapt a traditionally in-person intervention to an online format, and indicates changes in proximal self-efficacy.

(96 Pages)
Reading is a complex cognitive process that is integral to learning, achievement, and future life outcomes. Students with reading disabilities struggle to obtain information and develop specific interests. Unfortunately, many students in the United States do not meet expected reading benchmarks. Also due to the impact of the COVID-19 pandemic, has presented multiple challenges for student academic reading growth. Motivation beliefs, such as self-efficacy, interest, and goal-directed behavior, play an important role in students’ education and development. This study examined whether motivational constructs change throughout the course of an online repeated reading intervention with self-monitoring. Five elementary students were selected from the Inner Mountain West with varying IDEA special education qualifications and all read below the 25th percentile for their grade. During, the online repeated reading intervention, students were asked questions relating to different characteristics of motivation. Reading fluency gains were reported among most of the participants, regarding self-efficacy, there was significant evidence to support that student self-efficacy improved throughout the intervention compared to baseline. Other motivational constructs such as interest and goal-setting did not have significant evidence of improvements. These findings support that this intervention of repeated reading with self-monitoring may be appropriate for students who demonstrate lower initial levels of self-efficacy.
ACKNOWLEDGMENTS

I want to thank my thesis committee chair, Dr. Gregory Callan, for his guidance and support throughout this study and during the data analysis, and for aiding me in my overall development as a researcher. I would also like to thank my committee members, Drs. Maryellen McClain Verdoes and Tyler Renshaw for their constant encouragement and assistance. This research was financially supported by Utah State University’s Psychology Department Graduate Student Endowment Fund as well as the College of Education and Human Services Graduate Student Research Award Opportunity. I would especially like to thank my colleagues Aliya Halterman, Samantha Tibbets, and Molly Johnson for their hard work and time, all of which helped to make this project possible. I also wish to give special thanks to my family, for their encouragement and moral support, I could not have done it without all of you.

David N. Longhurst
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CHAPTER I
INTRODUCTION

Reading is a complex cognitive process that is integral to learning, achievement, and future life outcomes (Bursuck & Damer, 2007; Hart et al., 2009). Unfortunately, many students in the United States do not meet expected reading benchmarks (Begeny et al., 2009). For example, results from the 2017 National Assessment of Educational Progress (NAEP; Lee et al., 2017) indicate that 32% of 4th graders, 24% of 8th graders, and approximately 28% of 12th graders read below grade level expectations (McFarland et al., 2019). In addition, approximately two-thirds of middle school students do not understand the text they read (Reardon et al., 2012) and 61% of 9th graders do not read at a sufficient rate and accuracy level (Rasinski et al., 2005).

Reading deficits inhibit learning and achievement across many domains. For example, students with reading disabilities struggle to obtain information and develop specific interests (Jenkins & O’Connor, 2002). Reading deficits also correlate with poor vocabulary growth (Duff et al., 2015) and general intelligence (Stanovich et al., 1984; Swain et al., 2017). Mastery of reading in early grades has important implications for future life outcomes. Students who fail to achieve reading mastery by the 3rd grade often struggle in later grades and are four times more likely to drop out before graduating high school (Hernandez, 2011). Moreover, reading skill is negatively correlated with future socio-economic status and incarceration rates (Miller et al., 2010; Shippen et al., 2010).
There are many important reading skills, such as phonemic awareness, fluency, comprehension, and vocabulary. Comprehension is often viewed as the pinnacle of the reading skill hierarchy because it enables readers to acquire the intended message of text. Moreover, comprehension supports higher level cognitive skills such as inference making and executive functioning (Ahmadi et al., 2013; Kendeou et al., 2014; Leu et al., 2007). However, the rate and accuracy with which one reads, known as fluency, is also important (Adams, 1990; Ellis, 2009; Thaler et al., 2004). Reading fluency is a strong pre-requisite of reading comprehension because the time required to read a passage of text for a dysfluent reader may exceed typical short-term and working memory capacities (Swain et al., 2017). In plain language, this means that by the time dysfluent readers finish a passage of text, they may have forgotten the text at the beginning of the passage (Rasinski, 2000).

**Reading Interventions**

Many interventions are available to help readers develop fluency such as repeated reading, paired reading, shared reading, praise/attention, and corrective feedback (Dowhower, 1987; Hindin & Paratore, 2007; Mol & Bus, 2011; Welsch, 2006). During paired reading, the child chooses reading material and is supported by a parent, teacher adult, peer, or peer mentor. Paired reading increases reading fluency in grade school settings (Thurston et al., 2019; Topping, 1987). Shared reading involves a teacher and student reading the same passage together and has also been shown to increase students’
language development and vocabulary (Ramrathan, & Mzimela, 2016; Rowland et al., 2016; Sénéchal, 2017).

Repeated reading is an evidence-based approach to improving students’ reading fluency and reading comprehension (Backwell & Cullen, 2018; Wu & Gadke, 2017). During repeated reading interventions, participants are asked to read a passage of text multiple times in a single session. Often this will include three or four reading attempts, but some variations exist in which participants reread the text until a specific level of mastery is achieved. Regardless of the number of reading attempts, an interventionist provides error correction for misread words.

There are multiple studies that show repeated reading improves fluency (Hindin & Paratore 2007; Therrien & Kubina, 2006). For example, Dowhower (1987) studied repeated reading with second graders and found that students learned to read a passage faster, more accurately, and with greater understanding. Repeated reading has also improved fluency rates and comprehension for all grade levels (Hawkins et al., 2011; Thérrien et al., 2006) and for students with and without disabilities (Therrien & Kubina, 2006). When repeated reading has been compared to other reading interventions, such as “listening passage preview” and “wide reading,” repeated reading emerged as more effective (Ardoin et al., 2016; Powell & Gadke, 2018).

Reading interventions, including repeated reading, are believed to improve reading skill, in part, through increased exposure to text. On a related note, research suggests that exposure to text is one of the best predictors of reading achievement (Stanovich et al., 1984). Reading researchers describe a “Matthew effect” in which stronger readers improve at a faster rate than struggling readers. Thus, studying factors
that may explain students’ self-selected exposure to text outside of intervention sessions is highly relevant. Motivation is one such predictor of students’ exposure to text (Guthrie et al., 1999; Mol & Bus, 2011; Wigfield & Guthrie, 1997). Even though research indicates that reading interventions, such as repeated reading, can lead to improvements in reading skill, there is a lack of research regarding whether reading interventions improve motivation to read (Cockroft & Atkinson, 2017; Kostewicz, 2016). However, prior research has examined repeated reading as an in-person intervention.

**Online Interventions**

The COVID-19 pandemic has presented challenges for student academic reading growth. Overall, there has been much concern about learning loss due to school closures (Kuhfeld et al., 2020). For example, student reading fluency gains halted, and academic participation decreased following the transition to online learning (Domingue et al., 2021).

There are several challenging issues regarding this topic. It is difficult to evaluate the effectiveness of remote learning and online instruction for an extended amount of time because many teachers and school interventionists have not needed to complete extended online instruction until COVID-19 pandemic. (Kuhfeld et al., 2020). In addition, learning loss is also very difficult to study in an online nature, especially when a student is recognized to have difficulties in a specific academic area because it is typically assessed in a classroom setting (Domingue et al., 2021). However, with school closures, academic difficulties, such as reading fluency may be difficult to recognize. This is concerning because students who fail to achieve early reading mastery may
struggle at other grade level skills as well may be more likely to not complete a high school education (Herbers et al., 2012; Hernandez, 2011).

