# THE IMPACT OF A BOOK FLOOD ON READING MOTIVATION AND READING ACHIVEMENT OF FOURTH GRADE STUDENTS 

by

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I dedicate this dissertation to my family and friends. A special thank you goes to my loving and supportive husband, John and daughter, Nicole who have made numerous sacrifices and tirelessly supported me throughout this journey. I will always appreciate all that you both have done. I also dedicate this dissertation to my mother, Velma for instilling the love of reading by playing recorded stories on the record player when I was a child. I know that you have watched over me from heaven as I have aspired to reach the goals that you said were possible. To my father, Orice, when I began this journey I never thought that you would not be present when I crossed the finish line. Your tenacity and spirit have kept me centered and focused. Sincere appreciation is extended to my siblings, Antionette and Orlando for their encouragement and unyielding confidence in my ability to complete this endeavor. To my cousin, Norma, who has been a constant source of inspiration and moral support. To my friends Janet and Joanne who provided a place for respite and never grew tired of listening to my ramblings. Thank you to the fourth-grade students and their teachers who actively participated in this research. And finally, a thank you goes to Dr. Ashelin R. Currie, for holding the lantern so that I could see my way through the tunnel.

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# ABSTRACT <br> THE IMPACT OF A BOOK FLOOD ON READING MOTIVATION AND READING ACHIVEMENT OF FOURTH GRADE STUDENTS 

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Reading proficiency makes profound differences in reasoning and the ability to learn new information. Past research has indicated that avid readers demonstrate superior literacy development and a wide-range of knowledge across subjects (Allington, 2011; Guthrie, 2008; Krashen, 2004). In a contrasting trajectory, a child who does not engage in reading has limited exposure to a wide vocabulary (Cunningham \& Stanovich, 1997) and a gap in knowledge ensues that adversely impacts literacy into adulthood (Hodgkinson, 1995; Neuman \& Celano, 2006).

This quasi-experimental study examined the impact of readily accessible books on students' motivation to read, attitudes towards reading and reading achievement when students are provided daily opportunities to read self-selected materials provided through a book flood. Book floods are designed to provide a large number of books to a classroom with limited books.

Thirty-eight fourth grade students from two intact classrooms were assigned as the treatment $(\mathrm{n}=19)$ and the control group $(\mathrm{n}=19)$. Participants in both the control and treatment group were administered pre- and post-test to measure reading motivation and
attitudes towards reading. Participants' scores from the district mandated assessment were used to measure pre- and post-treatment reading achievement. The fourth-graders in the treatment group were provided 15-minutes daily to read self-selected books from the book flood. Participants in the treatment group recorded and rated the self-selected books in reading logs for a 12-week period.

ANCOVA was conducted to compare post-tests results on the Elementary Reading Attitude Survey (M. McKenna \& Kear, 1990), the Self-Regulation Questionnaire-Reading Motivation (De Naeghel, Van Keer, Vansteenkiste, \& Rosseel, 2012), and the Northwest Evaluation Association Measures of Academic Progress (NWEA, 2003). Analyses of the data indicate significant differences between the control and treatment group on post-test results for recreational autonomous and academic autonomous reading motivation but not on post-test results for attitudes towards recreational and academic reading. Correlation relationships and other descriptive findings are discussed.

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# LIST OF ABBREVIATIONS 

| ERAS | Elementary Reading Attitude Survey |
| :--- | :--- |
| MAP | Measure of Academic Progress |
| NAEP | National Assessment of Educational Progress |
| NWEA | Northwest Educational Assessment |
| RIT | Self-Regulation Questionnaire Unit |
| SRQ | Recreational Autonomous |
| RA | Recreational Controlled |
| RC | Academic Autonomous |
| AA | Academic Controlled |

## CHAPTER ONE

## INTRODUCTION

## Statement of the Problem

A fundamental responsibility of a literacy teacher is to teach children to read well while promoting the desire to read frequently and to read for pleasure. When children read well and read frequently they are more likely to develop a robust vocabulary (Nagy, Herman, \& Anderson, 1985) and accumulate background knowledge that helps them make sense of the world (Anderson, 2004). Reading proficiency makes profound differences in reasoning and the ability to learn new information. Past research has indicated that avid readers demonstrate superior literacy development and a wide-range of knowledge across subjects (Allington, 2011; Guthrie, 2008; Krashen, 2004). In a contrasting trajectory, a child who does not engage in reading has limited exposure to a wide vocabulary (Cunningham \& Stanovich, 1997) and a gap in knowledge ensues that adversely impacts not only the earliest years of literacy development but also literacy into adulthood (Hodgkinson, 1995; Neuman \& Celano, 2006).

In his analysis of research on cognitive processes and reading development Stanovich (1986) explains the bi-directional relationship between reading and reading achievement. Stanovich (1986) identifies this process as the " Matthew effects" (p.381) taken from the Biblical passage that describes a rich-get-richer and poor-get-poorer phenomena. According to the "Matthew effects" children who demonstrate reading difficulty in the early grades may become discouraged and withdraw from practicing their reading. The limited reading practice exacerbates the students' difficulty with reading
and by the time they reach the intermediate grades motivation to read has declined and a negative attitude towards reading has been formed.

Motivation is a critical factor in fostering successful reading experiences. The classroom library can serve as an impetus to stimulate several key constructs of motivation, specifically, attitudes towards reading, topic interest, self-concept, and the value of reading (Allington, 2012; Elley, 2000; Ivey, 2013; Ivey \& Broaddus, 2001; Worthy, Moorman, \& Turner, 1999; Worthy \& Roser, 2010). Research on the role of motivation in developing habitual readers often distinguishes between intrinsic and extrinsic motivation (Guthrie \& Wigfield, 1997, 2000; Schiefele, Schaffner, Möller, \& Wigfield, 2012; Wigfield \& Guthrie, 1997). Students who are intrinsically motivated to read do so because it is inherently interesting and enjoyable (Deci, Ryan, \& Williams, 1996). They possess the disposition and desire to read when it is necessary and elect to do so during their free time (Guthrie \& Wigfield, 2000; Morrow, 1996).

## Background

Students from economically disadvantaged communities have less access to books than students from middle and high-income homes (Neuman \& Celano, 2001) and may depend more on schools for reading material (Constantino, 2005; Worthy et al., 1999). Increasing the number of students who become proficient and avid readers can be accomplished through numerous opportunities to engage in successful reading experiences (Allington, 2011). Studies show classroom libraries with high-quality books that are varied in levels of text complexity, genre and cultural diversity are vital to improved literacy (Gallagher, 2009; D. Miller, 2014; Worthy \& Roser, 2010). Fielding,

Wilson, and Anderson (1989) recommend immediate access to books through classroom libraries to promote on-going opportunities for all students to read. Beyond instilling a love of reading, classroom libraries support and enrich the core curriculum. A rich collection of books makes differentiation of instruction more plausible because teachers can individualize reading opportunities and appropriately address text complexity by matching students to text they can read with high levels of accuracy, fluency and comprehension (Allington, 2012; Hunter, 2004). Studies designed to provide students with easy access to books have shown potential in improving attitudes about reading and academic achievement for students in high-poverty communities and dual language learners (Elley, Cowie, \& Watson, 1975; Fader \& McNeil, 1968; Ingham, 1981; Neuman, 1999; Worthy \& Roser, 2010).

Saturating the academic environment of students with books dates back to the middle of the last century when Fader (1968) implemented a program that replaced traditional school text with newspapers, magazines, and paperbound books in an incarceration facility for delinquent male teens. Shortly thereafter, the term "Book Flood" (Elley et al., 1975) was coined to describe the process of saturating an environment with books. Through book floods, large quantities of books are provided to a classroom and teachers participate in professional development regarding effective ways to use the books (Elley et al., 1975; Ingham, 1981; Neuman, 1999; Worthy \& Roser, 2010). One major finding from book flood studies is that the impact of providing readily accessible books is determined by what teachers do with the books (Ingham, 1981; Neuman, 1999; Worthy \& Roser, 2010).

## Significance of the Study

Research indicates that reading motivation declines as students move from lower elementary into the intermediate grades (Guthrie \& Wigfield, 2000; M. C. McKenna, Conradi, Lawrence, Jang, \& Meyer, 2012; M. C. McKenna, Kear, \& Ellsworth, 1995; Unrau \& Schlackman, 2006) and that students frustrated with literacy tasks seldom choose to participate in reading and writing (Gambrell \& Morrow, 2014). These students proceed on a downward academic spiral as they engage in less reading (Guthrie, 2008). To this end it is imperative to create upper elementary classroom environments that promote motivation to read and advance students to their full literacy potential.

## Design and Methodology

The purpose of this research was to examine the impact of a book flood on fourthgrade students' motivation to read, attitudes towards reading and reading achievement. Prior book flood research has been conducted predominantly to support second language reading pedagogy in a variety of global context (e.g. De'Ath, 2001; Elley et al., 1975; Elley \& Mangubhai, 1983; Ingham, 1981). Book floods are designed to provide ready access to a collection of books and may increase positive attitudes towards reading and advance reading achievement through opportunities to read self-selected materials. The present study extends prior book flood studies in several ways. The study was designed to promote autonomous (intrinsic and well-internalized) motivation through implementing a treatment based on five key factors to creating a classroom culture that fosters motivation to read: a) relevant reading material, b) diverse reading materials, c) daily opportunities to read, d) choice and e) authentic social interactions regarding
materials read (Gambrell, 2011). Second, the study was designed to be implemented within the constraints of existing district-wide curriculum standards and reading block.

## Research Questions

This research focused on three questions to examine the impact of a book flood on motivation to read, attitudes toward reading and reading achievement of fourth-grade students.

1. How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
2. How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?
3. How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood?

## Participants

Students. The participants in the study were 38 fourth-grade readers (17 boys and 21 girls) from a Title I ( $95 \%$ of the students qualify for free and reduced lunch) elementary school with a high-priority designation located in a Midwestern urban community. The high-priority designation identifies the school as performing in the lowest $5 \%$ of schools in the state. The student population is culturally diverse with $40 \%$ African-American, 39\% Hispanic, 15\% Caucasian, and 5\% Asian. The 38 participants comprised a treatment group $(\mathrm{n}=19)$ and control group $(\mathrm{n}=19)$ based on a convenience sample of two intact classrooms.

Teachers. The teachers in the study each reported more than 20 years of classroom experience with at least 8 years teaching fourth-grade.

## Instrumentation and Data Collection

Prior to and at the end of the 12 -week treatment period data were collected. The researcher administered two instruments, a reading attitude survey, the Elementary Reading Attitude Survey (M. McKenna \& Kear, 1990) and a reading motivation questionnaire, the Self-Regulation Questionnaire-Reading Motivation (De Naeghel et al., 2012). Furthermore, all participants completed the district mandated reading achievement assessment, the Northwest Evaluation Association Measures of Academic Progress (NWEA, 2003). Moreover, a group of five students were interviewed to provide a platform for some participants to articulate their thoughts about preferred books and the impact of the book flood in their classroom. In addition the teachers from both classrooms estimated and ranked participants by reading ability from the strongest reader in the class to the reader that required the most support.

Attitude. The Elementary Reading Attitude Survey (ERAS) (M. McKenna \& Kear, 1990) is a norm referenced survey that consist of 20 items and is appropriate to administer to a whole class. The survey comprises two subscales measuring attitude towards recreational and academic (school-related) reading. The survey uses a pictorial rating scale based on the cartoon character Garfield. The responses are quantified by an assigned point value of 1 to 4 with a value of " 4 " indicating the happiest (the Garfield the furthest left) to the value of " 1 " indicating the least happy feeling associated with the
question. The ERAS was administered as a pre- and post-treatment measurement of reading motivation.

Motivation. The Self-Regulation Questionnaire-Reading Motivation (SRQ) (De Naeghel et al., 2012) is a 17 item self-reporting questionnaire designed to measure reading motivation of upper elementary students based on Self-Determination Theory (SDT) (Deci \& Ryan, 2000) for both recreational and academic reading. The SRQ measures two types of autonomous reading motivation, intrinsic regulation (reading is pleasurable) and identified regulation (reading is personally valuable) and two types of controlled reading motivation, introjected (internal pressure to read) and external regulation (external demands to read). The first eight items of the questionnaire measure autonomous reading motivation of recreational and academic reading. The subsequent nine items measure controlled reading motivation for both recreational and academic reading. Each item is scored on a 5-point Likert-like scale, ranging from 5 (agree a lot) to 1 (disagree a lot). The SRQ was used to measure motivation to read prior to the book flood and after the book flood for the treatment and control groups in the study.

Teacher a priori judgment. Teachers systematically ranked the students according to reading ability based on classroom performance as compared to their classmates. The teacher created reading ability ranking was compared to the NWEA MAP RIT scores to explore any association between classroom performance and reading aptitude based on the District identified data.

District identified testing. District identified testing data generated through the Northwest Evaluation Association Measures of Academic Progress (NWEA MAP) was
used to determine the impact of the book flood on reading achievement. The NWEA MAP is a set of progress monitoring assessments aligned with the Common Core State Standards and linked to Tier II (small group) and Tier III (intensive intervention) instruction. The assessments are administered for the purpose of determining the impact of instruction on discrete skills over time. NWEA assessments are mandated by the school district and are administered three times each school year (fall, winter and spring) (NWEA, 2003).

Interviews. Informal conversational interviews were conducted prior to the book flood and at the end of the study. The primary goal of the interviews was to provide a platform for participants to articulate in their own words the impact of the book flood. A pre-treatment focus group interview (Gall, Gall, \& Borg, 2007) was conducted using a random selection of five students from the treatment group to determine student topic interest, favorite reading genre and favorite authors. The pre-treatment interview (Gall et al., 2007) provided essential information that was used to create a rich collection of books that were relevant and reflected the lived experiences and interest of the participants in the study. A post-treatment interview of the same students provided insight into the participant's perception of the overall impact of the book flood.

Reading logs. Reading logs were used to monitor opportunities to read books from the book flood. Each participant in the treatment group was instructed to document their reading for two weeks before receiving new logs. The logs were used to track titles, authors and the number of pages read during the 15 -minute sustained silent reading period. Participants rated the quality of the book and determined if they would
recommend the book to a friend. The quality of the book was rated using a 5 -star Likertlike scale with five stars representing an excellent read. After completing or abandoning a book each participant used the logs to indicate if they would recommend the book to a friend by writing "I would/would not recommend this book to a friend because
$\qquad$ ."

## Treatment Conditions

The three research questions were examined through a quasi-experimental nonequivalent control-group study. Two intact fourth-grade classrooms were assigned as the treatment group or the control group. The participants in the treatment group read self-selected materials from the book flood for 15 minutes each day and maintained a reading log to document books read. The participants in the control group continued the reading practices as determined by the school district. The control group classroom received 500 books through a book flood at the end of the 12 -week treatment period.

## Data Analysis

To reduce control for initial group differences on the pre-test, analysis of covariance (ANCOVA) was used to compare mean scores between the control and treatment group (Gall et al., 2007; Lomax, 2001). Pre- and post-mean scores for reading motivation, attitudes towards reading and reading comprehension were analyzed. Spearman's rank correlation coefficient was used to explore associations between (1) reading motivation and NWEA Map scores, (2) attitudes towards reading and NWEA Map scores and (3) class ranking of reading ability as determined by the classroom teacher and NWEA Map scores.

## Definitions

- Amotivation: The state of lacking the intention to act.
- Attitude: A set of acquired feelings towards reading that consistently predispose an individual to engage in or avoid an activity (reading).
- Autonomous motivation: To act with a sense of volition and choice.
- External regulation: The least autonomous form of extrinsic motivation; being motivated to obtain rewards or avoid punishment.
- Extrinsic motivation: The inclination to perform a task - in this case read a book- because doing so leads to separable outcomes or external purposes, such as rewards, grades or recognition.
- Identified regulation: A conscious valuing of a behavior and acceptance of the behavior as personally important.
- Integrated regulation: The most autonomous form of extrinsically motivated behavior. The behavior is congruent with personally endorsed goals and values.
- Interest: A positive orientation toward reading about a particular topic. An individual interest is a relatively stable and enduring positive orientation toward reading about a particular topic; situational interest is a context-specific positive orientation toward reading about a specific topic.
- Intrinsic motivation: The inclination to perform a task - in this case to read a book - for internal purposes such as pleasure, achieving personal goals, or satisfying curiosity.
- Introjected regulation: A type of extrinsic motivation that is partially internalized but not considered part of the integrated self; behaviors are performed to avoid guilt or to attain ego enhancements and a feeling of self-worth.
- Reading logs: A student-maintained record of books read, rated and recommended.


## Summary

There is widespread agreement that increasing the number of students who become proficient and avid readers is an important goal. Past research reveals that students' motivation to read declines as they progress through school and a rich collection of books in the classroom can serve as a catalyst to develop and maintain motivation to read. In this chapter the significance of the study and treatment design has been discussed. Several key terms used throughout the study were defined and the potential limitations to the study were listed.

## CHAPTER TWO

## LITERATURE REVIEW

## Introduction

A fundamental responsibility of a literacy teacher is to teach children to read well while promoting the desire to read for pleasure. When children read well and read frequently they are more likely to develop a robust vocabulary (Nagy et al., 1985) and accumulate background knowledge that helps them make sense of the world (Anderson, 2004). Reading proficiency makes profound differences in reasoning and the ability to learn new information. Past research has indicated that avid readers demonstrate superior literacy development and a wide-range of knowledge across subjects (e.g., Allington, 2011; Guthrie, 2008; Krashen, 2004). In a contrasting trajectory, a child who does not engage in literacy through reading has limited exposure to a wide vocabulary and a gap in knowledge ensues that adversely impacts not only the earliest years of literacy development but also literacy into adulthood (Hodgkinson, 1995; Neuman \& Celano, 2006). Neuman and Celano (2006), suggest gaps in knowledge begin at home before formal schooling and increase as children age ultimately having an adverse impact on social mobility, health care, safety and civic participation.

## The Purpose of the Study

Past research has validated the need for students to have ready access to a variety of good books in order to increase voluntary reading (Elley \& Mangubhai, 1983; Fielding et al., 1989; Ingham, 1981). The purpose of this study was to extend prior book flood studies that examined the impact of providing readily accessible books to elementary and
preadolescent students' motivation to read and reading achievement. Research indicates that reading motivation declines as students move from lower elementary into the intermediate grades (e.g., Guthrie \& Wigfield, 2000; M. C. McKenna et al., 2012; M. C. McKenna et al., 1995; Unrau \& Schlackman, 2006). This study examined the attitudes towards reading, reading motivation and reading achievement of fourth-grade students when provided daily opportunities to read self-selected material provided through a book flood. The study was designed to answer the following questions:

1. How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
2. How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?
3. How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood?

## The Significance of Access to Books

The inequities of children's access to books in homes located in low-income areas have been investigated through several studies (e.g., Neuman, 1999; Neuman \& Celano, 2001; Neuman \& Celano, 2006). Families in low-income communities may lack disposable income needed to purchase books for the home (Neuman, Celano, Greco, \& Shue, 2001). Children who start school with limited exposure to print and minimal literacy experiences are often several years behind when they enter kindergarten (Biemiller \& Slonim, 2001; Norton, 2007; Wolf, 2007).

Research reveals an inextricable connection between books in the home and academic achievement (Evans, Kelley, Sikora, \& Treiman, 2010; Neuman, 1999; Neuman \& Celano, 2001; H. Park, 2008; Trelease, 2006; Van Kleeck, Stahl, \& Bauer, 2003). Using information from a database complied as a result of the World Inequality Study, Evans, Kelley, Sikora and Treiman (2010) examined the effect of books in the home on children's attained educational levels. The researchers analyzed data from an array of countries at different levels of economic development, in different historical periods, following diverse social and political policies. They hypothesized that a scholarly home culture, measured by the number of books in a home, provides skills and knowledge that are crucial to literacy and numeracy and that those skills are valued in schools and are likely important throughout the world (Evans et al., 2010).

Evans et al. (2010) compared the survey responses of 73,349 households across 27 nations regarding the number of books in the home and levels of education attained. The survey asked a set of questions regarding the respondents' parents' educational level and occupation. Following questions about the respondents' parents was a question regarding the number of books in the home when they were 14 years old. The comparative analyses revealed several salient implications of growing up with books in the home. The difference between a home without books and a home with 500 books is as significant as the difference between having parents who are barely literate and having university educated parents on the educational attainment of the children in the household. The data revealed that children from homes with a large collection of books average three years more education than children from homes without books,
independent of their parents' education, occupation, and social class. The findings were held equally in rich and poor nations, in the past and present, and under diverse social and political governance (Evans et al., 2010).

## Summary

The implication of book exposure at home is significant to reading achievement in school. Children from homes with books are more likely to have literacy experiences essential to developing foundational skills needed to do well in school. These same children regardless of income level are much more likely to advance through schools attaining as much as three additional years of education (Evans et al., 2010). Whereas children with limited books in the home have less experience with sophisticated vocabulary and have fewer opportunities to abstract information from print before beginning school (Biemiller \& Slonim, 2001; Neuman \& Celano, 2001; Neuman \& Celano, 2006; Norton, 2007; Wolf, 2007). This limited exposure to literacy experiences through books places children from bookless homes at a significant disadvantage when compared to their middle- and upper-income peers who often have books in the home (Neuman, 1999; Neuman \& Celano, 2001; Neuman et al., 2001; Wolf, 2007). It is important that schools address the issues that arise from living in a home with few or no books. Teachers must create environments for literacy development where students see books as interesting and useful sources of information (Ingham, 1981).

## The Reciprocal Effect of Reading Volume and Reading Ability

In his analysis of research on cognitive processes and reading development Keith Stanovich (1986) explains the bi-directional relationship between reading and reading
achievement. Walberg and Tsai (1983) and Stanovich (1986) identify this process as the " Matthew effects" taken from the Biblical passage that describes a rich-get-richer and poor-get-poorer phenomena. Based on the Matthew effects children who demonstrate reading difficulty in the early grades may become discouraged and withdraw from practicing their reading. The limited reading practice exacerbates the students' difficulty with reading and by the time they reach the intermediate grades the reading gap is significant. On the other hand, those children who experience a successful start in reading become stronger and stronger. Stanovich (1986) purports that the critical variable in the bi-directional relationship that causes individual differences in reading acquisition is volume of reading experience.

In a longitudinal study conducted by Juel (1988), the acquisition of literacy of 54 children were tracked as they progressed from first through fourth-grade. The study suggested that early exposure-to-print and frequent reading experiences are significant factors in reading acquisition. At the end of the study the bottom quartile of first grade students included 29 children. The majority, 24 of the 29 children continued to attend the school through fourth-grade. Of the remaining 24, children all but three were still poor readers in fourth-grade (Juel, 1988). The student scores on the Iowa Test of Basic Skills Test indicated that 21 of the students were at least six-months below grade level. Juel (1988) suggested that children who are poor readers in first grade will choose to read less often than the good first-grade readers and will consequently have an increased chance of remaining a poor reader as they progress through to fourth-grade (see Figure 1).

Figure 1
Mean Number of Nights per Week Poor and Average to Good Readers Read at Home by Themselves (Juel, 1988, p. 442)


Note: Reprinted from Learning to read and write: A longitudinal study of 54 children from first through fourth grades by C. Juel, (1988) Journal of Educational Psychology, 80 (4), p.442. Copyright by American Psychological Association. Reprinted with permission.

Several other studies support the hypothesis that students who frequently read at an appropriate level of difficulty benefit from enhanced reading ability and improved world knowledge (e.g., Allington, 2007; Cunningham \& Stanovich, 1998; Garan \& DeVoogd, 2008; Guthrie, 2008).

In a series of benchmark studies conducted by Anderson, Wilson, and Fielding (1988) fifth grade students recorded their reading activity outside of school. In the first study 53 students kept logs of recreational activities for eight weeks, and in the second study 105 students kept logs for 26 weeks. In both studies, the students averaged 10 minutes per day reading. The researchers compared the amount of time spent reading outside school to the achievement test scores of the students.

The amount of time spent reading correlated positively to reading ability. The more students read the higher they scored on the achievement tests. Students in the $90^{\text {th }}$ percentile recorded reading five times as many minutes as those in the $50^{\text {th }}$ percentile, and more than 200 times as many minutes reading as the children in the $10^{\text {th }}$ percentile. The researchers concluded reading books was the best predictor of improved vocabulary and overall reading achievement.

A study conducted by Taylor, Frye, and Maruyama (1990), investigated the effects of time spent reading at school and at home on intermediate grade students' reading achievement. The researchers asked 195 students from 11 fifth and sixth grade classes to keep daily reading logs during their in-school reading period for 17 weeks. The students logged the number of minutes spent engaged in both assigned silent reading and silent reading of self-selected books. Students were asked to log each type of reading
separately. The results of the study supported the belief that time spent reading in school contributes to the reading achievement as measured by the Gates-McGinitie Reading Test. The researchers were unable to provide sufficient evidence that time spent reading at home contributed to reading growth. They offer the potential unreliability of selfreporting without the supervision of a teacher as a possible explanation of lack of the significance of reading at home.

## Literacy Achievement and the Common Core State Standards

Access to appropriate diverse and relevant text for all students is a means to meet the Common Core State Standards (CCSS) and close the literacy gap between children (Allington, 2012; Gambrell \& Morrow, 2014; Wilhem, 2013). The CCSS place comprehension at the center of literacy learning and reading and writing at the center of academic achievement (Gambrell \& Morrow, 2014). The CCSS provide a vision of what it means to be literate. The CCSS comprise skills essential for academic and professional success. According to the CCSS mission statement each standard is intended to be robust and relevant to the real world and to position students to compete in the global economy (Common Core State Standards Common Core State Standards Initiative, 2010a). The standards state:

Students who meet the standards readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. They habitually perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and digitally. They actively seek the wide, deep, and thoughtful engagement with high-quality literary
and informational texts that build knowledge, enlarge experiences, and broadens [sic] worldviews. (p.3)

## Disparities in Reading Achievement

Students with limited positive and successful experiences in reading spiral downward as they progress through school and are often faced with text too difficult to read (Cunningham \& Stanovich, 1998). There is considerable evidence of a growing gap in the literacy achievement of (1) minority and nonminority students; (2) students from different socio-economic status; (3) dual language learners; and (4) students identified as needing special education services (Morrow, Rueda, \& Lapp, 2009).

There are compelling reasons for the disparities in reading achievement. Very young children who are frequently read to by an adult have larger vocabularies, greater language comprehension and higher cognitive skills than children read to less frequently (Raikes et al., 2006). Research highlights the inequities of children's access to print materials or opportunities to positive experiences with books (Neuman, 1999; Neuman \& Celano, 2001). In middle-income communities the ratio of books per child is 13 books for each child, while in low-income communities the ratio of books is one book for every 300 children (Dickinson \& Neuman, 2006). During a 3 year period, Raikes et al. (2006), gathered data through the Early Head Start Research and Evaluation Project from 17 diverse programs. Interviews and surveys of 2,581 mothers of children in the programs revealed limited access to quality age-appropriate materials. Families in geographically isolated and dangerous urban areas were less likely to visit the library to obtain books for their child. Those mothers whose first language was not English reported neither public
libraries nor bookstores were likely to offer many age appropriate books in the family's primary language.

## Reading Proficiency of Fourth and Eighth Grade Students in the United States

According to the National Assessment of Educational Progress (NAEP) slightly more than one-third of the fourth and eighth grade students in the United States read at or above the proficient level indicating solid academic performance and competencies over challenging subject matter (National Center for Education Statistics, 2013). This means that two-thirds of the students in the United States read at levels below that which is needed to successfully complete grade level assignments (Allington, 2011). Gaps between European American and their African American and Hispanic peers are significant by $4^{\text {th }}$ grade and continue to increase through $12^{\text {th }}$ grade (Morrow et al., 2009). Research has documented the stability of these achievement gaps for decades (Cunningham \& Stanovich, 1997).

## The Role of Motivation

Motivation is a critical factor in fostering successful reading experiences. The importance of motivation for the development of reading has been empirically examined by a number of literacy scholars (e.g., Guthrie \& Wigfield, 1997, 2000; M. C. McKenna et al., 2012; Mucherah \& Yoder, 2008; Unrau \& Schlackman, 2006). Motivation influences the amount and breadth of reading, which in-turn impacts reading competence (Wigfield \& Guthrie, 1997). The constructs of motivation work together to create the stimulus that actuates the behavior of reading (Guthrie \& Wigfield, 2000). The classroom library can serve as an impetus to stimulate several key constructs of
motivation specifically, attitudes towards reading, topic interest, self-efficacy, and the value of reading (Allington, 2012; Elley, 2000; Ivey, 2013; Ivey \& Broaddus, 2001; Worthy et al., 1999; Worthy \& Roser, 2010).