Online interventions are one possible way in which to improve learning difficulties. Online interventions may be more helpful for students who are low-achieving and may not be as motivative as the high-achievers since high-achieving students have higher levels of motivation (McCoach et al., 2001). During the COVID-19 pandemic, some schools developed an online learning environment for mathematics by distributing a software that covered a variety of mathematical topics (Spitzer & Musslick, 2021). This software included math curriculum problem sets students would learn on personal computers and could repeat as many times as they wished, student performance and improvements were measured. Overall, students’ performance increased with the implementation of online learning and low achieving students showed the greatest improvements (Spitzer & Musslick, 2021). Other online learning interventions have been shown to be statistically significant for students who are low achieving and struggle in academics areas such as math and reading (Bauer-Kealey & Mather, 2019; Ran et al., 2020).

Some research has examined online reading interventions and found that these interventions can lead to improvements in reading achievement. Specifically, some schools have implemented “blended” reading programs where classrooms are a mix of teacher-led instruction in reading and the implementation of digital technology, this mix of instruction led to increases in student reading skill through standardized reading assessment (Bauer-Kealey & Mather, 2019). Other research has examined computer assisted reading interventions in which no interventionist was present during intervention
sessions. This research has shown improvements in reading skills including decoding, phonological awareness, naming speed, phonological short-term memory and executive loaded working memory (Messer & Nash, 2018). However, to the author’s knowledge, this prior research has not examined the implementation of evidence-based reading interventions (e.g., repeated reading). Thus, this study addresses this gap within the literature, in part, by administering a repeated reading intervention to increase reading fluency. Doing so is relevant in the current context of the COVID-19 pandemic.

**Motivation**

Motivation plays an important role in students’ education and development. Many constructs are involved in motivation such as self-efficacy, intrinsic and extrinsic motivation, and interest (Pintrich, & De Groot, 1990; Schunk, 2000; Valerio, 2012; Zimmerman, 2000). Self-efficacy is defined as an individual’s beliefs about having the means to learn or perform a specific task effectively (Bandura, 1986; Escalera-Chavez et al., 2018). Self-efficacy is critical because it influences one’s willingness to engage and sustain their learning efforts (Zimmerman, 2000), which may also support occupational choice and interests (Bandura et al., 1996 & 2001).

Ryan and Deci (2000) defined intrinsic motivation as the enticement to do a specified activity for the interest in performing that activity. Intrinsic motivation involves positively valued experiences that the individual derives specifically from the task (Thomas & Velthouse, 1990). Extrinsic motivation, on the other hand, deals with task performance to receive an incentive that is external (e.g., money; Deci, et al., 1991). Intrinsic and extrinsic motivation have received a great deal of attention within the motivation literature (Thomas & Velthouse, 1990). Intrinsic motivation is related to other
motivation constructs including interest (preference for a task), which is sometimes described as synonymous with intrinsic motivation (Schiefele, 1991).

**Developing Motivation**

Motivation can change as individuals learn and grow; however, there are also many mechanisms to enhance motivation. For example, when students perform well on a task, they gain a sense of satisfaction which enhances motivational beliefs such as self-efficacy (Valerio, 2012). A strong sense of efficacy can be developed through experiences of success, modeling success, social persuasion, and reduction of stress or negative emotional reactions (Bandura 2010). Increases in self-efficacy can subsequently lead to increases the student’s task interest (Multon et al., 1991). Goal-setting leads to motivational improvements by focusing learners’ attention on a desired task, facilitating persistence, and providing a sense of accomplishment when goals are met (Valerio, 2012).

Motivation can also be improved by using self-monitoring (Hock et al., 2012), which is a process of physically or mentally tracking performance over time (Safer & Fleischman, 2005; Zimmerman, 2000). Self-monitoring has been shown to lead to improved motivation in a variety of settings including weight loss programs; exercise; behavior change; and academic tasks such as writing, math, and reading (Conroy et al., 2011; Holifield, et al., 2010; Oakes et al., 2012; Paquin, 1978; Shimabukuro et al., 1999; Staiano, & Calvert, 2011). Self-monitoring has been used in past studies to track reading fluency and comprehension resulting in a change in motivation (Crabtree et al., 2010; Hock et al., 2012). However, prior research has focused on the use of global and domain specific measures of motivation as opposed to fine-grained, task specific measures.
Measuring Motivation with SRL Microanalysis

One method to measure motivation with fine-grained, task-specific measures is “self-regulated learning (SRL) microanalysis.” Microanalysis is a structured interview in which participants’ respond to measures while they perform an actual learning task (Cleary & Zimmerman, 2004). SRL microanalysis has been used to examine motivational beliefs (e.g., self-efficacy, interest, goal-orientations) and covert processes (e.g., planning and strategy use). Moreover, interview questions are administered at specific moments before, during, and after a specific task (Cleary, 2011). Specifically, questions are administered at the point in time that research suggests these tasks are most important (e.g., goal-setting is measured before a task attempt). SRL microanalytic questions are often open-ended or free response format when measuring students’ regulatory process such as with goals. In contrast, quantitative, Likert type items tend to be used when measuring student’s motivational beliefs and affect (Callan & Cleary, 2018; Chen & Bembenutty, 2018).

Objectives

Students’ motivation to read is a major concern because many students indicate motivational deficits for reading (Hartini, 2012; Morgan, 2014). Furthermore, students who are not motivated read less frequently and this reduced exposure to text inhibits reading skill development (Wigfield & Guthrie, 1997). Poor motivation for reading does not appear to be self-correcting because high school students also report low motivation (Ivey, 1998).

Developing students’ motivation to read is important because it has been shown to improve their reading competency (Melekoğlu, & Wilkerson, 2013; Sideridis & Scanlon,
2006). Given that skill proficiency and motivation influence each other (Morgan, & Fuchs, 2007), such that self-efficacy and interest often increase when students experience success (Sherer et al., 1982; Zimmerman & Ringle, 1981), a possible solution to improve students’ reading motivation is through the use of reading interventions, like repeated reading (Chard et al., 2002; Hindin & Paratore, 2007).

Although there has been extensive research to show that repeated reading interventions assist in improving students’ reading ability, it is unclear whether such interventions improve students’ motivation. The purpose of this project is to determine if multiple motivational beliefs are influenced with a repeated reading intervention with self-monitoring. This project measures motivational constructs of self-efficacy, interest, and goal-setting with a task-specific structured interview called SRL microanalysis. Doing so aids in the understanding of the influence of repeated reading with self-monitoring on motivation and may identify a methodology to examine motivational changes in response to intervention for future research endeavors.

The current project addresses three key research questions including:

1. What is the functional relation between an online repeated reading intervention with progress monitoring and self-efficacy?
2. What is the functional relation between an online repeated reading intervention with progress monitoring and interest?
3. What is the functional relation between an online repeated reading intervention with progress monitoring and goal-setting?
CHAPTER III

METHOD

Participants

Inclusion criteria for this study was three-fold. First, participants had to be enrolled in an elementary grade, and not have been held back any year in school (i.e., grades 1-5). Participants had to not meet Individuals with Disabilities Education Act (IDEA) special education qualification for intellectual disability (ID). Students had to read at or below the 25th percentile as measured by grade-based norms from Hasbrouck and Tindal in 2017. Lastly, selected participants scored below a five in at least one of the three characteristics of motivation.

This study included five elementary students from the Intermountain West. The participants grade level ranged from second to fourth grade, and student’s IDEA special education qualifications varied (see Table 1). Participant’s all had a reading fluency score at or below the 25th percentile for their grade and had a microanalysis score at or below a score of five out of ten in at least one area of motivation that was measured. Reading percentiles were measured based on the correct words per minute from grade-based norms (CWPM; Hasbrouck & Tindal, 2017).