Research on the role of motivation in developing habitual readers often distinguishes between intrinsic and extrinsic motivation (Guthrie \& Wigfield, 1997, 2000; Schiefele et al., 2012; Wigfield \& Guthrie, 1997). Intrinsically motivated behaviors are performed out of interest and require no external promise or threat (Deci et al., 1996). Students who are intrinsically motivated to read do so because it is inherently interesting and enjoyable (Ryan \& Deci, 2000a). They possess the disposition and desire to read when it is necessary and of their own volition elect to do so during their free time (Guthrie \& Wigfield, 2000; Morrow, 1996).

Conversely, extrinsically motivated behavior involves performing an activity with the intention of attaining an expected external consequence (Deci et al., 1996). An extrinsically motivated reader may read for approval, a reward or an incentive. According to Wigfield and Guthrie (1997), extrinsic motivation is not the opposite of intrinsic motivation because they are moderately connected. The connection between intrinsic and extrinsic motivation can be explored through the Self-Determination Theory (SDT) taxonomy of human motivation (Ryan \& Deci, 2000b; R. Ryan \& E. Deci, 2002). One distinctive feature of SDT is that it qualitatively differentiates between different types of motivation through a revision of the distinction between intrinsic and extrinsic motivation (Ryan \& Deci, 2000b).

Self-determination theory proposes six styles of behavior regulation which differ in the degree to which the behavior emanates from the self and is autonomous (R. Ryan \& E Deci, 2002). The six styles of regulation are conceptualized as a continuum of autonomy from non-regulation to intrinsic regulation (see Figure 2).

The theory provides a framework for identifying different autonomous (intrinsic and identified) and controlled reasons (introjected and external) for behavior. On the far left of the continuum is non-regulation, which is characterized by an absence of motivation or a state of lacking the inspiration to act or engage. Amotivated individuals do not recognize a relationship between their behavior and the behavior's subsequent outcome and may perceive their behavior as out of their control (Reeve, 2002). The most controlled of the styles is external regulation, which is the most basic form of extrinsic motivation.

Figure 2 Taxonomy of Human Motivation

| Extrinsic Motivation |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Type of <br> Motivation | Amotivation | Intrinsic <br> Motivation |  |  |  |  |
| Type of <br> Regulation |  |  |  |  |  |  |
| Non- <br> Regulation |  |  |  |  |  | External <br> Regulation |
| Qntrojection <br> Regulation | Identification <br> Regulation | Integration <br> Regulation | Intrinsic <br> Regulation |  |  |  |

Note: From Overview of self-determination theory: An organismic dialectical perspective (p. 16), by R. Ryan \& E. Deci, 2002 Rochester, NY: University of Rochester Press. Copyright 2002 by Boydell \& Brewer. Reprinted with permission.

A child that is externally regulated to perform an activity (read) will do so in order to attain a reward or avoid punishment. Miserandino (1996) suggests that a child who internalizes an externally regulated behavior and applies approval or disapproval to his or her own actions experiences introjected regulation. Introjection-based behaviors are theorized as a controlled reason to behave because the behavior is only partially internalized and is performed to avoid guilt or shame and may relate to feelings of worth (Reeve, 2002). Identified regulation involves a conscious valuing of an activity or behavior as personally important (Reeve, 2002). A child in this style of regulation personally endorses the activity and the behavior is relatively autonomous and selfdetermined. Integrated regulation is the most autonomous form of extrinsically motivated behavior. According to Reeve (2002) behaviors governed by integrated regulations are performed volitionally but are done to attain separable outcomes from the activity rather than for pure enjoyment. The final style, intrinsic regulation, is characterized by totally autonomous behavior and the child engages in the activity because it is inherently interesting and enjoyable.

An extensive body of research exists on the favorable effect of intrinsic motivation (e.g., Morrow, 1996; Schaffner, Schiefele, \& Ulferts, 2013; Schiefele et al., 2012; Unrau \& Schlackman, 2006; Wigfield \& Guthrie, 1997) as well as the instructional strategies and classroom environments that support and foster the pleasure of reading (e.g., Allington, 2012; Fractor, Woodruff, Martinez, \& Teale, 1993; Gambrell, 1996; Gambrell \& Morrow, 2014; Ivey \& Broaddus, 2001; Morrow, 1992). Based on SDT autonomy, supportive environments and instructional practices that expose students to
interesting tasks fosters an internal locus of causality that generates tasks engagement and cultivates a sense of volition (Reeve, 2002). Creating an environment that supports autonomous motivation is imperative because students frustrated with literacy tasks seldom choose to participate in reading and writing (Gambrell \& Morrow, 2014). These students proceed on a downward academic spiral as they engage in less reading (Guthrie, 2008). Students must possess literacy skills and be motivated to take ownership of their literacy development (Guthrie, 2004, 2008; Guthrie, Coddington, \& Wigfield, 2009). Classroom environments that promote autonomous motivation through choice of text and provide frequent opportunities for successful reading experiences offer a great chance to support students delayed in the acquisition of literacy capacities (e.g., Allington, 2012; Fractor et al., 1993; Guthrie, 2008; Ivey, 2013; Worthy \& Roser, 2010).

## Classroom Features and Instructional Strategies that Motivate Students to Read

Several studies report that intrinsic or fully autonomous motivation is increased when students have opportunities to read self-selected materials (Fisher \& Frey, 2012; Pitcher et al., 2007; Unrau \& Schlackman, 2006). Ivey and Brodus (2001) examined classroom features and instructional strategies that motivated middle school students to read. In two regions of the United States, more than 1700 students from 109 sixth grade classrooms responded to a survey designed as a platform for students to share the factors that motivate in school reading. The participants in the study attended schools in both urban and rural communities. The majority ( $64 \%$ ) of the participants attended schools where less than $25 \%$ of the students met guidelines for free and reduced lunch. The genders of the participants were almost equally divided with $51 \%$ male and $49 \%$ female
respondents. Teachers reported that the participants represented diverse ethnicities: 71\% European American, 12\% African American, 7\% Hispanic American, 7\% Asian American, and 3\% other.

The survey was comprised of open-ended response, short-answer, and checklist items. The survey data indicated three trends as factors that motivated the participants to read in school: independent reading, teacher read-alouds, and interesting and varied material. To garner a deeper understanding of the survey responses the researchers interviewed 31 students from three classrooms in which a large number of students reported engagement in these areas.

An analysis of responses from the question, "What makes you want to read in this class?" revealed that $42 \%$ of the students indicated an inclination to read when they had access to interesting materials and could self-select from the collection. The interviewed students discussed positive and negative reading experiences with the researchers. Selfselected reading materials were aligned with positive experiences. In contrast, the worst reading experiences were related to reading material assigned to the students. During the interview students were asked to provide advice for someone who does not enjoy reading in school. Nearly half of the students (45\%) suggested reading books on topics of personal interest as a link to reading enjoyment.

In a subsequent study, Ivey (2013), implemented an intervention to increase engaged reading for 105 eighth grade students. The participants represented a range of academic achievement levels and diverse cultural and linguistic backgrounds. All
participants attended one middle school where $40 \%$ of the school's student body qualified for free or reduced school lunch.

The intervention concentrated on self-selected, self-regulated reading of highinterest young adult literature. Prior studies (Ivey \& Broaddus, 2001; Worthy et al., 1999), indicated students are motivated to read when time to read self-selected books is provided in school. The studies also indicated that the books students prefer to read are frequently not available in school (Worthy et al., 1999).

Considering the importance of compelling reading materials (Ivey \& Broaddus, 2001; Worthy et al., 1999) that mirror the life experiences of adolescents (Moje, Overby, Tysvaer, \& Morris, 2008) the participants self-selected from a classroom library that comprised a range of multicultural, multi-genre young adult books. The participants were provided 30 minutes of the 90 -minute English block for uninterrupted silent reading daily. To create a sense of autonomy, participants were allowed to determine their individual reading pace with the option to abandon books deemed not interesting.

The teachers in the study conducted on-going booktalks on the books provided in the classroom library. The booktalks highlighted excerpts that exemplified the tone of the book and the protagonist's challenge. Students were encouraged to write the titles of the books previewed through the booktalks. During the study, Ivey (2013) modified the instructional framework in two areas to address the needs of the students. The instructional framework was adjusted to provide scheduled opportunities for students to engage in discourse with their peers and teachers regarding books they read.

Additionally, teachers were instructed to provide support in selecting text at appropriate levels of complexity for inexperienced readers.

At the onset of the study only $20 \%$ of the participants could name a book they had found interesting and only $19 \%$ of the participants reported voluntarily reading outside school. To determine the impact of the intervention, data were collected through pre- and post-questionnaires, on-going researcher observation, classroom book logs, and interviews of students who appeared highly engaged or those who were often highly disengaged during silent reading.

The analysis of the data indicated that when students have sufficient time to read books they find interesting they are easily engaged. Inexperienced readers were especially successful when the text complexity was appropriate and the books addressed areas of interest. The data from the post-questionnaire revealed that $87 \%$ of the students reported voluntary reading outside school, and $100 \%$ of the students could name a book they found interesting. The record of books read by individual students indicated that students completed an average of 41.64 books during the study. Ivey (2013) notes that scores on standardized reading test for eighth grade students in this school improved and have remained elevated in subsequent years.

## Summary

Autonomous motivation is essential to fostering the habit of life-long reading. Providing reading instruction that focus on skills to decode and interpret written text with opportunities to read self-selected materials from a collection of compelling books that are reflective of students' lived experiences can positively influence attitudes about
reading, promote ownership of literacy, and foster an understanding of the value of reading.

## Classroom Libraries and Increased Student Achievement

Increasing the number of students who become proficient and avid readers can be accomplished through numerous opportunities to engage in successful reading. Allington (2011) describes successful reading as experiences where students read with a high level of accuracy, fluency and comprehension. A rich collection of books in the classroom is vital to increasing the proficiency levels of students across the nation. Classroom libraries with high-quality books that are varied in levels of text complexity, genre and cultural diversity are vital to improved literacy (Gallagher, 2009; D. Miller, 2014; Worthy \& Roser, 2010). In What Really Matters for Struggling Readers, Allington (2012) states:

Kids not only need a lot to read but they also need lots of books they can read right at their fingertips. They also need access to books that entice them, attract them to reading. Schools can foster wider reading by creating school and classroom collections that provide a rich and wide array of appropriate books and magazines and by providing time every day for children to actually sit and read.

There is congruence across theoretical perspectives, research findings and literacy experts that access to books and motivation to read promote literacy development (Allington, 2007; Guthrie, 2008; Guthrie et al., 2009; Neuman et al., 2001). Research confirms that students from economically disadvantaged communities have less access to
books than students from middle and high-income homes (Neuman \& Celano, 2001). Constantino (1995) compared access to books at home and in the community of two seven-year-old girls. Each child was from a two-parent family. One of the girls lived in a well-established upper middle class community with professional parents. The family library consisted of approximately 300 books and 15 magazine subscriptions. The elementary school in the community has a school library with a collection of 2000 books and small collections of books (75) in her classroom. The community is comprised of a public library that is in walking distance and 12 bookstores with-in a ten-minute drive. The other little girl lived with her parents, a bartender and a cocktail waitress in an apartment. The family owns 20 books and does not subscribe to magazines. The elementary school does not have a school library. There are 50 books in her classroom. The closest public library is a 25 -minute drive from the family's apartment. There are 20 bookstores in the town but the only one in walking distance to the family is for adults only. A study conducted by Neuman and Celano (2001) supported the Constantino (1995) findings. Through a year-long analysis of the literacy resources of four neighborhoods located in one of the largest cities in the United States Neuman and Celano (2001) compared access to print in two low-income and two middle-income neighborhoods. In the low-income neighborhoods $46 \%-90 \%$ of the families lived in poverty. No families lived in poverty in the two middle-income neighborhoods. Neuman and Celano (2001) compared access to and opportunities to engage with print in six areas: the quantity and selection of children's books for purchase; environmental print (sign, logos); public areas where children could observe people reading, quantity and quality of
books in the child-care centers in the neighborhoods; quantity and quality of books in elementary school libraries; and the public library collection. Neuman and Celano (2001) found minor differences in access to print in neighborhoods of similar income and major differences in neighborhoods of dissimilar income levels. The final analysis revealed the middle-income neighborhoods were print-rich and had three times as many places to purchase books than low-income neighborhoods. The data further indicated that the children in the print-rich neighborhoods were more likely to have school libraries with trained staff, larger collections and better quality books. Neuman and Celano (2001) concluded that children from middle-income families were often deluged with a variety of reading materials and opportunities to engage with print. Children from low-income neighborhoods must persistently and aggressively seek out reading materials and opportunities to engage with print.

Constantino (2005) conducted a two-year study of six communities with average median incomes ranging from 22,000 to 700,00 . The study revealed that not only do children from higher socioeconomic status have more books in the home, but the schools in the low-income communities do not make up the difference. Some students from affluent families had more books at home than poor communities had through all school sources combined. Constantino (2005) states "Poor children everywhere are losing out on the opportunity to read and enjoy books, while affluent children are trying to decide what to read next" (p. 3).

Classroom libraries can begin to remedy the inequities in access to books.
Fielding, Wilson and Anderson (1989) recommend immediate access to books through
classroom libraries to promote on-going opportunities for all students to read. Beyond instilling a love of reading, classroom libraries support and enrich the core curriculum. Differentiation of instruction is plausible because teachers can individualize reading opportunities and appropriately address text complexity by matching students to text they can read with high levels of accuracy, fluency and comprehension (Allington, 2012; Hunter, 2004).

## The Impact of Readily Accessible Books on Reading Achievement

In a longitudinal study designed to increase voluntary summer reading Allington et al. (2007) provided 852 randomly selected students with tradebooks on the last day of school. An additional 631 students of equivalent demographics were randomly selected to serve as the control group. The participants in the study were from 17 high poverty schools in two districts.

The research team reviewed $400-600$ tradebooks that could be included in a Scholastic book fair. Text complexity and student interest were salient factors in the decision to include a book in the inventory. The research team selected books from four broad categories: (a) pop-culture, (b) series books, (c) culturally relevant and, (d) curriculum relevant. The data from the study revealed that students most often selected books from pop-culture and series books. During the final year of the study nine of the ten most popular books selected were from the pop-culture and series category.

In the spring of the school year each child in the treatment group attended the Scholastic book fair where they perused and selected 15 books to take home to read during the summer vacation. On the last day of school the students in the treatment
group received 12 of the 15 books they personally selected. The students in the control group received sticker books or puzzle books with limited print. At the end of the threeyear study the researchers concluded that based on the state reading assessment students in the treatment group had significantly higher reading achievement than students in the control group.

## Access to Books through Book Floods

The New Zealand book flood. Studies designed to provide students with easy access to books have shown potential in improving attitudes about reading and academic achievement for students in high-poverty communities and dual language learners (Elley, 2000; Ingham, 1981; Neuman, 1999; Worthy \& Roser, 2010). Saturating the academic environment of students with books dates back to the middle of the last century when Fader (1968) implemented a program that replaced traditional school text with newspapers, magazines, and paperbound books in an incarceration facility for delinquent male teens. Shortly thereafter the term "Book Flood" (Elley et al., 1975) was coined to describe the process of saturating an environment with books. Through book floods, large quantities of books are provided to a classroom and teachers participate in professional development regarding effective ways to use the books (Elley et al., 1975; Ingham, 1981; Neuman, 1999; Worthy \& Roser, 2010). In the 1970s the concept of the "Book Flood" approach was used in the South Pacific islands to address concerns about teaching English in Fijian primary schools (De'Ath, 2001; Elley, 2000). According to Elley (2000) the Fijian students faced four primary disadvantages to learning to speak and read English:

1. Students had insufficient exposure to English both at school and home.
2. Students used their native language for communication therefore motivation to learn English was weak.
3. The Primary instructional program, the Tate Oral English Syllabus included limited actual reading of English.
4. English was not the primary language of the teachers.

These four factors posed serious limitations to learning to speak and read English. Local assessments indicated that most students had low levels of mastery of English (Elley, 2000). A Nation-wide survey of year 6 students revealed that a small number of students showed satisfactory levels of reading in English (Elley, 2000). According to Elley (2000) all the students who showed satisfactory levels of reading English attended school with libraries.

During the same time frame, actor Raymond Burr donated a large supply of books to a local village school and within a few years the children at the school showed gains in learning to read English (Elley, 2000). This discovery led researchers in New Zealand to study the impact of providing high-interest books to children in schools where resources were inadequate and English was rarely spoken (Elley, 2000). In the New Zealand study (Elley et al., 1975), 400 books were provided to each classroom in two primary schools. The two schools in the study were identified as serving students with limited access to books. One school contained a library, a bookstore, and was located in a community with a public library. The other school was located in a neighborhood without a public library
and did not have a school library or bookstore. Neither school had classrooms with many books. The students in the schools were age 5-11 and were primarily Maori and Samoan. Between March and May, assessments of reading skills and attitudes toward reading were completed to collect baseline data prior to placing the books in the classroom. The pre-test battery included assessments of vocabulary, reading and listening comprehension and attitude scales that measured the students' attitudes towards school, self- concept as a reader, interests in books, and reading skills. The students were assessed again six months after the initial influx of books. Additional data were collected through student journals, informal reading inventories, teacher and researcher observations and case studies of five students from each class. Through the case studies data regarding books in the home, library use, parental interests and television viewing habits were documented. The pre-tests assessments and case studies revealed low levels of reading outside of school. Most children indicated that they had limited books at home, rarely read books at school, did not visit the public library and spent their leisure time watching television and playing sports. More than $70 \%$ of the students scored below the national average in reading comprehension, vocabulary and listening comprehension with $25 \%$ in the lowest $10 \%$ of students by national standards.

During the project the books were prominently displayed in the classroom, teachers gave booktalks and read selections from the new books in the classroom. The teachers received no training regarding effective practices to motivate reading. The researchers made a conscious decision to allow instructional shifts to occur as a natural phenomenon from the change in the classroom environment. Participating teachers
assisted in the data collection through informal observations and tracking the frequency at which students selected and read each title. The teachers and researchers observed an increase in voluntary reading, frequent request to borrow books, more student-to-student discourse about the books and a gradual maturation in the way students selected books.

To determine if the students began to read more frequently as a result of the book flood each student maintained a journal for a two-week period in May and again in November. The student journals revealed an average increase in number of books read from 6 to $8(25 \%)$ during the two-week period. The vocabulary, reading and listening comprehension assessments indicated that the largest area of growth was made in listening comprehension. The researchers posit that this may have been attributed to the amount of time teachers spent reading aloud to students. The attitude scales showed favorable yet not statistically significant changes in students' attitudes toward school and reading but no change in attitudes towards self-concept as a reader. The researchers concluded that the book flood produced positive changes in the attitudes towards reading and the amount of voluntary reading done by the students. No specific academic gains were noted.

The Bradford book flood experiment. The Bradford book flood experiment was conducted in the city of Bradford in West Yorkshire, England. The experiment addressed a limitation of the New Zealand study by including control groups comprised of similar students who would not receive books for the classroom through a book flood (Ingham, 1981). In the Bradford book flood students from four middle schools, two from the outer-city school council $(\mathrm{n}=151)$ and two from the inner-city $(\mathrm{n}=174)$, participated
in the three-year study. The schools were selected in an effort to match students with similar demographics. At the onset of the study the outer-city experimental school was culturally homogeneous with 2 of the children in the school being of Asian descent. During the three-year period of the study the Asian population at the school increased by an average of 30 students each year. The matched control school served families from a similar community and the participants were primarily of British decent with 13 students from an unidentified ethnic minority group. Most of the participants in both schools were from working-class families. The inner-city experimental school serviced a large catchment area with a greater number of parents who were unemployed and students from single parent homes than the outer-city experimental school. At the beginning of the study $14 \%$ of the students in the inner-city experimental school were from various ethnic minority groups and by the end of the study $25 \%$ of the students were of Asian descent. The inner-city control school serviced a low-income catchment area from which students are drawn with Asian student enrollment increasing from $25 \%$ at the beginning of the study to $30 \%$ at the end of the study. Each school was designated as SPA (school for students with a primary diagnosis of Autism or Asperger's Syndrome aged 6-13) except the inner-city experimental school.

The students were assessed prior to the book flood to obtain baseline data. The assessments measured reading ability, attitudes towards reading, student's view of themselves as readers and reading interest. Students completed a reading questionnaire whenever they read a trade book. The reading record provided data regarding reading habits and reading interest for each student. The questionnaire included 10 questions
including where the student located the book, the amount of the book read, student evaluation of the book, the extent to which the student might recommend the book to others and an open ended question that encouraged students to provide thoughts beyond the questions asked. In addition to the battery of tests and reading record forms the researchers interviewed teachers and conducted case studies for students in each school. The 28 case-study students were comprised of avid readers and students who read very little or did not read voluntarily during the study. Ingham (1981) engaged the case-study students in open discourse regarding their experiences during the book flood. She also conducted home visits where she interviewed parents regarding family reading habits, book ownership, and the television viewing habits of the adults and children in the home.

Ingham (1981) concluded that the greatest effect of the book flood occurred in the area of reading habits and the development of book interest. The teachers in all four schools reported a significant increase in awareness of book titles, authors, series books, and the process involved in selecting appropriate books, all of which was attributed to the use of the reading record form. The teachers in the two experimental schools reported that the book flood provided more reading choices for struggling readers to read than the reading schemes (leveled readers) used prior to the study. The wide selection of interesting books at appropriate levels and the implementation of a silent reading period provided the first pleasurable reading experience for some of the participants at the experiential schools. The teachers also suggested that the dual language learners struggled to develop proficient skills in reading English prior to the book flood because
the reading schemes used for English reading included less variability in book complexity and content.

The post-tests revealed no significant difference in reading achievement between experimental schools and control schools. At the end of the three-year study students in all four schools made considerable gains in reading. Ingham (1981) suggest that the reading culture in the control schools were impacted because the teachers and school administration reacted to being a part of the study even though they did not receive books through the book flood experiment. According to Ingham (1981) the data revealed that students in the experimental schools borrowed more books with the vast majority being from the classroom libraries. She also notes that classroom libraries facilitate more spur-of-the-moment reading and approximates reading opportunities of advantaged students with home libraries because children can access books more freely. Ingham (1981) concludes that a supply of interesting books at various levels is important to reading achievement, attitudes toward reading and reading habits but not sufficient. One major finding from the study was the impact of readily accessible books is determined by what teachers do with the books. Ingham (1981) states that "The piano in our home does not, by itself, make our children competent pianist who enjoy playing the instrument" (p. 233).

Large-scale book flood for emergent learners. Neuman (1999) conducted a large-scale book flood study to enrich the literacy opportunities for pre-school aged children in over 300 child-care centers located in low-income communities. The program provided high-quality books at a ratio of five books per child ( 88,960 books in total) and

10 hours of professional development for the staff. The child-care centers represented a wide-range of quality from centers accredited by the National Association for the Education of Young Children (NAEYC) with highly trained staff to those with very high staff turnover with a limited formal curriculum and a paltry budget. The researchers note that the educational experience of the child-care staff varied greatly with a significant number having limited formal education. The staff was trained on effective read aloud strategies and literacy activities at the local public library branches and through site-based training at the child-care centers. The initial training session was facilitated by children's librarians who discussed using books for thematic units, highlighted books across genre and demonstrated how to do booktalks. At the end of the first session staff from each participating child-care center perused and selected books for their centers. Subsequent sessions were differentiated to address the varied needs of individual centers. Topics included using books as a tool for literacy development, strategies to engage students in activities that extended read alouds and enhancing the environment to access to the books.

The researchers used systematic random sampling procedures to select focus groups from the larger pool of child-care centers. Fifty centers were selected from 10 regions to represent the different neighborhoods and socio-economic standing of the families using the centers. Children (two boys and two girls) from two classrooms in each center ( 400 children) were randomly selected to participate in the study. To form a control group, the researchers invited other centers that were not part of the book flood but with similar demographics to participate in the study. Five children were randomly
selected from 2 classrooms ( 100 children) at ten non-book flood centers to participate in the study. More than half ( $65 \%$ ) of the participants in the treatment group were African American with $65 \%$ of the participants coming from families who received government subsidies. Fifty-nine percent of participants in the control group were African American with $68 \%$ of the students in the control group coming from families who received government subsidies.

The participants' early literacy skills were assessed in September prior to the book flood and in May following the study. The battery of tests measured early literacy skills in 6 areas:

1. Environmental print: Using the Test of Early Reading Ability (TERA, 1981), participants were asked to identify ten signs in their environment.
2. Letter name knowledge: participants were asked to identify a set of symbols as letters and to identify individual letters.
3. Concepts of print: Using Clay's Concepts of Print (1979) participants' knowledge of print, book orientation and directionality were assessed.
4. Peabody picture vocabulary: Receptive vocabulary was assessed through the PPVT.
5. Concepts of writing: Participants were asked to write their name and anything else they could.
6. Concepts of narrative: Participants were asked to tell a story using the pictures in a wordless book.

The pre-test assessments revealed that prior to the book flood, no significant differences existed between treatment and control group participants with the exception of letter name knowledge, which favored the treatment group. Additional data were collected through observations, interviews, daily schedules, questionnaires and photographs to examine changes in classroom environment, literacy related interactions between the teacher and focus participants (treatment classrooms only), and storybook reading.

At the end of the study 83 of the 100 centers in the focus treatment group made notable changes to the physical environment to increase access to print materials. The data indicate the creation of book related displays, writing centers and labeling of classroom items created an environment conducive to literacy development. The observational data revealed that teacher-student literacy interactions doubled in the 100 classroom during the seven-month study. According Neuman (1999), readily accessible books and staff training positively influenced the teachers' repertoire of literacy strategies and appeared to convey to the children the enjoyment and importance of books. The literacy post-test revealed educationally meaningful differences in achievement when compared to the control group. The participants in the treatment group outperformed the control group in 4 of 6 measures. To determine the lasting impact of the book flood Neuman (1999) collected additional data 6 months after the conclusion of the study for the participants that were available. The battery of assessments was modified to adjust for participants developing skills and increased attention span. The analysis of the data indicated that the gains in literacy remained evident and the participants from the treatment group out-performed the participants in the control group on all measures.

Neuman (1999) concluded that the book flood study provides evidence that readily accessible books and high-quality book-related interactions promote cognitive and social development of emergent learners.

Book flood for disengaged bilingual fifth grade students. Worthy and Roser (2010) conducted a book flood study in a fifth grade class of first generation students or recent immigrants from Mexico in a high poverty community. They made readily accessible relevant and interesting reading material. The researchers transformed the silent reading program by flooding the class with books that targeted the academic, language needs, interest and experiences of the students. They also included teacher conferences and opportunities for peer sharing to the sustained silent reading program. Using ethnographic data gathering and analysis methods, the researchers examined the combined effects of the book flood and instructional support on the reading habits, attitudes and academic achievement of the students.

Through a series of individual interviews Worthy and Roser (2010) determined student interest, attitudes toward reading, purposes for reading and reading habits at home and in school. The researchers attempted to gain information regarding favorite authors, preferred genre and book formats so they could align the books with student preferences. The interviews revealed that students could not identify authors or titles beyond that which the teacher had read in class. Some students identified topics and subjects that they would like to read about but none of the students had experience reading about those topics. To gain a more comprehensive understanding of what type of books the students would find interesting, the researchers prepared a box with 50 books representing varied
genre, formats, and levels of complexity for the students to peruse and indicate which text were appealing. The students reported that their personal libraries ranged from 1 to 25 books with students averaging six books. The interviews also revealed that most of the students viewed reading as a task related to school assignments. At the beginning of the year each student completed a school required reading assessment. The average reading level on the English version of the assessment was early second grade. In the primary language, Spanish, students' reading levels ranged from third to middle school.

Prior to flooding the class with books, the researchers observed a limited collection of books available to use during sustained silent reading. The school provided two class sets of grade-level basal readers and accompanying paperbacks, many of which were too difficult for the students to read. The teacher added to the classroom collection with books from yard sales, those donated by retired teachers and books purchased at used bookstores. Very few books were in Spanish or culturally relevant to the students life experiences.