Table 1
Participant Demographics

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Race/Ethnicity</th>
<th>Age in years</th>
<th>Grade</th>
<th>Gender</th>
<th>IDEA SPED Classification</th>
<th>Initial Reading Score</th>
<th>Self-efficacy (proximal, distal)</th>
<th>Interest Goal setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew</td>
<td>Hispanic or Latino</td>
<td>8</td>
<td>2nd</td>
<td>Male</td>
<td>Emotional Disturbance</td>
<td>40 CWPM</td>
<td>2, 3</td>
<td>1</td>
</tr>
<tr>
<td>Robert</td>
<td>White</td>
<td>10</td>
<td>4th</td>
<td>Male</td>
<td>None</td>
<td>97 CWPM</td>
<td>5,7</td>
<td>4</td>
</tr>
</tbody>
</table>
Materials

Demographics form. Upon initial recruitment of participants, parents completed the demographic form. This form was used to collect participant data such as child age and gender, family income, and child race/ethnicity.

Reading prompts. Multiple grade-reading passages that are approximately 250 words in length were used to complete the reading intervention, and to measure progress in student reading fluency (see Appendix A where a sample is included). The Easycbm measures were developed for grades K-8 and help identify children with potential learning problems (Alonzo & Tindal, 2009). Participants completed progress-monitoring probes using the Formative Assessment System for Teachers (FAST) curriculum as an outcome measure of the students’ reading skill that is separate from the intervention procedures (Learning, 2015). The FAST curriculum is an oral reading assessment that monitors students’ reading progress and assists in the evaluation of the level and rate of student’s oral reading fluency. Similar to the Easycbm, the FAST-reading curriculum is a simple procedure in which students are evaluated while they read aloud from grade level passages.
SRL Microanalysis. Motivation characteristics such as self-efficacy, interest, and goal-setting were measured using the SRL microanalysis. Similar to prior literature, self-efficacy is measured with SRL microanalysis (Callan & Cleary, 2018; Cleary et al., 2015). Self-efficacy of participant reading rate is measured using a 10-point Likert scale (1 to 10), with 10 indicating high self-efficacy (very sure) and 1 indicating very low self-efficacy (not at all sure). Self-efficacy is measured regarding two different situations, which include; the reading attempt just following the repeated reading intervention and reading until the end of their winter break.

Regarding reading the self-efficacy of the next reading attempt and reading by a more distal timepoint (e.g., end of winter break), participants were prompted to report their self-efficacy to reading quickly and accurately. For example, the RA states, “Using this chart [Show Cue Card A], where one means that you are Not at All Sure and ten means that you are Very Sure, how sure are you that you can read to THIS point on the next try?” The RA then pointed to the spot on the passage that indicates 25th, then the 50th, and then 75th grade-level percentile for reading rate.

Interest was measured using a ten-point Likert scale (1 to 10), in which a ten indicates “very interested” and a one indicates, “not at all interested.” For example, the interviewer asked, “Using this chart [Show Cue Card B], where one means that you are not at all interested and ten means that you are very interested, how interested are you in reading tonight?”

For measuring goal-setting, the RA asked the participant, “How much time will you spend reading tonight?” The RA recorded the participant’s response verbatim. Participants’ open-ended responses regarding their reading time is transposed to a 10-
point Likert scale in which higher goals correspond to higher ratings on the 10-point scale.

**Intervention Procedures**

**Study Design.** This study is a non-concurrent multiple baseline design in which each participant’s start date was staggered from baseline-to-intervention. Non-concurrent design was selected because of the difficulty in recruitment during the COVID-19 pandemic. When participants met the criteria for this study, the participant immediately started the baseline sessions. Baseline sessions would change to intervention, once participants achieved three similar median reading fluency scores.

**RA training.** Three research assistants (RAs) received training in the repeated reading intervention and SRL microanalysis interview procedures. All research assistants were graduate students in the School Psychology program at Utah State University (USU). Training procedures included five 1-hour training sessions which included RA’s learning about repeated reading as an intervention and how to conduct SRL microanalysis. RA’s also completed a reliability training, where RA’s each received 100% on the giving a repeated reading intervention, recognizing reading errors, and delivering SRL microanalysis.

**Participant screening.** Before starting the intervention sessions, a screening was conducted to assess students’ reading fluency and motivation to read. The screening included an Oral Reading Fluency (ORF) assessment from the FAST program, and a demographic form (See Appendix B). The ORF aided in whether a participant was included or excluded from the study. For example, if the student ready above the 25th percentile for their grade, then they would be excluded from the study.
Baseline. During the baseline sessions, the RA collected initial data regarding reading fluency and motivation. Using the online communication system of Zoom (2020), participants read three separate ORF passages from the FAST program. The median of the three ORF readings was taken and upon the completion of the baseline data, the SRL microanalysis interview followed. Overall, the baseline data collection took approximately 20 minutes per session and was collected three times per week until at least five data points were collected similar to what is done in Kratochwill et al., 2010. Every session was recorded to facilitate fidelity checks and scoring of passages.

Intervention Procedures. Participants completed a repeated reading intervention with self-monitoring with the trained RA over Zoom. Following intervention procedures, students responded to SRL microanalysis interview questions just before and after completing an additional reading passage (see Table 2 for a summary of procedures).

<table>
<thead>
<tr>
<th>Activity</th>
<th>Brief Description</th>
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<tr>
<td>Repeated Reading Intervention</td>
<td>Over Zoom, student reads the same passage of text three times. Each reading attempt lasts one minute. Error correction is provided between each reading attempt.</td>
</tr>
<tr>
<td>SRL Microanalysis interview</td>
<td>Student responds to interview questions about their goals, self-efficacy, and interest just before reading a new passage of text. Student then self-efficacy to improve reading skill over an extended period.</td>
</tr>
<tr>
<td>ORF</td>
<td>Students read aloud from unpracticed passages. Each attempt lasts one minute and is administered three times.</td>
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</table>

Students met online on an individual basis with an RA three times per week for around 20-30 minutes for a total of at least 30 sessions, including the baseline sessions.
During each session, the student is asked to engage in a repeated reading intervention, which entails reading a passage of text three times. At that time, passages are read aloud to the RA for one minute. The RA and the participant each have a copy of the reading passage. The RA records errors on their copy and mark the final word that is read aloud after one minute. If a participant hesitates for more than three seconds on a word, the RA pauses the timer, tell the student the word aloud, and direct the participant to continue reading the next word, at which point the RA continues timing for the remainder of the minute. After each attempt, the RA gives the student feedback about reading errors.

Following the repeated reading intervention, the self-monitoring task begins. The self-monitoring task entails the RA and the student charting the number of words read per minute (WPM) for the last attempt of the repeated reading intervention (i.e., the third reading attempt). Meaning, during the intervention, participants were told their errors made during the reading, but were not told how many mistakes they made. Participants are taught how to complete the charting procedures; however, they are supported in these procedures throughout the intervention by the RA helping them to graph the correct location on their paper.

Just after the repeated reading intervention and self-monitoring task, the RA and student proceed to the SRL microanalysis interview to assess students’ motivational beliefs including goal setting, interest, and self-efficacy just before reading a second passage. After these measures have been administered, the RA directs the student to read a new passage of text, which is only read one time. After reading this passage, the RA assesses motivational beliefs regarding that evening after school and the remainder of the year (i.e., until the end of winter break). Each session was video recorded so that another
RA could review random sessions for implementation fidelity and reading scoring fidelity.

**Data Analysis Plan**

Prior to inferential statistical analyses, researchers briefly examined appropriateness of measurements. One issue was identified. Specifically, self-efficacy measures targeted three criteria (i.e., 25\(^{th}\), 50\(^{th}\), 75\(^{th}\) percentiles). Upon examination of the 25\(^{th}\) percentile, many participants’ responses were attenuated by a ceiling effect (10 out of 10 rating) beginning early within the intervention or baseline phases. A similar pattern was not observed for responses regarding the 50\(^{th}\) and 75\(^{th}\) percentiles. Thus, self-efficacy scores were calculated by averaging responses for the 50\(^{th}\) and 75\(^{th}\) percentiles and did not include the 25\(^{th}\) percentile to prevent misleading results.