The researchers added 180 books to the classroom library in three phases. The three-phase book flood allowed the researchers to select additional books to add to the collection based on on-going observations and interviews. The books in the book flood included text in Spanish, pattern books, easy readers, transitional chapter books, popular series books, comic books, magazines and informational books based on student request. During each phase, approximately 60 different titles were added to the classroom collection. The researchers and teacher presented each new book through an introduction that included title, author and a short description. The books were displayed in tubs
labeled by category, format or genre (e.g., joke and comics, picture books, and informational content.

Students were provided daily opportunities to read interesting, high quality books of choice with teacher guidance and peer sharing. Immediately after the 30 -minute sustained silent reading period the teacher provided 5-minutes for students to share information about the books they were reading. Students maintained a reading $\log$ in which they recorded the number of pages read each day and a brief statement about the book. The researchers noted in the reading logs if a book was abandoned by the student. During the silent reading period one of the researchers observed the degree of engagement in the books and conferenced with a few individual students. The conference began with a simple open-ended question that would invite the student to speak freely about the books they were reading. Researchers also asked the students to rate the book as easy, about right, or difficult. The conference ended with the student reading an excerpt of about 100 words to the researcher. To collect additional data regarding the in school reading habits of the students the researchers observed students during lunch, school library visits and recess once a week.

An analysis of field notes, interviews, and conferences revealed changes in the student attitudes towards reading and their reading habits. The researchers observed an elevated value of books and reading. By mid-year the students began to view themselves as readers and conversations about books became commonplace (Worthy \& Roser, 2010). The students in the study began to accumulate stacks of books on their desk and near their personal space. Students reported that the books on their desk were either
currently being read or were on their list of books to read. Worthy and Roser (2010) note that some students even began to borrow books of varied degrees of text complexity from others in their lives. The individual stacks of books became a status symbol for the students.

Before the book flood, $27 \%$ of the students in the class passed the state achievement test as fourth graders. At the end of their fifth grade year all but one student passed the test. Through the ready access to books that students found interesting and appropriate to their reading abilities the students began to take ownership of their literacy (Worthy \& Roser, 2010).

## Summary

Readily available books are paramount to accomplishing the goal of increasing the number of students who become avid readers. A collection of books that are of high interest to the reader, varied in complexity and genre, and reflect the lived experiences of the students can provide multiple successful reading opportunities and address the literacy needs of students from diverse communities.

## Building a Classroom Library

The classroom library is often a collection of books compiled over the years by teachers who may not have selected books for genre, topic, reading levels or student interest. Building a classroom library exclusively through the experiential and financial resources of the teacher may not lead to a quality library. Fractor, Woodruff, Martinez and Teale (1993) suggest (1) the nature of the collection; (2) the size of the collection; and (3) how the collection is used are significant factors to consider when building an
effective classroom library. In a study designed to determine if elementary students had access to well-designed classroom libraries, Fractor et al. (1993) collected data from 183 classrooms in kindergarten through fifth grade. The 16 -item observational survey focused on the physical aspects of the classroom library based on nine characteristics:

- Focal area: The classroom library is attractive and highly visible.
- Partitioned and private: The library is set apart from the rest of the class.
- Comfortable seating: Seating options can include beanbags, chairs, or other creative options.
- Five to six books per child: A sufficient number to provide variety.
- Varied genre and reading levels: The library should include picture books, informational books, poetry, and chapter books as appropriate.
- Room for five to six children: An area to read together and discuss literature promotes building a community of readers.
- Two types of shelving: Shelving should provide space to display some books so the covers are visible and others spine forward.
- Literature-oriented displays and props: Bulletin boards, posters and other artifacts that relate to literature that will entice students and promote reading.
- Organization of books: Books can be categorized by genre, theme, topic, author, reading level, content area, or a combination of features.

The researchers used the nine characteristics of an effective classroom library to devise criteria to categorize the libraries in the study as basic, good or excellent. They posit that
students in classrooms with a well-designed library interact more with books, have positive attitudes towards reading, and have higher levels of reading achievement. An analysis of the survey data revealed that of the 183 classrooms, $44.3 \%$ had library centers. The percentage of classrooms with libraries was high in kindergarten - 72\% (18 of 25)- and made a significant decline by fifth grade where only $25 \%$ ( 8 of 31 ) of the classrooms in the study had a library. The data regarding well-designed libraries revealed that according to the criteria most libraries $(88.9 \%)$ were categorized as basic across all grade levels with only $3.7 \%$ of the classroom observed meeting the criteria of an excellent library. Fractor et al., (1993) suggest that well-designed classroom libraries are noticeable upon entering the classroom; they are attractive and interesting to both children and adults.

The nature of the collection. An effective classroom library is a robust selection of books comprised of a balance between fiction and informational text (Allington, 2012). The collection must mirror the cultural diversity of the entire society and reflect life experiences of the students. A wide range of reading levels ensures a match between students' abilities and text complexity leading to more opportunities for successful independent reading experiences.

Enticing and motivating students to read is a fundamental purpose of the classroom library and hence the nature of the collection of books is of particular importance. A rich diverse classroom library can foster a love for reading. Building a classroom library to reflect the interest and cultural experiences of the students requires a deep knowledge of the individuals who comprise the learning community. Reading
conferences, interviews and surveys can provide essential information about students (E. McKenna, 1997; Worthy et al., 1999; Worthy \& Roser, 2010).

Research indicates that students are more engaged in reading when they have opportunities to select the reading material from a rich diverse collection (Koskinen, Palmer, Codling, \& Gambrell, 1994; Worthy et al., 1999; Worthy \& Roser, 2010). When students are immersed in a wide range of genres they can discover what genres they enjoy reading. A balance between teacher assigned and student self-selected materials can assist students in developing a reader's identity (Wilhelm \& Smith, 2014; Wilhem, 2013; Worthy \& Roser, 2010)

Providing books for diverse learners. A culturally diverse collection of books in the classroom library can acknowledge the experiences of students from various sociocultural backgrounds (Al-Hazza, 2008; Bista, 2012; Brassell, 1999; Worthy \& Roser, 2010). Including books written by and about various cultural groups is essential to helping students develop cultural identities and promoting global understanding of others (Al-Hazza, 2008; Lukens, Smith, \& Miller, 2013; Norton, 2007). According to Galda and Cullinan (2006):

If children never see themselves in books, they receive the subtle message that they are not important enough to appear in books, [sic] that books are not for them. Conversely, if children see only themselves in books they read, the message is that those who are different from them are not worthy of appearing in books. (p. 289)

Through culturally diverse books students can develop pride in their heritage as they become aware of the contributions their ancestors have made to the world (Norton, 2007). The inclusion of multicultural books in the classroom can also lead to increased self-esteem and foster academic success (Cai, 2002). Reading about the emotions and experiences of characters from diverse cultures can help students discover and understand the universal themes inherent in human experiences (e.g., Al-Hazza, 2008; Ivey, 2013; Norton, 2007; Worthy \& Roser, 2010). Cai (2002) further explains that while exploring commonalities through multicultural literature is important it is equally important to study the differences in cultural groups and that multicultural literature can (and should) include various differences from the mainstream culture such as nationality, ethnicity, social class, gender, disability, sexual orientation, and geographic differences.

Creating a collection that is balanced in terms of diversity requires consideration of the role culture plays in the book (Galda \& Cullinan, 2006; Norton, 2007). According to Temple, Martinez, Yokota, and Naylor (2002), there is a range of cultural specificity in books. Temple et al. (2002), explain that in some books illustrations of people from different cultures are incidentally included so that the book appears culturally diverse. These books are considered culturally generic because the theme and plot are not culturally specific (Sims Bishop, 1992). Books that depict multicultural inclusiveness have merit in that they express universality of experiences (Temple et al., 2002). On the other end of the continuum are culturally specific books that highlight experiences of a specific culture (Sims Bishop, 1992). Culturally specific books include authentic discourse patterns in dialogue, authentic customs, values, and attitudes (Temple et al.,
2002). In order to reflect the depth and breadth of experiences of a cultural group, it is important that the multidimensionality of the people is represented in the books that comprise the classroom library (Temple et al., 2002). Through culturally specific books students vicariously interact and connect with the characters in the story and their understanding of different cultures is expanded (Temple et al., 2002; Yokota, 1993).

Researchers and children's literature scholars suggest selecting books that depict cultures accurately, authentically and without stereotypes (e.g., Al-Hazza, 2008; Bista, 2012; Galda \& Cullinan, 2006; Norton, 2007). A rich collection of culturally diverse books will depict both historical and contemporary life (Temple et al., 2002; Yokota, 1993), while reinforcing the idea that the world is populated by people of different ethnicities, with physical exceptionalities, who live in a variety of situations (Al-Hazza, 2008; Galda \& Cullinan, 2006; Norton, 2007; Worthy \& Roser, 2010).

Addressing the gender gap. According to a study by the Center on Education Policy (Chudowsky \& Chudowsky, 2010) boys continue to lag behind girls in reading on standardized testing for all 50 states. Research on gender differences and reading is not a recent phenomenon but dates back to the early 20th century (Stauffer, 2007). Stauffer provides a historical overview that demonstrates concerns about boys and reading have not changed significantly in over 100 years.

The reasons for the achievement gap between boys and girls are multi-faceted (Wheldall \& Limbrick, 2010). Researchers have examined biological, environmental, and genetic reasons to account for differences in reading achievement between boys and girls (Clements et al., 2006; Jaeger et al., 1998; Shaywitz, Shaywitz, Fletcher, \& Escobar,
1990). Shaywitz et al. (1990) caution that a prevalence of boys identified as reading disabled may be due to a referral bias of teachers. The researchers divided 414 students (215 girls, 199 boys) from an epidemiological sample of second and third grade students identified as having a reading disability into two groups; research-identified and schoolidentified. The research-identified classification was based on an ability-achievement discrepancy as determined by the Wechsler Intelligence Scales for Children (WISC-R) and the reading and mathematics subtests of the Woodcock-Johnson Psycho-Educational Battery (W-J). The students categorized as school-identified were designated by the school system through a series of referrals and assessments as reading disabled and eligible to receive special education services. Classroom performance was assessed by the Multigrade Inventory for Teachers (MIT). The MIT measures student performance in six domains: attention, activity, language, dexterity, behavior, and academics. Scores are derived through teacher ratings and range from 0 to 5 , with higher scores representing poorer performance. The data indicated no significant difference in the prevalence of boys classified as reading disabled in medical research-identified boys when compared to girls. In contrast, school personnel identified boys significantly more than girls as reading disabled. Boys received poorer ratings from teachers in each domain of the MIT. The teachers in the study rated boys as less focused, more active, less dexterous and having greater difficulties in language and academics than girls.

Variances in the degree of motivation have also been attributed to gender differences in reading achievement (Mucherah \& Yoder, 2008). M.C. McKenna et al. (1995) investigated the reading attitudes of first through sixth grade students from a
stratified national sample of 18,185 children across the United States. To address generalizability the sample was stratified by gender and ethnicity. Attitudes towards reading were measured using the Elementary Reading Attitude Survey (ERAS). The ERAS is comprised of two 10 -item subscales on a Likert-like scale to measure attitudes towards recreational and academic (school-related) reading. The researchers provided multiple copies of the instrument and directions to teachers participating in the study. Teachers were instructed to read each item on the survey aloud twice to minimize the effects of decoding difficulties. Prior to returning the unscored protocols to the investigators teachers coded the documents to include student gender, ethnicity and the degree to which reading instruction was based on using a basal reader. An analysis of the data revealed that attitudes towards both academic and recreational reading become increasingly negative as students move from first to sixth grade. Boys at all grade levels were more likely to view reading less favorably than girls regardless of their reading ability. M. C. McKenna et al. (1995), assert that while the attitude toward academic reading remains constant, the attitude toward recreational reading widens with age.

A potential remedy to closing the reading achievement gap begins with connecting boys with appropriate text selection and opportunities to choose what they read in school (e.g., Tyre, 2008; Wilhelm \& Smith, 2014; Wilhem, 2013; Worthy et al., 1999). Critical to this process is to consider that boys, like their female counterparts, have interests that are widely varied. Studies have indicated that boys are in fact reading but the type of reading they enjoy is not valued or available in school (Fiorelli \& Jones, 2003; Fisher \& Frey, 2012; Ivey \& Broaddus, 2001; Sullivan, 2004; Tyre, 2008; Weih,

2008; Wilhelm \& Smith, 2014; Wilhem, 2013; Worthy et al., 1999; Worthy \& Roser, 2010). Research regarding the reading habits of boys has been conducted for young readers,(Mohr, 2006), middle grade readers (Ivey \& Broaddus, 2001), and adolescent aged readers (Smith \& Wilhelm, 2002). Mohr (2006) provided a diverse selection of 10 picture books from which 190 first grade students could select a book to own. The results of the study indicated that boys more consistently than the girls selected the informational text picture books as the ones they would most like to own. In a study to examine what motivated 1765 sixth grade students to read (Ivey \& Broaddus, 2001) it was revealed that $77 \%(1,355)$ of the students surveyed indicated that magazines were their favorite books to read followed by adventure books (69\%), mysteries (68\%), scary stories (59\%), and joke books (56\%). Ivey and Broaddus (2001) further stated that only $28 \%$ of the students viewed the classroom as place with good reading material. Through a series of interviews with adolescent boys, Smith and Wilhelm (2002) discovered that boys expressed an interest in reading for a purpose. The boys referred to reading as "a tool to address an immediate interest or need" (p.39), identifying newspapers and how-to manuals as the type of reading materials that meet their needs. With this in mind it is important that classroom libraries include magazines, video game manuals, graphic novels, comic books and other options to meet the diverse interest of students and promote voluntary reading.

Informational text in an age of information. The Common Core State
Standards follow the guidelines of the NAEP and provides explicit expectations regarding student engagements with literary and informational text (Applebee, 2013). The 2009 reading framework of the NAEP recommends incremental increases in reading literary and informational text (National Assessment Governing Board, 2009). The framework calls for $50 \%$ literary and $50 \%$ informational text in fourth grade; $45 \%$ literary and $55 \%$ informational in eighth grade; and $30 \%$ literary; and $70 \%$ informational in twelfth grade. Duke (2003) defines informational text as:

Text written with the primary purpose of conveying information about the natural and social world (typically from someone presumed to be more knowledgeable on the subject to someone presumed to be less so) and having particular text features to accomplish this purpose. (p.14)

Reading for the purpose of learning requires a specific set of strategies and skills. Literacy scholars encourage an early introduction to informational text (Dreher, 1998; Duke, 2003). Frequent reading of informational text is an efficient way to increase topic knowledge and extend technical or content specific vocabulary. Some literacy scholars point out that informational text capitalizes on student interest and curiosities motivating students to read (Duke, 2000; Yopp \& Yopp, 2012; Young \& Moss, 2006).