An intervention fidelity check was completed to ensure that the intervention and interview procedures are completed as planned (See Appendix C). The fidelity check was completed randomly for 30% of the intervention sessions. An overall percentage of fidelity was calculated by reviewing video recordings of sessions. The fidelity for the implemented intervention was approximately 98.33%, any errors or discrepancies were discussed between RA’s. Thus, the RA’s conducted the intervention with high fidelity showing the adherence to the measures and protocol were followed. A social validity measure was also completed by participants parents at the conclusion of the study. For the parent or guardian, a Usage Rating Profile was completed once the last session was completed finished by the RA and the participant (Appendix D; Chafoulea, et al., 2012). Overall, all parents agreed that the intervention is an effective choice for addressing a variety of problems. They also all agreed that the preparation for this intervention was
minimal and that the intervention is a good way to handle the child’s motivation to read. Interestingly, parents also agreed that the material resources needed for this intervention were reasonable. Lastly, all parents noted that they would be committed to carrying out this intervention themselves.

The primary method for inferential statistics entailed visual analysis to determine if there were treatment effects for reading fluency and motivation with the implementation of repeated reading with self-monitoring. Visual analysis is the judgement about the reliability and consistency of the effect of an intervention by examining graphed data (Kazdin, 2011). Visual analysis is a primary method for determining intervention effect within single-case research (Wolfe et al., 2019). This approach is advantageous because it produces low error rates and is conservative in the identification of treatment effects (Baer, 1977; Huitema, 1986). Percentage of all non-overlapping data (PAND) and robust improvement rate difference (IRD) were calculated to determine intervention effectiveness between baseline and intervention. PAND is the proportion of data that remains after the removal of the fewest number of data points from either phase so that the highest remaining data from the baseline phase is less than the lowest remaining data from the intervention phase (Parker et al., 2011). Whereas IRD is a way to measure effect size for summarizing single-case research data, IRD starts with identifying the minimum number of data points needing to be removed in order to eliminate all the data that overlaps between each phase (Parker et al., 2009).

The first visual analysis was completed as an internal validity check to determine if repeated reading improved students’ reading skills because improved reading is one potential mechanism to improve reading motivation. Visual analysis was used regarding
reading fluency of the FAST-reading prompts to assess participant improvement in overall reading fluency. Then visual analysis was used to examine our identified research questions.
CHAPTER IV
RESULTS

Internal Validity Check

While conducting the visual analysis the following results were determined; mean reading fluency in the intervention phase was higher across all five participants compared to baseline (see Figure 1). Gains exceeding baseline levels were observed in the first session for four out of the five participants. Trend analyses indicated a greater slope for the intervention compared to baseline in three of the five participants. Variability analyses indicated greater variability within intervention compared to baseline among all five of the participants. Overall, results for reading fluency indicate that an online reading fluency intervention resulted in an overall increase in oral reading fluency. Andrew was the only participant to not have an immediate response to intervention; however, they did by the third session (see Table 3).

Table 3

<table>
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<th>Trend</th>
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<th>Range</th>
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<td>Int*</td>
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<td>Int</td>
<td>BL</td>
</tr>
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<td>2.10 0.78</td>
<td>7.53 10.19</td>
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<td>8.88 14.15</td>
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</tbody>
</table>

*BL = Baseline data, Int = Intervention data
Figure 1
FAST reading fluency

Words Correct Per Minute

Taylor

Rodney

Andrew

Robert

Jane
Motivation Changes of Participants

Andrew

Proximal self-efficacy. Mean self-efficacy in the intervention phase was higher (5.91) compared to baseline (4.22). Gains exceeding baseline levels were after the seventh intervention session. Trend analyses indicated a greater slope for the baseline (0.68) compared to intervention (0.36). The intervention did not show an immediacy gain from the change of baseline to intervention rather, it took approximately 14 intervention sessions for there to be a gain from baseline to intervention. The intervention slope may have been dampened by a large decrease in self-efficacy at the beginning of intervention. Intervention levels later surpassed baseline levels (see Figure 2). Variability analyses indicated greater variability within intervention \((SD = 2.54, \text{Range} = 1-10)\) compared to baseline \((SD = 2.03, \text{Range} = 1.5-7)\). The PAND between baseline and intervention was 70%, which indicates moderate effect whereas IRD was 0.29, which indicates a small effect size.

Figure 2
Andrew proximal self-efficacy
**Distal self-efficacy.** The mean self-efficacy for distal reading was lower in intervention (3.76, out of 10) compared to baseline (4.17) and the slope was greater in baseline (0.43) than intervention (-0.01). However, self-efficacy levels initially dropped at the start of the intervention and later exceeded baseline levels in the 14th session. The intervention did not show an immediacy gain from the change of baseline to intervention rather, it took approximately 14 intervention sessions for there to be a gain from baseline to intervention (see Figure 3). The variability analyses indicated less variability within the intervention phases ($SD = 1.10$, $Range = 2.5-6.5$) compared to baseline ($SD = 2.44$, $Range = 2-9$). The PAND between baseline and intervention was 77%, which indicates a moderate effect whereas IRD was 0.44, which is a small effect size.

*Figure 3*
*Andrew distal self-efficacy*

**Interest.** The mean interest in reading was less during intervention (1.29, out of 10) compared to baseline (2). There was a delayed increase in interest that exceeded baseline in the twentieth session (see Figure 4). Trend analyses showed a slightly lower
slope for the baseline (0.05) compared to intervention (0.07). Variability analyses indicated less variability within intervention ($SD = 1.31, Range = 1-7$) compared to baseline ($SD = 1.41, Range= 1-5$). The PAND between baseline and intervention was 70%, which indicates a moderate effect whereas IRD was 0.29, which indicates a small effect size.

**Figure 4**

*Andrew interest*

---

**Goal-setting.** The mean goal-setting level during intervention was lower (1.24 out of 10) compared to baseline (3.22). Trend analyses showed that the slope for baseline (-0.78) was less than the slope for intervention (0.04). The intervention showed an immediacy gain from the change of baseline to intervention after the twentieth intervention session (see Figure 5). The variability analysis indicated less variability within intervention phase ($SD = 0.90, Range 1-5$) compared to baseline ($SD = 3.90,$
Range = 1-10). The PAND between baseline and intervention was 70%, which indicates a moderate effect whereas IRD was 0.29, which is a small effect size.