Informational text may be embedded in a visual display that may feature various headings, subheading, graphics and captions. The discontinuous format of informational text may alter and hinder the process of comprehension. A review of the literature suggests that while there is limited empirical evidence regarding how students become
proficient in reading a particular genre it can be assumed that students develop the skills needed to read and critically interpret discontinuous text through on-going engagement with informational text (Duke, 2000, 2003; Yopp \& Yopp, 2012). Research by Duke and Kay (1998) suggests that repeated exposure to informational books through read alouds may begin to impact the child's ability to read informational text. In the study a group of kindergarten students listened to 25 informational books over a three-month period. Informational books were read to the students three to four times each week with no book being read to the class more than once. In addition, some of the books were available on tape and placed in the listening center so that children could elect to listen to the book while in the centers. The researchers documented that by the end of the study students incorporated content knowledge and the specialized vocabulary found in informational text during pretend readings of wordless informational books.

In a subsequent study, Duke (2000) discovered that across 20 first grade classroom she observed only 3.6 minutes per day were spent with informational text. The study further revealed the scarcity of informational text in the classroom libraries.

Informational text comprised a mean of only $9.8 \%$ of the books in classroom libraries in the study. Some researchers attribute low achievement in science in part to students' limited exposure to informational text (Bernhardt, Destino, Kamil, \& Munoz, 1995; Duke, 2000).

Literacy scholars suggest that half of the classroom library should be comprised of informational books across all grade levels (Duke, 2000, 2003; Moss, 2008; Young \& Moss, 2006; Young, Moss, \& Cornwell, 2007). According to Young et al. (2007), a
diverse collection of informational titles should be provided for varied purposes. The collection of informational books should support curricula topics and have a broad appeal based on student interest (Young et al., 2007). Informational books may be used for read alouds, voluntary reading, as references, and for student inquiry.

When evaluating informational books, Young and Moss (2006), recommend that teachers consider the five A's:

- The authority of the author to ensure credibility.
- The accuracy of content and visual features.
- The appropriateness for the intended audience.
- The literary artistry is engaging through narrative devices that "hook" the readers.
- The overall attractiveness of the book has a strong visual impact.

Up-to-date content is essential to a quality informational collection. Therefore it is important that informational books are reflective of contemporary theories in science, technological advances, historical events, geographic changes, biographies and mathematical concepts.

The size of the collection. Several factors determine the size of the collection needed to provide on-going successful reading experiences. In a study of exemplary first grade classrooms it was common practice to have students read approximately 10 books each day indicating as many as 500 titles may not sufficiently include enough variety for a class of 30 students (Allington, 2012). In a fifth grade classroom where students may read a book each week, 500 titles may appear sufficient. However by fifth grade, there is more likely a wider range of reading abilities and interests to support through the
classroom library (Allington, 2012). Literacy scholars recommend upwards of 1500 book titles in each classroom library (Allington, 2012; Bridges, 2014).

Another key factor in determining an appropriate collection size for a classroom library is the availability of a school library. Community wealth and allocation of funds are critical determinates in the availability of school libraries. Multiple studies consistently found that schools in low-income communities have significantly fewer books than affluent communities (Krashen, 2004; Neuman \& Celano, 2001). In lowincome urban communities schools may not have a book room or a school library leaving the onus of providing access to books on the classroom teacher.

Displaying the books in the classroom library. The nature of the collection is its most basic attribute however its design and layout is significant as well (Fractor et al., 1993). Effective classroom libraries are a critical piece of the literacy environment and should be woven throughout the fabric of the classroom. Books of high literary quality should be visible, appealing and displayed face forward as much as possible (Fractor et al., 1993). The practice of displaying books to reveal the cover is consistent with marketing strategies used in bookstores to promote and sell books (Fractor et al., 1993). Book displays can draw attention to curricular concepts, feature genre, introduce authors or entice students to read for pleasure through series books (Allington, 2007). Changing book displays frequently will highlight the variety of books that comprise the classroom library.

To assist students in selecting reading materials that are appropriately challenging, books are often coded and labeled with the reading level. Coded labels can
serve as guides to augment students' selection of books at their independent reading level (Allington, 2012; Reutzel \& Fawson, 2002; Reutzel, Jones, \& Newman, 2010; Worthy \& Roser, 2010). Not all scholars agree with this practice since it may impact the child's decision to grapple with a more challenging text. Students may successfully read text beyond their independent reading level if they view the content as interesting.

## Opportunities to Read

A beautifully displayed classroom library that includes a diverse collection of quality books provides the most literacy growth when students have daily opportunities to read and discuss the books (Allington, 2007; Duke, 2000; Guthrie, Schafer, \& Huang, 2001; Worthy \& Roser, 2010). Wu and Samuels (2004) conducted a quasi-experimental study to investigate the effects of more versus less time for independent reading for students with different reading abilities. The study included 72 students in third and fifth grade from a public school where $64 \%$ of the students qualified for free and reduced lunch. The state comprehensive assessment data revealed that the students consistently lagged behind the rest of the state. The student body was ethnically diverse with $43 \%$ White, 33\% Asian (Hmong), 15\% African-American, and 9\% Hispanic. Each grade level was divided into two groups of independent readers. One group of students at each grade level read independently for 15 minutes while the other group read independently for 40 minutes daily. Students were in intact classrooms and were not randomly assigned to the groups by the researchers.

The study measured gains in reading achievement through several assessments. To match students with the appropriate level of text complexity and determine the gains
in reading achievement the participants were tested using the Standardized Test of Assessment of Reading ${ }^{\circledR}$ (STAR Reading). A curriculum-based measurement (CBM) was included to determine the reading speed (fluency) of each participant. Reading passages were selected and matched with the participants based on the reading level as determined through STAR testing. Comprehension of each book the participants read was measured through the Accelerated Reading ${ }^{\circledR}$ quizzes. The Metropolitan Achievement Test (MAT-7) was used to determine student reading ability and the Woodcock-Johnson Reading Mastery Test provided data for the participants' word recognition ability. The MAT-7 and the Woodcock-Johnson word recognition test were administered as a pre-test at the onset of the study and a post-test at the end of the study. The STAR and the CBM were administered at the beginning of the study as a pre-test, during the middle of the study, and at the end of the study as a post-test measure of achievement.

All the participants in the study had the same amount of time during the scheduled reading block. The reading block was divided into three sessions. During the first 60minute session teachers provided explicit instruction in word recognition and comprehension. The second session comprised teachers reading aloud to the participants and facilitating discussions regarding the literary aspects of the books. The final 40minute session provided time for independent silent reading. In both groups the participants read self-selected text at an appropriate level of text complexity. The students in the 15 -minute group listened to the teacher read for 25 minutes after
completing 15 -minutes of independent reading. The students in the 40 -minute group read independently for the entire 40 minutes.

Data from the study indicate the amount of time spent reading has a positive impact on reading achievement. Participants in both third and fifth grade made gains in reading speed and comprehension. According to Wu and Samuels (2004), the amount of time devoted to independent reading must match the ability of the students. An analysis of the data aggregated by reading ability revealed that high ability readers who read 40 minutes each day had better gains in reading achievement than those who read daily for 15 minutes. However struggling readers assigned 40 minutes of independent reading made significant gains in vocabulary but did not make greater gains in comprehension over struggling readers assigned 15 minutes of independent reading time. The researchers suggest that struggling readers may initially lack the stamina to engage in long periods of independent reading.

## Teacher Guidance

Proficient readers possess the skills needed to select compelling books at appropriate levels of text complexity. Teachers can foster the development of the skills necessary to appropriately select books for students who are becoming proficient (Reutzel et al., 2010). Allington (2012), recommends teaching students to count the number of words they find difficult to read on a page as a guide to selecting an appropriate book. If a student can identify three words (primary grades) or five words (intermediate grades) on a page that they are unable to read the book may be too challenging for independent reading. He further states that if the content is highly
interesting the student may be motivated to grapple with the text and should be allowed to try. The role of the teacher is critical to supporting students as they balance reading experiences between easy and challenging text. Students who only select easy books experience little growth in reading ability (Baker \& Wigfield, 1999). On the other hand students who frequently attempt to read books too complex and challenging for their reading ability become frustrated and disengaged (Allington, 2012).

Research reports that students benefit from consistent social interactions about books (Gambrell, 1996; Gambrell \& Morrow, 2014; Morrow \& Grambell, 2000; Worthy \& Roser, 2010). Teachers have a critical role in providing interactions around the books in the classroom library. Discussions about books expand genre interest, increase appreciation of literature and promote the development of higher-level literacy skills (e.g., Gambrell \& Morrow, 2014; Garan \& DeVoogd, 2008; Ivey, 2013; Morrow \& Grambell, 2000; Worthy \& Roser, 2010). Students who discuss books with their peers and teacher have increased opportunities to become socially motivated to read (Wigfield \& Guthrie, 1997). Some students develop a sense of value and importance of being able to share what they have read and begin to take ownership of their literacy development (Ivey, 2013; Reutzel et al., 2010; Worthy \& Roser, 2010).

Gambrell (2011), recommends that in addition to reading aloud to students it is important that teachers promote books through social interactions that foster opportunities to engage in conversations regarding books read independently and as a group. Through book talks and group discussions teachers can share their enthusiasm for reading and pique students' interest while exposing them to the varied books in the
classroom library. In a study of students in grades three through five, Gambrell, Hughes, Calvert, Malloy, and Igo (2011) investigated the impact of authentic book related tasks on motivation to read and literacy development. Each student in the seven-month study was paired with an adult reader who read the same assigned books as their student. The student and adult used a pen pal format for engaging in discourse about a fiction and informational book. After completing the book(s), the adult pen pal initiated the epistolary correspondence with the student regarding the book(s). In the letters, the adult pen pal discussed the book and asked the student questions about the text. Preparation for writing a response to the adult pen pals included participation in two small group (6-8 students) 20-minute discussions regarding the assigned book. The findings from the study indicated increased motivation to read for both boys and girls. The researchers note that during the small group discussions the students were focused and shared thoughts about the books while supporting each other in developing questions to ask the adult pen pals. The researchers conclude that the social interaction and exchange of information provided value for reading, critically discussing and writing about the books they read and resulted in increased motivation to read.

## Summary

Maximizing the potential of the classroom library is contingent on the nature of the collection, frequent opportunities for students to read compelling self-selected material, teacher enthusiasm and guidance, and opportunities to engage in authentic social interactions with others regarding the books they read. It is important that teachers
read aloud daily, promote books through book talks and facilitate consistent opportunities to engage in discussions about books to help students develop the desire to read.

## CHAPTER THREE

## DESIGN AND METHODOLOGY

## Introduction

The purpose of this research was to examine the impact of a book flood on fourthgrade students' reading motivation, attitudes towards reading and reading achievement. A book flood is the process of saturating a classroom with high-interest quality books from which students can read self-selected material. Prior book flood research primarily has been conducted to support second language reading pedagogy in a variety of global context (De'Ath, 2001; Elley et al., 1975; Elley \& Mangubhai, 1983; Ingham, 1981; Mangubhai, 2001). The present research extends prior book flood research in several ways. First, the research was designed to promote autonomous motivation through implementing a treatment based on four key factors to creating a classroom culture that fosters motivation to read: a) relevant reading material, b) a rich variety of reading materials, c) opportunities to read, and d) choice (Gambrell, 2011). Second, the research is deigned to be implemented within the constraints of an existing standards-aligned curriculum and reading block.

## Research Questions

This research focused on three questions that would examine the impact of a book flood on motivation to read, attitudes toward reading and reading achievement of fourthgrade students.

1. How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
2. How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?
3. How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood? This chapter is divided into five sections: (1) design, (2) subjects, (3) description of treatment conditions (4) data collection measures and procedures and (5) data analyses.

## Design of the Study

The three research questions were examined through a nonrandom quasiexperimental design due to the fact that intact classrooms were used (Gall et al., 2007; Lomax, 2001). A quasi-experiment is a type of design in which the researcher is not able to randomly assign participants to a control or treatment group. This study is comprised of the untreated control group design with dependent pre-tests and post-tests measures as illustrated below (Shadish, Cook, \& Campbell, 2002).

| NR | $\mathrm{O}_{1}$ | X | $\mathrm{O}_{2}$ |
| :--- | :--- | :--- | :--- |
|  |  |  |  |
| NR | $\mathrm{O}_{1}$ |  | $\mathrm{O}_{2}$ |

Two intact fourth-grade classrooms at the research site were assigned as the control group ( $\mathrm{n}=19$ ) or the treatment group ( $\mathrm{n}=19$ ). The treatment consisted of providing 15-minutes daily for the participants to read self-selected books provided to the treatment group through a saturation process called a book flood. Through the book
flood 500 books comprised of a range of reading levels and varied genre were placed in the treatment classroom. The researcher provided a series of five reading logs where participants documented books read each day for the 12-week treatment period.

The inability to randomize the assignment of the participants to a control or treatment group is a limitation of the quasi-experimental design. The lack of randomization increases the likelihood that the two groups of fourth-grade participants will be statistically different on the covariate and other variables that relate to the dependent variable. To address the threat to the internal validity and to control for preexisting group differences on the pre-tests analysis of covariance (ANCOVA) was conducted to reduce the effects of initial group differences by reducing the within group error variance (Gall et al., 2007; Lomax, 2001).