Figure 5
Andrew goal-setting

Robert

**Proximal self-efficacy.** Mean self-efficacy in the intervention phase was higher (9.11) compared to baseline (5.83). An immediacy in intervention gain was observed after the fourth intervention session. Trend analyses showed a greater slope for the baseline (0.38) compared to intervention (0.12). There was an initial drop in self-efficacy score, then after three intervention sessions; there was a steady gain in self-efficacy (see Figure 6). Variability analyses indicated less variability within intervention (SD = 1.09, Range = 6-10) compared to baseline (SD = 1.41, Range = 4-8.5). The PAND between baseline and intervention was 90%, which indicates a large effect whereas IRD was 0.77, which is a large effect size.
**Distal self-efficacy.** The mean self-efficacy for distal reading gains was greater during intervention (9.68, out of 10) compared to baseline (8.56). Trend analyses showed that the slope for baseline (0.25) was greater than intervention (<0.01). The intervention showed an immediacy of the effect from the change of baseline to intervention in the first intervention session, but after six sessions, there was again an increase, which reached a ceiling effect (see Figure 7). There was less variability within the intervention phases ($SD = 0.67$, $Range = 8.5-10$) compared to baseline ($SD = 1.01$, $Range = 6-9$). The PAND between baseline and intervention was 94%, which indicates a large effect whereas IRD was 0.84, which is a large effect size.
**Interest in reading.** The mean interest in reading was greater during intervention (6.18, out of 10) compared to baseline (5.11). An increase above baseline was noted in the twentieth intervention session (see Figure 8). Trend analyses showed a slightly lower slope for the baseline (-0.05) compared to intervention (-0.04). Variability analyses indicated less variability within intervention ($SD = 1.26$, $Range = 5-10$) compared to baseline ($SD = 2.09$, $Range = 4-8$). The PAND between baseline and intervention was 77%, which indicates a moderate effect whereas IRD was 0.45, which indicates a small effect size.
Goal-setting. The mean goal-setting level during intervention was lower (3.23 out of 10) compared to baseline (3.78). The slope for baseline (-0.12) was less than the slope for intervention (0.05). A gain above baseline occurred after the nineteenth intervention session (see Figure 9). There was greater variability within intervention phase ($SD = 0.97$, Range 3-5) compared to baseline ($SD = 0.67$, Range = 3-5). The PAND between baseline and intervention was 71%, which indicates a moderate effect whereas IRD was 0.30, which indicates a large effect size.
**Taylor**

**Proximal self-efficacy.** Mean self-efficacy in the intervention phase was higher (9.30) compared to baseline (6.50). An immediacy intervention gain was noted after the first intervention session (see Figure 10). Trend analyses showed a greater slope for the baseline (0.25) compared to intervention (0.04), which may be due to a ceiling effect being achieved during intervention. There was an initial drop in self-efficacy near the beginning of the intervention that was later recovered and baseline levels were exceeded. There was less variability within intervention ($SD = 0.61, Range = 6-10$) compared to baseline ($SD = 1.23, Range = 6-8$). The PAND between baseline and intervention was 97%, which indicates a large effect whereas IRD was 0.88, which indicates a large effect size.
Distal self-efficacy. The mean self-efficacy for distal reading gains was greater during intervention (9.98, out of 10) compared to baseline (9.40). However, the slope was greater during baseline (0.25) than intervention (<0.01). Intervention levels exceeded baseline in the first intervention session (see Figure 11). The variability analyses indicated less variability within the intervention phases ($SD = 0.09$, $Range = 9.5-10$) compared to baseline ($SD = 0.55$, $Range = 8.5-10$). The PAND between baseline and intervention was 94%, which indicates a large effect whereas IRD was 0.76, which indicates a large effect size.
**Interest in reading.** The mean interest in reading was slightly less during intervention (5) compared to baseline (5.20). Trend analyses showed a slightly lower slope for the baseline (-0.1) compared to intervention (0). There was no immediacy observed from baseline to intervention (see Figure 12). There was less variability within intervention ($SD = 0, \text{ Range} = 5$) compared to baseline ($SD = 0.45, \text{ Range} = 5-6$). The PAND between baseline and intervention was 85%, which indicates a large effect whereas IRD was 0.41, which indicates a small effect size.
Goal-setting. This participant reported a score of three on each session throughout baseline and intervention phases (see Figure 13). Due to this, there is no change in level, trend, immediacy, or variability. The PAND between baseline and intervention was 85%, which indicates a large effect whereas IRD was 0.41, which indicates a small effect size.
**Rodney**

**Proximal self-efficacy.** Mean self-efficacy was higher in the intervention (8.22) compared to baseline (5.50) and a gain above baseline was observed after the first intervention session (see Figure 14). Trend analyses showed a negative slope for the baseline (-0.55) compared to intervention which presented a positive slope (0.16). There was an initial drop in self-efficacy after the first two intervention sessions that may have aided in the flattening of the intervention slope however, the participant later exceeded baseline levels. As a result, there was more variability within intervention ($SD = 1.66$, $Range = 4.5-10$) compared to baseline ($SD = 1.06$, $Range = 4-6.5$). The PAND between baseline and intervention was 87%, which indicates a large effect whereas IRD was 0.52, which indicates a moderate effect size.

Figure 14
*Rodney proximal self-efficacy*
**Distal self-efficacy.** The mean self-efficacy for distal reading gains was greater during intervention (9.04, out of 10) compared to baseline (8.30) and the slope was less during baseline (-0.10) compared to intervention (0.09). A gain above baseline was observed in the second intervention session (see Figure 15). The variability analyses indicated greater variability within the intervention phases ($SD = 0.83$, $Range = 6-10$) compared to baseline ($SD = 0.76$, $Range = 8.5-9$). The PAND between baseline and intervention was 83%, which indicates a large effect whereas IRD was 0.40, which indicates a small effect size.

Figure 15
*Rodney distal self-efficacy*

**Interest in reading.** The mean interest in reading was less during intervention (3.84, out of 10) compared to baseline (5.20). There was a positive increase in interest above baseline levels within the twenty-fourth intervention session (see Figure 16). Trend analyses showed a slightly lower slope for the baseline (0) compared to intervention
There was greater variability within intervention (SD = 1.46, \textit{Range} = 2-8) compared to baseline (SD = 1.10, \textit{Range} = 4-7). The PAND between baseline and intervention was 83\%, which indicates a large effect whereas IRD was 0.40, which indicates a small effect size.

\textbf{Figure 16}

\textit{Rodney interest}

\textbf{Goal-setting.} The mean goal-setting level during intervention was higher (2.92 out of 10) compared to baseline (2.20). Trend analyses showed that the slope for baseline (-0.20) was less than the slope for intervention (0.01). There was again above baseline after the second intervention session (see Figure 17). Variability was slightly greater within intervention phase (SD = 0.28, \textit{Range} = 2-3) compared to baseline (SD = 0.45, \textit{Range} = 2-3). The PAND between baseline and intervention was 90\%, which indicates a large effect whereas IRD was 0.64, which indicates a moderate effect size.
Jane

Proximal self-efficacy. Mean self-efficacy in intervention was higher (9.43) compared to baseline (8.85) a gain over baseline was noted immediately after the first intervention session. The trend was negative for both baseline (-0.09) and intervention (-0.002) due in part to several large drops in self-efficacy that later regained (see Figure 18). Variability analyses indicated slightly more variability within intervention ($SD = 0.80$, $Range = 7.5-10$) compared to baseline ($SD = 0.82$, $Range = 7.5-10$). The PAND between baseline and intervention was 70%, which indicates a moderate effect whereas IRD was 0.33, which indicates a small effect size.
**Distal self-efficacy.** The mean self-efficacy for distal reading gains was greater during intervention (9.28, out of 10) compared to baseline (8.85), but the trend was greater slope for the baseline (0.006) compared to intervention (-0.03). There was a gain-exceeding baseline in the first intervention session (see Figure 19). There was more variability within intervention ($SD = 0.79$, $Range = 8-10$) compared to baseline ($SD = 0.63$, $Range = 7.5-9$). The PAND between baseline and intervention was 70%, which indicates a moderate effect whereas IRD was 0.33, which indicates a small effect size.
**Interest in reading.** The mean interest in reading was less during intervention (1.20, out of 10) compared to baseline (2.80). Intervention levels never exceeded baseline. The trend was negative for baseline (-0.02) but inconsequentially higher in intervention (0.01). There was greater variability within intervention (\(SD = 0.41\), \(Range = 1-2\)) compared to baseline (\(SD = 1.61\), \(Range = 1-6\)). The PAND between baseline and intervention was 67%, which indicates a moderate effect whereas IRD was 0.25, which indicates a small effect size.
Goal-setting. The mean goal-setting level during intervention was lower (2.05 out of 10) compared to baseline (2.40). Trend analyses showed that the slope for baseline (-0.02) was less than the slope for intervention (0.01). Intervention levels exceeded baseline levels after the seventeenth intervention session (see Figure 21). The variability analysis indicated less variability within intervention phase ($SD = 0.22$, $Range = 2-3$) compared to baseline ($SD = 0.52$, $Range = 2-3$). The PAND between baseline and intervention was 67%, which indicates a moderate effect whereas IRD was 0.25, which indicates a small effect size.
Exploring Trends Across All Participants