The ANCOVA model is $\mathrm{Y}_{\mathrm{i}}=\beta_{0}+\beta_{1}\left(\mathrm{X}_{\mathrm{i}}\right)+\beta_{2}\left(\mathrm{C}_{\mathrm{i}}\right)+\varepsilon_{\mathrm{i}}$
$\mathrm{Y}=$ Post-tests
i = individual
$\mathrm{X}=$ factor (treatment)
$\beta_{0}=$ Overall mean of post-tests
C $=$ Covariate
$\varepsilon_{I}=$ Error term for the individual
$\beta_{1}=$ the average slope for the factor
$\beta_{2}=$ the average slope for the covariate

1. How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?

Dependent variable $=$ Post-test Self-Regulation Questionnaire Reading $=\mathrm{Y}_{\mathrm{i}}$ Independent variable $=$ Treatment $=X$

Covariate $=$ Pre-test $\mathrm{SRQ}=\mathrm{C}_{\mathrm{i}}$
2. How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood? Dependent variable $=$ Post-test Elementary Reading Attitude Survey $=\mathrm{Y}_{\mathrm{i}}$ Independent variable $=$ Treatment $=X$ Covariate $=$ Pre-test ERAS $=\mathrm{C}_{\mathrm{i}}$
3. How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood? Dependent variable $=$ Post-test Northwest Evaluations Association $=\mathrm{Y}_{\mathrm{i}}$ Independent variable $=$ Treatment $=X$ Covariate $=$ Pre-test NWEA $=\mathrm{C}_{\mathrm{i}}$

In addition Spearman's rank correlation coefficient was used explore the strength and direction of an association between:
(1) autonomous motivation ( $\mathrm{X}_{\text {autonomous motivation }}$ ) and NWEA RIT scores $\left(\mathrm{X}_{\text {NWEA }}\right.$ RIT scores)
(2) favorable attitude towards reading ( $\mathrm{X}_{\text {favorable attitude towards reading }}$ ) and NWEA Map RIT scores ( $\mathrm{X}_{\text {NWEA RIT scores }}$ )
(3) teacher-created class ranking ( $\mathrm{X}_{\text {teacher ranking }}$ ) of reading ability and the NWEA MAP assessment ( $\mathrm{X}_{\text {NWEA RIT scores }}$ )

Spearman rank-order correlation is a nonparametric measure of the direction and strength of a monotonic relationship between paired variables measured on at least an ordinal scale. Spearman's correlation is used when data have violated the assumptions of Pearson's correlation (Lomax, 2001). The interpretation is similar to Pearson, e.g. the closer $r_{s}$ is to +1 or -1 the stronger the relationship. Correlation are reported as weak (.10), moderate (.30) and strong (.50) (Cohen, 1992).

## Hypothesis

Research question 1
How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
$\mathrm{H}_{0}: \mu_{\text {control post-SRQ }}=\mu_{\text {treatment post-SRQ }}$
$\mathrm{H}_{1}: \mu_{\text {control post-SRQ }} . \mu_{\text {treatment post-SRQ }}$
Research question 2
How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?
$\mathrm{H}_{0}: \mu_{\text {control post-ERAS }}=\mu_{\text {treatment post-ERAS }}$
$\mathrm{H}_{2}: \mu_{\text {control post- ERAS }} \mu_{\text {treatment post- ERAS }}$
Research question 3
How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood?
$\mathrm{H}_{0}: \mu_{\text {control post-NWEA }}=\mu_{\text {treatment post- }}$ NWEA
$\mathrm{H}_{3}: \mu_{\text {control post- NWEA }} \sim \mu_{\text {treatment post- NWEA }}$
In order to assess the relationship between autonomous motivation, attitudes towards reading and reading achievement as indicated by the NWEA RIT scores, an exploratory analysis of descriptive data was conducted. Pre- and post-mean scores on the SRQ and ERAS were inspected. Interpretation of the inferential statistics presented from this study should be considered tentatively due to the modest sample size. The data were inspected to confirm or refute the following hypotheses:

There is no relationship between autonomous motivation to read and RIT scores on the NWEA MAP assessment.
$\mathrm{H}_{0:} \rho=0$
$H_{4} \rho \neq 0$
There is no relationship between a positive attitude towards reading and RIT score on the NWEA MAP assessment.
$\mathrm{H}_{0}: \rho=0$
$H_{5:} \rho \neq 0$
There is no relationship between teacher ranking of ability to read and RIT scores on the NWEA MAP assessment.
$H_{0:} \rho=0$
$H_{6:} \rho \neq 0$

## Pre-treatment Procedure

Prior to the onset of the treatment the researcher met with the classroom teachers to explain the treatment conditions, discuss the pre- and post-treatment data collection procedures, and provide teachers with informed consent forms that would allow the researcher to conduct research in their classroom (See Appendix A). The researcher discussed the importance of the treatment conditions for each group and asked the teachers to facilitate the treatment conditions for their classrooms with fidelity. The teacher of the control group was informed that 500 books would be provided for the classroom after the 12 -week treatment period and that the books would remain in the classrooms after the research period.

During a second meeting the two teachers ranked the participants from their classrooms based on reading ability from the strongest reader in the class to the reader that requires the most support. The following week the researcher met with both the treatment and control group to explain the research and to distribute parental permission to participate in research (See Appendix B) and student assent forms (Appendices C and D). Each student received an envelope with a parental permission slip and student assent forms. The researcher read the student assent forms to each class. The potential participants were instructed to return their assent forms and parental permission slips in the envelope provided. The researcher informed the students that the envelopes with the two permission slips would be collected the following week. The treatment group teacher and the researcher discussed the delivery of the first installment of books and the process that the participants would use to select books. The teacher and the researcher
planned to work as a team to support the participants in selecting books after the first book flood installment. This process is explicated in the description of treatment conditions.

During two subsequent visits the researcher administered the pre-treatment reading motivation questionnaire (De Naeghel et al., 2012) and a reading attitude survey (M. McKenna \& Kear, 1990) to both the control and treatment groups. The researcher met with each class twice during one week for 15-20 minutes to administer the instruments. During the first pre-treatment meeting the researcher administered the reading attitude survey. The participants were told that completing the survey would help the researcher understand how students in fourth-grade felt about reading. The researcher displayed and compared a basal reader, a subject area textbook, and a popular series book to ensure that students could distinguish school-related reading from recreational reading that may occur in the school. Two days later the researcher met with each class to administer the pretreatment reading motivation questionnaire. The researcher informed the students that the questionnaire would explain some reasons that a fourth-grade student might read (See Appendices E and F for copies of the instruments and procedures for the assessment process).

Prior to the first installment of books, students were randomly selected from the treatment group to participate in an informal conversational interview. The researcher divided the participants into three groups (high, medium, and low) based on reading ability as indicated by the teachers' class ranking. The high and low group included participants ranked as the top five and lowest five readers. The medium group included
the remaining nine participants. The name cards were placed into three paper bags. The day of the pre-treatment interview the researcher selected one card from bag \#1 (high) the classroom teacher selected three cards from bag \#2 (medium) and the researcher selected another participant from bag \# 3 (low) for a total of five participants.

The informal conversational interview was conducted to provide a relaxed and enjoyable atmosphere for the participants to share their thoughts about reading. The researcher and participants met for lunch in the school library to discuss books and reading habits. The researcher took notes during the interview. The pre-treatment interview provided information regarding preferred genre, topics and authors of the participants selected to speak for the group. The information was used to add titles to the collection of books to enhance the match between participants' expressed interest and available books in the book flood collection.

## Post-treatment Procedure

A post-treatment informal conversational interview was conducted at the end of the 12-week treatment period with the same participants to provide insight into the participants' perception of the overall impact of the book flood (See Appendix G for a copy of the questions). To measure changes in motivation to read and attitudes towards reading after the 12 -week treatment period each participant from both the control and treatment group completed a post-treatment reading motivation questionnaire and reading attitude survey. Changes in reading achievement were measured using the district identified benchmark assessment the Northwest Evaluation Association (NWEA) Measures of Academic Progress (MAP) for reading comprehension (NWEA, 2003). The
school district administers the NWEA three times each school year. Students in all grades are assessed in the fall, winter and spring. The 12 -week treatment was conducted between the winter assessment (February) and the spring assessment (June) thereby providing pre-treatment and post-treatment data.

## Participants

The participants in the study were 38 fourth-grade students (17 boys and 21 girls) in a Title I ( $95 \%$ of the students were eligible for free and reduced lunch) elementary school with a high-priority designation located in a Midwestern urban community. The high-priority designation identifies the school as performing in the lowest $5 \%$ of schools in the state. The school is part of a district and city collaboration with a local university. The collaboration provides service-learning opportunities for the university students, college readiness for the residents in the school community and economic development for the city. During the summer months students from the school district attend free programs sponsored by the university to learn algebra, explore the fundamentals of business education, and participate in an initiative designed to improve the overall health and well-being of the residence in the city where the school is located. The student population is culturally diverse with $40 \%$ African-American, $39 \%$ Hispanic, 15\% Caucasian, and 5\% Asian. The 38 participants comprised a treatment group (n=19) and control group ( $\mathrm{n}=19$ ) based on a convenience sample of two intact classrooms. Twentythree fourth-graders did not have permission to participate in the study (12 from the control classroom and 11 from the treatment classroom). No data were included for students without permission to participate. The students without permission to participate
from the treatment class were allowed to read books provided through the book flood and maintain a reading log. During the 12 -week treatment period no students left the study.

## Context of School Site

The teachers for both groups reported more than 20 years of classroom experience each having taught fourth grade for at least 8 years. Prior to the book flood, the participants from the treatment group did not have access to books in the classroom. The control group teacher reported that the participants in that class had access to a classroom library comprised of $150-175$ books. Due to budget constraints the school library had been not operational for nearly a decade. With the assistance of a team of retired librarians and a librarian from the university the school library opened during the fall (about three months prior to the beginning of the study) and included a modest collection of donated books. Prior to the book flood both fourth-grade classes made a weekly visit to the school library to check out books. No trained librarian was part of the school staff therefore a paraprofessional monitored the weekly circulation process. During the 12week treatment period the control group continued to visit the school library. The posttreatment interview revealed that the participants in the treatment group voted to discontinue the weekly visits to the school library. The school is located in a city with one public library. The public library is located 4 miles from the school and is open Monday through Thursday until 8:00 p.m. and Friday through Saturday until 5:30 p.m.

## Description of the treatment conditions

The treatment group. The researcher met with the treatment group participants prior to the first installment of books to explain the parameters of the study. The participants were told that they would have the opportunity to share their opinions about books written for students in their age range. The researcher explained that their opinions would indicate to adults which books fourth-grade students enjoy reading. This information was shared to focus participants' attention towards reading the books to express their topic and genre interests and opinions about books rather than the number of books they read. The researcher distributed and discussed the procedure for completing the reading $\log$ (See Appendix H for a copy of the reading $\log$ ). The researcher began by pointing out that each reading log had a sample of a completed entry as the first page. The participants were told to use the sample as a model for completing their logs as they read. The researcher engaged the participants in a conversation regarding the 5 -star Likert-like scale used to rate the books. The researcher suggested that the participants give a book a 5-star rating if they thought the book was excellent and that they would enjoy reading the book a second time. The researcher stated that perhaps a book would receive a 3 -star rating if it was considered a good book but the participant probably would not read it again. Finally the researcher indicated that a book should receive a 1star rating if the book was not liked. The participants were told that they did not need to complete books that they did not like but that all books selected should be recorded in the log and receive a rating. Participants were also asked to indicate if they would recommend the book to a friend or family member. Participants were informed that
every two weeks they would receive a new reading log. The researcher collected the reading logs and left the new blank logs with the teacher to be distributed after the first installment of books.

During the treatment period participants read self-selected materials provided through the book flood for 15 minutes each day. Each participant maintained a reading $\log$ that included the title of the books, pages read each day, a critique of the book using a five star rating (with five stars indicating an excellent read) and a statement that indicated if the student would recommend the book to a peer. The reading logs were used in this study to monitor daily opportunities to read. The researcher observed the 15 -minute sustained silent reading during week two and week six after the books were delivered.

The control group. The researcher did not meet with the participants in the control group after gathering pre-treatment data through the attitude survey and reading motivation questionnaire. The participants in the control group continued the reading practices as determined by the reading program adopted by the school district. The control group participants received 500 books for the classroom at the end of the 12 -week treatment period and post-treatment data were collected. The study concluded three weeks prior to the end of the formal school year. The 500 books were added to the classroom collection and remained with the teacher.

## Acquisition and distribution of books

The researcher consulted several library resources to support the selection of books purchased for the book flood. The Children's Core Collection (E. Miller, Oldham, \& Farrar, 2014) a comprehensive list of nonfiction and fiction books recommended for
children from preschool through grade six , A to Zoo: Subject Access to Children's Picture Books (Thomas \& Lima, 2014) and Popular Series Fiction for K- 6 Readers: A Reading and Selection Guide (Thomas \& Barr, 2009) were consulted for recommended titles to include in the collection.

The Children's Core Collection (E. Miller et al., 2014) contains a list of titles that are considered "most highly recommended" books in a category or on a given subject. Titles included in the collection were selected by experienced librarians from public library systems and school libraries throughout the United States. To select quality picture books that would interest fourth-grade students, A to Zoo: Subject Access to Children's Picture Books (Thomas \& Lima, 2014) was consulted. A to Zoo (Thomas \& Lima, 2014) is a comprehensive subject guide that provides a selection of nearly 20,000 titles of picture books that cover more than 1,000 subjects. Keeping in mind that children's series fiction appeals to a variety of students and is written at various levels of text complexity the researcher consulted the Popular Series Fiction for K- 6 Readers: A Reading and Selection Guide (Thomas \& Barr, 2009) which is comprised of contentbased groupings of books that maintain consistency in theme, setting or characters. The guide also includes lists of special interest to boys, girls, reluctant readers, and dual language learners.

To ensure that the collection of books included titles that were culturally relevant to the participants in the study and designated as exemplary, the researcher consulted the lists of Coretta Scott King and Pura Belpré award winning books. To provide high quality and award-winning informational and nonfiction books, titles were selected from
the National Council of Teachers of English (NCTE) Orbis Pictus award lists and the Association for Library Service to Children (ALSC) Robert F. Sibert Informational Book award list. The books (400) were ordered through a local vendor and a mass-market book club to represent a wide range of topic interest and reading levels. A significant number of books (650) were donated to the book flood collection (See Appendix I for a list of donors and grants).

The researcher delivered 400 books for the first installment of the book flood after school on the first Friday following the administration of pre-treatment assessments (See Appendix J for a complete list of books provided during the treatment period). The books were displayed in baskets and on shelves throughout the classroom. The researcher used book covers to create a display to promote the arrival of the first installment of books. The display featured fiction and nonfiction book covers from books included in book flood collection (see Figure 3). An additional 150 books were added to the collection four weeks after the initial installment. When the second set of books was delivered the researcher briefly highlighted new titles that were based on the request made by the students during the pre-treatment interview.