*To what extent does a repeated reading intervention with self-monitoring affect self-efficacy?*

For proximal self-efficacy, all five participants’ mean proximal self-efficacy level scores were higher in intervention than during baseline and four out of five participants showed an immediate effect from baseline to intervention in the first intervention session, with the other participant’s immediacy occurring in the seventh intervention session. Two out of the five participants showed a positive change in trend from baseline to intervention. The mean PAND across the five participants was 0.62, which is in the questionable effectiveness range, however, three of the participants had PAND scores in the very effective-to-effective range, and the other two had scores that were in the ineffective range. The mean NAP score was 86.38%, which shows a medium effect in intervention. Effect sizes across participants varied with two participants showing large
effect sizes, two showing medium effect sizes, and only Robert showing a small effect size (see Table 4 and Figure 23).

For distal self-efficacy, all five participants’ mean distal self-efficacy level scores were higher in intervention than during baseline and four out of five participants showed an immediate effect from baseline to intervention in the first intervention session. Two out of the five participants showed a positive change in trend from baseline to intervention, the mean PAND across the five participants was 0.35, which is in the ineffective range, and the mean NAP score was 75.38% which shows a medium effect in intervention.

Effect sizes across participants varied with three participants showing large effect sizes, and one showing medium effect sizes, and only Andrew showing a small effect size (see Table 5 and Figure 23).

Table 4

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<td>Base</td>
<td>Int</td>
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*BL = Baseline data, Int = Intervention data
Table 5

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*BL = Baseline data, Int = Intervention data

Self-Efficacy Distal
Figure 22
Self-efficacy proximal for all participants

[Graphs showing self-efficacy ratings for Taylor, Rodney, Andrew, Robert, and Jane across sessions.]
Figure 23
Self-efficacy distal for all

Self-Efficacy Rating Distal

Taylor

Rodney

Andrew

Robert

Jane

Session
*To what extent does a repeated reading intervention with self-monitoring affect interest in reading?*

For interest, one participant’s mean interest level scores was higher in intervention than during baseline and that participant showed an immediate effect from baseline to intervention in the first intervention session, while two of the participants showed an improvement from baseline near the end of all the intervention sessions (20th and 24th session). The other two participants showed no gain above baseline. All five participants showed a positive change in trend from baseline to intervention. The mean PAND across the five participants was 0.04, which is in the ineffective range, and the mean NAP score was 33.74% which shows a weak effect in intervention. Effect sizes across participants varied with two participants showing large effect sizes, and the other three showing medium effect sizes (see Table 6 and Figure 24).

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</table>

*BL = Baseline data, Int = Intervention data*
Figure 24

*Interest across all participants*
To what extent does a repeated reading intervention with self-monitoring affect goal-setting?

A brief visual analysis of the goal-setting data observed that there was not a positive intervention effect for goal-setting across participants. In light of manuscript length requirements, further analysis of goal-setting has been streamlined (See Table 7 and Figure 25).

Table 7
Goal-setting

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*BL = Baseline data, Int = Intervention data
Figure 25
Goal setting for all participants

Reading Goal

Taylor

Rodney

Andrew

Robert

Jane
CHAPTER V
DISCUSSION

The current study examined the effects of an online repeated reading intervention with self-monitoring on self-efficacy, goal-setting, and interest for elementary aged students. Although previous research has already shown that repeated reading interventions improve reading fluency (Backwell & Cullen, 2018; Wu & Gadke, 2017) and self-monitoring leads to global motivation improvements (Hock et al., 2012); the purpose of this study was to isolate changes in individual motivational constructs throughout the course of intervention implementation. This project is not only important but also a novelty due to the online administration of this intervention. Repeated reading interventions are a common practice within school-based settings and many students who receive these types of interventions report poor reading motivation. Thus, our study aims to address whether current reading intervention practices address both students’ reading skills and their motivation to read.

To accomplish this goal, we used SRL microanalysis interviews to examine motivation in real-time, at a fine-grained level as opposed to broader self-report questionnaires that tend to be administered retrospectively, aggregate multiple motivation constructs, and are administered at pretest and posttest assessment only. We examined these motivational constructs throughout the provision of a repeated reading intervention with self-monitoring. In brief, we found some evidence that the repeated reading intervention with self-monitoring increases proximal self-efficacy; however, there was
not strong evidence of gains in distal self-efficacy, goal-setting, nor interest. Further implications are discussed below.

**Self-efficacy**

Previous research suggests that reading interventions with self-monitoring do result in self-efficacy gains (Leggett et al., 2012). The current thesis adds to the literature, however, with our unique measurement approach. In the current thesis, there is some evidence, if not strong evidence, of an increase in proximal self-efficacy throughout the course of the intervention but gains in self-efficacy were not uniform across participants. More specifically, three of the participants (Andrew, Robert, and Rodney) showed significant gains in self-efficacy, while the other two participants (Taylor and Jane) did not show significant gains in self-efficacy. Qualitative analysis indicates that the non-responders reported higher self-efficacy at the outset of this study. Thus, repeated reading with self-monitoring may be appropriate for students with lower levels of self-efficacy, but not those with higher self-efficacy levels. In fact, Jane should have likely been screened out of this study due to their initial self-efficacy levels (8 out of 10 and 9 out of 10, respectively).

It is believed that two mechanisms of change may explain gains in proximal self-efficacy. First, prior research (e.g., Bandura, 1997) suggests that self-efficacy is primarily developed through experiences of success. Thus, improved reading skill because of the intervention may have led to increased self-efficacy. The second mechanism of self-efficacy improvement is self-monitoring, which has increased self-efficacy in several domains (Leggett et al., 2012). In the current thesis, participants may have experienced a self-efficacy boost because they completed the self-monitoring procedures immediately
before estimating their proximal self-efficacy. That is, the visual analysis of their previous read may have been motivating to them.

In comparison to the proximal self-efficacy, the same gains were not noted for distal self-efficacy. The lack of response may be due to the timing of self-monitoring. Specifically, a greater amount of time elapsed between the self-monitoring procedures and reporting distal self-efficacy compared to reporting proximal self-efficacy and thus, participants may have not had their progress monitoring in mind when asked to rate their distal self-efficacy. Another potential explanation is that elementary-aged students struggle to perceive and predict future events compared to more immediate events (Strathman et al., 1994).

In conclusion, a repeated reading intervention with self-monitoring may be a reasonable strategy for students with low proximal self-efficacy; however, more research is needed to examine the applications of this intervention for older students or to ensure that self-monitoring data is considered for distal self-efficacy estimations. However, to the authors’ knowledge author, no repeated reading intervention has examined the effects on both a proximal form of self-efficacy, as well as distal self-efficacy.

When examining self-efficacy three of the five participants displayed a decrease in their self-efficacy during intervention. The decrease in self-efficacy did not last for more than one or two sessions, and all three participants saw an immediate rise again in self-efficacy after the decrease. This initial dip in self-efficacy may have dampened our findings of effect sizes to some degree however, given that this dip was observed across three of the participants, this may be an common pattern of self-efficacy development among struggling readers. To avoid the potential of harming students’ self-efficacy, our
data suggests that interventionists continue reading interventions until at least the fifth intervention session is completed to ensure that the initial decrease is re-gained.

**Interest**

Our results did not support the notion that repeated reading interventions with graphing improves students’ interest in reading. This is contrary to research indicating interest increases subsequent to self-efficacy increases (Lee et al., 2014; Multon et al., 1991). Our results may have differed from prior research due to measurement differences. For example, we asked participants, “How interested are you in reading tonight?” after they had already completed four reading attempts. At that point, students may have experienced exhaustion, which could have reduced interest in further reading. Another caveat to the interest measurement is that we asked about interest in reading outside of the intervention session, but it is possible interest improved for attending within the intervention session. Additional research is needed given our unique measurement approaches that may not have detected true changes; however, our data does not support a repeated reading intervention with self-monitoring for students who have little interest in reading. Additional research should confirm these results, but students may be better served by evoking situational interest in reading by asking intriguing questions, selecting reading content aligned with students’ personal interests, or teaching other SRL skills (e.g., goal-setting).

**Goal-setting**

Although many of the characteristics of motivation we measured within this study were motivational beliefs, we measured goal-setting as a behavioral indicator of motivation. Specifically, setting more ambitious goals may have implicated behavioral
changes as a result of motivational improvements (Lunenburg, 2011). Overall, there was no perceived improvement in goal-setting with this intervention. Again, it is possible that our unique measurement approach did not detect changes that did occur.

However, if our measures accurately detected a lack of goal-setting change, it is possible that students did not set more ambitious goals because they were satisfied with the gains they were making. For example, if students wanted to read 105 words per minute and were only reaching 90, they may have changed their goal-directed behaviors to close that gap. We did not collect data regarding students’ satisfaction during this study, thus, future research should explore this in greater depth. Further research is needed; however, unmotivated readers can be supported by directly teaching them to set high quality goals rather than expecting goal improvements to arise without direct intervention. Future research wishing to enact these changes may need to explicitly engage in goal-setting with students to lead to changes in reading time (Wigfield & Guthrie, 1997).

Limitations

There are several limitations that should be considered when interpreting the results of this study. There were a number of novel aspects of the measurements created for this study. For example, researchers created the microanalytic assessments to measure the characteristics of motivation. Researchers did not measure every aspect of motivation. Given that the measures have not be previously validated, we need to consider that undetected motivation gains may have occurred.

This is a case study with five participants who vary in grade level from third to fifth grade. The number of participants across three grades limited the generalizability of
the results. Also, due to COVID-19, recruitment for this study was difficult due to many individual and familial difficulties. To further complicate recruitment, our population of interest included students who were not motivated to read, which may have limited response rates. In addition, recruitment via social media, emails, flyers etc., may be a potential challenge for conducting online intervention research with students who struggle to read. As a result of low participant numbers, some of the participants of our study may not have been the best fit for our project. Specifically, participant number five reported relatively high levels of self-efficacy at screening, which may have attenuated the possibility of intervention effects.

Some additional limitations that should be considered within this study are related to the ceiling effect achieved by participants, especially with the item of self-efficacy of the 25th percentile. Students achieved the ceiling effect early on in the study and were consistently scoring ten out of ten. For example, prior to the start of the intervention of this study, when examining the 25th percentile, all participants scored a 10 more than once.

Although all participants read below the 25th percentile for their grade, most started near the 25th during the screening and baseline phase. Some participants may have achieved a ceiling effect before the start of the intervention because of their close proximity to that criterion at screening. This study’s intervention is helpful for increasing proximal self-efficacy, but future research should focus on designing interventions to also improve distal self-efficacy, goal-setting, and interest.
Summary

The purpose of this study was to conduct an investigation of the effects of a repeated reading intervention with self-monitoring on self-efficacy, goal-setting, and interest by using microanalysis. Results indicate that this intervention method may support self-efficacy, but we did not find support for interest nor goal-setting. The results from this study are important for school staff members because it illustrates how a common intervention improves reading fluency, and proximal self-efficacy. This data is fascinating because it shows that despite gains in reading fluency and self-efficacy, it may not translate to greater interest nor better goal-setting. Lastly, further research is needed since this study examines more specific characteristics of motivation as well as the differentiation of proximal and distal self-efficacy to further the motivational beliefs of students for longer lasting impacts of reading improvements. Moreover, researchers could find this study beneficial if they are seeking to study motivation through microanalysis.
REFERENCES


Hartini, S. (2012). *The use of learning cell technique to improve students’ reading comprehension* (Doctoral dissertation, UNS (Sebelas Maret University)).


M. Hersen (Eds.), *Single case experimental designs* (2nd ed., pp. 285-324). New York:


APENDICES
APPENDIX A

Intervention Manuscript
Self-Regulated Learning (SRL) Microanalysis  
(Repeated Reading Edition with Progress Monitoring)

Demographics

Student ID#: ___________________  Date: ___________ Time: __________

Protocol # _____________________

First Session - Introduction

Say, *Today, I am going to ask you to practice some reading. I will also ask you some questions about how you think and feel about reading. There are no wrong answers to these questions. Just tell me what you are thinking.*
Say, “Thank you for working so hard, before I ask you some questions, I want you to look at this graph.”

### Progress Monitoring Graphing:

1. Say, “This is a graph showing each of your first reading attempts from each session that we have done so far. Today, on your last reading attempt, you read __ words in one minute, now we will add your reading attempt to the graph by drawing a line at the number of words you have read in one minute, and lightly shading all the boxes below the line.

### Directions:

- When the student makes an error in the graphing say, “You read __ words per minute, so your line should be here, with all boxes lightly shaded below this line.”
Transition

Say, “Thank you for working so hard. In just a minute, I am going to ask you to read a new passage again. It will be similar in difficulty and length. Before we read the next passage, I want to ask you some questions. Sound good?

Self-Efficacy of Reading Rate:

1. Say, “Using this chart [Show Cue Card A], where one [point] means that you are Not At All Sure and ten [point] means that you are Very Sure… how sure are you that you can….

   1. Read to THIS point or further [point to the spot on the passage that indicates 91 words per minute] on the next try?”
      • Record value: ______

   2. Read to THIS point or further [point to the spot on the passage that indicates 112 words per minute] on the next try?”
      • Record value: ______

   3. Read to THIS point or further [point to the spot on the passage that indicates 139 words per minute] on the next try?”
      • Record value: ______

Directions
If student provides a half number, direct them to pick a whole number.
• Example, “You said 2.5. If you had to pick either a 2 or a 3, which would it be closest to?”

Grade Level
Spring 25th %tile
• 3rd Grade = 91
• 4th Grade = 105
• 5th Grade = 119

Spring 50th %tile
• 3rd Grade = 112
• 4th Grade = 133
• 5th Grade = 146

Spring 75th %tile
• 3rd Grade = 139
• 4th Grade = 160
• 5th Grade = 169

*If student had zero errors or fewer errors than the prompt suggests, ask “how likely is it that you will read with two errors, one error, and zero errors.

Repeated Reading Passage 2
Say, “We are now done with the reading practice for today, but I want to ask you a few questions about your reading outside of school tonight. Sound good?”

### Goal-Setting

Say, “Will tonight be a normal night? For example, if you had a party to attend or some other unusual event, tonight would NOT be a normal night.

- If no – “Let’s think of the next normal night. Will tomorrow be a normal night?”

**How much time will you spend reading tonight?**

4. **Record Response:** ___________________

### Interest

Say, “Using this chart [Show Cue Card B, point to the numbers as you read], where one means that you are Not at all interested and ten means that you are very interested…”

5. **How interested are you in reading tonight?**

- **Record value:** ______

### Directions:

- Record response verbatim.
- If a student picks a range of numbers, ex: 10-20 minutes. Say, “Pick a more specific number to spend reading tonight.”

### Directions:

- If student provides a half number, direct them to pick a whole number.

Example, “You said 2.5. If you had to pick either a 2 or a 3, which would it be closest to?”
Microanalysis
Of reading for over extended amount of time

Say, “Thank you for answering these questions. I just have a few more questions to ask you and then we will be all done for today.” For these next questions, I want you to think about now until the end of winter break. Okay?

<table>
<thead>
<tr>
<th>Self-Efficacy of Reading Rate:</th>
</tr>
</thead>
</table>
| Say, “Using this chart [Show Cue Card A], where one [point] means that you are Not At All Sure and ten [point] means that you are Very Sure… how sure are you that you can….

6. Read to THIS point or further [point to the spot on the passage that indicates 91 words per minute] by the end of winter break?”
   - Record value: ______

7. Read to THIS point or further [point to the spot on the passage that indicates 112 words per minute] by the end of winter break?”
   - Record value: ______

8. Read to THIS point or further [point to the spot on the passage that indicates 139 words per minute] by the end of winter break?”
   - Record value: ______

<table>
<thead>
<tr>
<th>Directions</th>
</tr>
</thead>
<tbody>
<tr>
<td>If student provides a half number, direct them to pick a whole number.</td>
</tr>
<tr>
<td>Example, “You said 2.5. If you had to pick either a 2 or a 3, which would it be closest to?”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>3rd Grade = 91</td>
</tr>
<tr>
<td>4th Grade = 105</td>
</tr>
<tr>
<td>5th Grade = 119</td>
</tr>
</tbody>
</table>

| Spring 50th %tile |
| 3rd Grade = 112 |
| 4th Grade = 133 |
| 5th Grade = 146 |

| Spring 75th %tile |
| 3rd Grade = 139 |
| 4th Grade = 160 |
| 5th Grade = 169 |
Ending Script

Say, “Thanks for working so hard today. We are now all done for today.

Reflections/Notes

Any additional notes regarding this student or interview can be recorded here when needed. You may use this space to indicate any deviations from standardized procedures.
### Cue Card A:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all sure</td>
<td>Not very sure</td>
<td>Kind of sure</td>
<td>Very sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Diagram showing scale from 1 to 10 with descriptions: Not at all sure, Not very sure, Kind of sure, Very sure]
### Cue Card B:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all interested</td>
<td>Not very interested</td>
<td>Kind of interested</td>
<td>Very interested</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Diagram showing scales from Not at all interested to Very interested]
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 minute</td>
<td>10 minutes</td>
<td>20 minutes</td>
<td>30 minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40+ minute</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

Demographic Form
Participant’s name: _____________________________

What is your relationship to the child in this study?
 a. Mother
 b. Father
 c. Grandmother or Grandfather
 d. Other__________________________________________

Are you the child’s primary caregiver?
 a. Yes
 b. No

With which race/ethnicity does the participant identify? (Select all that apply)
 American Indian or Alaska Native
 b. Asian
 c. Black or African American
 d. Native Hawaiian and Other Pacific Islander
 e. White
 f. Multiracial
 g. Hispanic or Latino
 h. Other__________________________________________

What is the participant’s age? ____
What is the participant’s grade? ____
With which gender does the participant identify with most?

________________________

Is English the participant’s native language? __________
If no, what is their native language? ___________________

Does the participant receive special education services for an educational or psychological disability in school? ______
   If yes – under what eligibility category?
 a. Autism Spectrum Disorder (ASD)
 b. Deaf blindness
 c. Developmental Delay
 d. Emotional Disturbance
 e. Hearing Impairment/Deafness
 f. Intellectual Disability
 g. Multiple Disabilities
 h. Orthopedic Impairment
 i. Other Health Impairment (OHI)
 j. Specific Learning Disability (SLD)
 k. Speech Language Impairment
 l. Traumatic Brain Injury
 m. Visual Impairment
n. Don’t know

If yes – in what grade did you first start receiving services?

____
APPENDIX C

Proficiency Exam
Watch the video recording of the interview and put a check in the box if you can hear them doing the task.

**Proficiency Exam**

Participant:   Session:

<table>
<thead>
<tr>
<th>Number of steps completed: ______</th>
<th>Number of steps missed:___________</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentage of steps completed:</strong>________</td>
<td></td>
</tr>
</tbody>
</table>

**Reading Intervention**

1. Read ALL of the directions flawlessly  
2. Stopped at the one-minute point  
3. Marked the last word with a bracket  
4. Re-directed speed-reading*  
5. Paused timer and resumed when student reached a point of interruption*  
6. Prompted with word for 3-second hesitations*  
7. Marked errors with a slash and trial number *  
8. Correctly identified errors (substitution, mispronunciation, adding/deleting ending, literal reading, omission of whole word, and word reversal where each word is counted as an error, if there were no errors identified then there will be no slashes to mark errors)*

**Microanalysis Questions**

9. Read transition prompts flawlessly  
10. Read directions flawlessly (during progress monitoring)  
11. Read directions flawlessly (during “next try”)  
12. Read directions flawlessly (during goal-setting and interest)  
13. Read directions flawlessly (during “winter break”)  
14. Recorded student responses’ verbatim  
15. Filled out all responses in the record form  
16. Verbally aided participant with the correct positions on chart  
17. Redirected student when answer is not valid (student failed to be specific, student chose an inappropriate number.) *  
18. Used appropriate cue cards

*If this did not occur due to a lack of the specified error, mark the fidelity step as complete
APPENDIX D

Parent Usage Rating Profile
**Directions:** Consider the described intervention when answering the following statements. Circle the number that best reflects your agreement with the statement, using the scale provided below.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agreement Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>This intervention is an effective choice for addressing a variety of problems</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>I would need additional resources to carry out this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>I would be able to allocate my time to implement this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>I understand how to use this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>A positive home-school relationship is needed to implement this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>I am knowledgeable about the intervention procedures.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>The intervention is a fair way to handle the child’s behavior problem.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>The total time required to implement the intervention procedures would be manageable.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>I would not be interested in implementing this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>My administrator would be supportive of my use of this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>I would have positive attitudes about implementing this intervention.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This intervention is a good way to handle the child’s behavior problem.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Preparation of materials needed for this intervention would be minimal.</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14.</td>
<td>Use of this intervention would be consistent with the mission of my school.</td>
</tr>
<tr>
<td>15.</td>
<td>Parental collaboration is required in order to use this intervention.</td>
</tr>
<tr>
<td>16.</td>
<td>Implementation of this intervention is well matched to what is expected in my job.</td>
</tr>
<tr>
<td>17.</td>
<td>Material resources needed for this intervention are reasonable.</td>
</tr>
<tr>
<td>18.</td>
<td>I would implement this intervention with a good deal of enthusiasm.</td>
</tr>
<tr>
<td>19.</td>
<td>This intervention is too complex to carry out accurately.</td>
</tr>
<tr>
<td>20.</td>
<td>These intervention procedures are consistent with the way things are done in my system.</td>
</tr>
<tr>
<td>21.</td>
<td>This intervention would not be disruptive to other students.</td>
</tr>
<tr>
<td>22.</td>
<td>I would be committed to carrying out this intervention.</td>
</tr>
<tr>
<td>23.</td>
<td>The intervention procedures easily fit in with my current practices.</td>
</tr>
<tr>
<td>24.</td>
<td>I would need consultative support to implement this intervention.</td>
</tr>
<tr>
<td>25.</td>
<td>I understand the procedures of this intervention.</td>
</tr>
<tr>
<td>26.</td>
<td>My work environment is conducive to implementation of an intervention like this one.</td>
</tr>
<tr>
<td>27.</td>
<td>The amount of time required for record keeping would be reasonable.</td>
</tr>
<tr>
<td>28.</td>
<td>Regular home-school communication is needed to implement intervention procedures.</td>
</tr>
<tr>
<td>29.</td>
<td>I would require additional professional development in order to implement this intervention.</td>
</tr>
</tbody>
</table>