When the participants arrived the following Monday after the initial installment of books, the researcher reiterated the process to complete the reading $\log$ and reminded the participants in the treatment group that they were going to help adults understand the type of books fourth-grade students like to read. Participants were reminded that they were allowed to return a book without completing it if they discovered that a book was too complex or not interesting. The researcher also reminded the participants that they
were to record all books selected in the reading log, rate the book and tell if they would recommend the book to a friend before making another selection. The researcher highlighted the location of several series books and informational books that the participants revealed as interesting topics during the pre-treatment interview. The classroom teacher was absent therefore the substitute teacher allowed participants to peruse and select books from the collection in small groups. The substitute teacher and the researcher supported the process of selecting books as needed. After each participant selected a book the researcher walked them through their initial entry prompting the participants to record the title of the book and the date. The researcher asked for one male and one female student to assist absent students with completing the logs. Table 1 is a timeline of the research procedures.

Figure 3
Displays of Book Covers


## Data Collection Tools

The following instruments were used to collect data for this study:
Teacher a priori judgment. Teacher judgment is an important source of information relative to general achievement of students in elementary school (Valdez, 2013). Based on a review of 16 studies conducted over a 17 year period, Hoge and Coladarci (1989) found a moderate to strong association regarding the teachers' ability to accurately rank order students according to reading ability. Begeny, Eckert, Montarello, and Storie (2008) measured the relationship between teachers' judgment and student performance through a correlation analyses. Pearson's product-moment correlation coefficient was computed for the following variables: (a) students' words read correctly per minute (WCPM) on grade-level material and teachers' estimates, (b) students' words read incorrectly per minute (WIPM) on grade-level material and teacher estimates, and (c) students' words read correctly per minute (WCPM) on grade-level material and teachers' rating of their reading skills on the Teacher Rating Scale of Reading Performance (TRSRP). Spearman's correlation coefficient was computed for the following variables (a) students' frustration reading level and teachers' estimates, (b) students' instructional reading level and teachers' estimates (c) students' class rank in reading accuracy (with rankings determined according to other students in the class) and teachers' estimated rank (Begeny et al., 2008).

Table 1

## Book Flood Research Procedure Timeline

| DATE | ACTION |
| :--- | :--- |
| $2 / 9 / 16$ | Met with the literacy coach and the participating teachers to discuss <br> the parameters of the study. <br> Teachers completed the informed consent to conduct research <br> forms. |
| $2 / 11 / 16$ | Teachers ranked students according to their reading ability. |
| $2 / 17 / 16$ | Met with each class to explain the study. <br> Each student received an envelope with a parental permission slip <br> and student assent form. |
| $2 / 19 / 16$ | Collected permission slips and student assent forms. <br> Met with and provided an envelope with a parental permission slip <br> and student assent form to one student that was absent during the <br> first delivery. |
| $2 / 22 / 16$ | Collected additional permission slips and student assent forms. |
| $2 / 29 / 16$ | Collected additional permission slips and student assent forms. |
| $3 / 1 / 16$ | Administered pre-treatment assessment- Elementary Reading <br> Attitude Survey (15 minutes each class) <br> Collected additional permission slips and student assent forms. |
| $3 / 4 / 16$ | Met with four students who were absent to complete the ERAS (15 <br> minutes) <br> Conducted informal conversational group interview with <br> participants from the treatment group. |
| $3 / 3 / 16$ | Administered pre-treatment assessment- Self-Regulation <br> Questionnaire <br> $(20$ minutes each class) All students were present. |
|  | Met with treatment group to discuss completing the reading logs. |

Table 1
Book Flood Research Procedure Timeline

| DATE | ACTION |
| :---: | :---: |
| 3/4/16 | Delivered first installment of books after school. |
| 3/7/16 | Reviewed reading log procedures <br> Highlighted the location of popular titles and series books <br> Assisted teacher (substitute teacher) \& students with book selection |
| 3/15/16 | Observed SSR (10 minutes) |
| 3/21/16 | Collected reading log \#1 (RED) <br> Delivered reading log \#2 (GREEN) |
| 4/4/16 | School spring break |
| 4/13/16 | Delivered second and final installment of books. Highlighted books that matched student interest based on the pre-treatment interview. |
| 4/18/16 | Collected completed reading logs and deliver new reading logs \#3 (TEAL) |
| 4/26/16 | Observed SSR (15 min.) |
| 5/9/16 | Collected completed reading logs and deliver new reading logs \#4 (YELLOW) |
| 5/31/16 | Collected completed reading logs and deliver final reading logs \#5 (RED) <br> Conducted post-treatment interview |
| 6/3/16 | Administered post-ERAS to both classes Teachers re-ranked students |
| 6/6/16 | Administered post-SRQ-reading motivation to both classes Administered make-up post-ERAS to one student that was absent $6 / 3 / 16$ |
| 6/7/16 | Delivered books to control group |
| 6/10/16 | Collected final reading log |

Correlation coefficients suggested that teacher judgment with direct measures of student fluency (WCPM and WICPM), judging students' instructional levels and ranking students to peers were in the moderate to high range (Begeny et al., 2008). For the purpose of this research the teachers estimated and ranked participants by reading ability from the strongest reader in the class to the reader that requires the most support. The researcher provided the teachers with a set of cards that contained each participant's name. Teachers were directed to rank each participant relevant to their classmates regarding reading ability. Teachers systematically ranked the students by selecting the strongest reader first and the reader with the most needs second. The teachers continued to rank students alternating between the next strongest reader and the reader requiring the most support until they depleted the stack of name cards. The teachers checked the rank of students to ensure that they were satisfied with the order. At the end of the 12-week treatment period the researcher asked each teacher to use the name cards to rank their students again based on reading ability. Spearman's correlation was conducted to explore an association between teacher ranking of reading ability and NWEA RIT scores.

Attitude. The Elementary Reading Attitude Survey (ERAS) (M. McKenna \& Kear, 1990) is a norm referenced survey that consist of 20 items and is appropriate to administer to a complete class. The survey comprises two subscales measuring attitude towards recreational and academic reading (school-related). The survey uses a pictorial rating scale based on the cartoon character Garfield. The responses are quantified by an assigned point value of 1 to 4 with a value of " 4 " indicating the happiest (the Garfield the furthest left) to the value of " 1 " indicating the least happy feeling associated with the
question. Each item is a concise question about reading. The first ten-item subscale measures attitude towards recreational reading and includes statements such as: (1) How do you feel when you read a book in school during free time? (2) How do you feel about getting a book for a present? The second ten-item subscale measures academic reading and includes questions such as: (1) How do you feel when it is time for reading class? (2) How do you feel when you read out loud in class?

The scores on the two subscales can range from 10 to 40 total points. Scores can be interpreted for each subscale and as a full-scale. Subscale and full-scale scores can be compared to the national norms computed in a nationwide survey. For the purpose of this research the ERAS was used to measure attitude towards reading prior to the book flood and after the book flood for the treatment and control groups in the study (See Appendix F for a copy of the instrument). Both full-scale and subscale mean scores were interpreted by gender and class. Spearman's correlation was also conducted to explore an association between reading attitude and NWEA RIT scores.

Motivation. The Self-Regulation Questionnaire-Reading Motivation (SRQ) (De
Naeghel et al., 2012) is a 34-item self-reporting questionnaire designed to measure recreational and academic reading motivation of upper elementary students and is grounded in Self-Determination Theory (SDT) (Deci \& Ryan, 2000). The SRQ measures two types of autonomous reading motivation, intrinsic regulation (reading is pleasurable) and identified regulation (reading is personally valuable) and two types of controlled reading motivation, introjected (internal pressure to read) and external regulation (external demands to read). The survey is divided into recreational context and academic
context. The first eight items of each section of the questionnaire measure autonomous reading motivation. To measure autonomous reading motivation the SRQ asks for a response to the prompts "I read in my free time because..." or "I read for school because...." The participant responds to eight items such as (1) I really like it. (2) I think reading is fascinating. (3) I think reading is meaningful. The subsequent nine items measure controlled reading motivation. Controlled reading motivation is measured though responses to items such as (1) I don't want to disappoint others. (2) I can be proud of myself if I get good reading grades. (3) Others will reward me if I read. Each item is scored on a 4-point Likert-like scale, ranging from 4 (strongly agree) to 1 (strongly disagree). The highest possible score for autonomous motivation is 32 and the highest possible raw score for controlled motivation is 36 . A score that falls closer to the maximum total points would indicate stronger (autonomous or controlled) motivation. The SRQ-Reading Motivation was used to measure motivation to read prior to the book flood and after the book flood for the treatment and control groups in the study (See Appendix E for a copy of the instrument). The pre- and post-treatment full-scale and sub-scale mean scores were interpreted to explore autonomous motivation to read academically and recreationally. Spearman's correlation was also conducted to explore an association between autonomous motivation and NWEA RIT scores.

District identified data. Changes in reading achievement were examined using the Northwest Evaluation Association Measures of Academic Progress (NWEA, 2003). The NWEA MAP is a set of computerized cross-grade adaptive assessments that measure growth over time in reading, language usage, mathematics and science. The NWEA

MAP was developed for teacher use to promote a high-degree of alignment between instruction, curriculum and assessment (NWEA, 2003). The assessments are administered three times per school year as a form of progress monitoring and use a Rasch unit (RIT) scale to chart academic growth from term-to-term and year-to-year. The NWEA MAP is a mastery measure progress monitoring assessment aligned with the Common Core State Standards and is linked to Tier II and Tier III skill evaluation for the purpose of determining the impact of instruction of discrete skills (NWEA, 2005).

The validity evidence for NWEA MAP is in the form of concurrent validity statistics. This form of validity is used to determine how well the scores from the MAP reading assessment correspond to the scores obtained from established national and educational assessments that use a scale different from the RIT scale (NWEA, 2003, 2004). The tests are administered to the same student in close temporal proximity. Review of the trend in reading score correlations reveal that MAP test scores correlate highly with other measures of academic achievement with more similar scores in fourthgrade and above (NWEA, 2003).

NWEA calculates the reliability coefficient for the MAP assessment through the test-retest reliability or temporal stability models. The test-retest model is used to assess reliability across time when the same tests are administered to the same student. Parallel forms reliability is used to measure the reliability across forms of the assessment. The retest is not the same test when testing parallel forms. The two tests are considered equivalent in content and structure. The test items are different. The test are administered and re-administered across 7 - 12 months. A typical span for test-retest
model is two to three weeks due to the fact that time between testing sessions can adversely impact correlation coefficients. The internal consistency coefficient value for MAP is . $92-.95$. These values reflect strong internal consistency. The test-retest with the same forms coefficient value is $.79-.94$ with all coefficients above .80 except second grade. Test-retest with equivalent forms coefficient value is . $89-.96$ (NWEA, 2004).

Interviews. Informal conversational interviews were conducted prior to the first installment of the book flood and at the end of the 12 -week treatment period. The purpose of the interviews was to provide a relaxed platform for some participants to articulate their views about books, authors and their familiarity of reading instruction vocabulary (i.e. genre). During the pre-treatment interview open ended questions (Gall et al., 2007) provided information that was used to add titles to the collection of books to enhance the match between participants' expressed interest and available titles in the book flood collection. The interview participants were randomly selected from the treatment group classroom. A post-treatment interview was conducted with the same students and provided insight into the participants' perception of the overall impact of the book flood (See Appendix G for a copy of the questions). The researcher took notes during pre- and post-treatment interview sessions to document student responses.

Reading logs. A number of studies have used logs and diaries to document student reading. Many studies have examined the effects of time spent reading during and outside of school (Allen, Cipielewski, \& Stanovich, 1992; Anderson et al., 1988; Taylor et al., 1990). One major concern of using logs to document reading behavior is student accuracy and efficiency. Reading logs have also been used in several book flood
studies. Elley, Cowie, and Watson (1975) used a reading journal to determine if the students began to read more frequently as a result of the book flood. Ingham (1981) further developed the book flood reading journal by including where the student located the book, the amount of the book read, a student evaluation of the book, and the extent to which the student might recommend the book to others. Worthy and Roser (2010) used a reading journal in their book flood study that included an option for students to identify if they abandoned the book.

In this study the reading logs provided a systematic way for the researcher to track opportunities to read the books provided through the book flood and to create a manifest of which books from the collection the participants read (See Appendix H for a copy of reading log form). The participants in the treatment group were instructed to document their reading in the reading logs daily. At the end of a two-week period each student received a new reading log. Each $\log$ included a sample of a completed form that participants could use as an example to complete their entries. The logs were used to track titles, authors and the pages read during the 15 -minute sustained silent reading period. Participants were also instructed to evaluate the book as a "good read" using a 5star Likert-like scale with five stars representing an excellent read. After completing or abandoning a book each participant was asked to record in the log if they would recommend the book to a friend by writing, "I would/would not recommend this book to a friend because $\qquad$ ."

Every other week the researcher collected completed reading logs and delivered a new set of reading logs to the treatment group. At the end of the first two weeks while
the researcher was collecting the first set of logs it was noted that several of the reading logs were incomplete. Prior to leaving the second set of logs the researcher reminded the participants to rate the books and to share if they would or would not recommend the books to a friend or family. On subsequent visits to pick up and drop off the reading logs the researcher was not always able to speak to the participants. In these instances the reading logs were exchanged in the school office. Some participants continued to submit incomplete reading logs. Findings from the reading log are discussed in chapter four and five.

At the end of the study the researcher conducted a quantitative content analysis of each log to determine (1) the book titles recorded most frequently; (2) the number of nonfiction book titles recorded; and (3) the type of recommendations made by participants in the reading logs during the 12 -week treatment period. Quantitative content analysis can be used to examine both the manifest and latent content of text. Manifest quantitative content analyses focus on the countable components of text. In the analyses of the reading logs the researcher documented all the titles recorded in the logs by each participant throughout the 12-week study (See Appendix K for a copy of the list of all books recorded during the study). The researcher also created a coding guide and form with a list of all the titles recorded in the reading logs by at least two participants (see Appendix L for a copy of the coding guide and form). The form was used to determine which books were selected and recorded by the participants most frequently. All nonfiction titles were included on the coding form.

To explore the type of recommendations made by participants the researcher classified recommendations into four mutually exclusive categories:

1. Recommendations to specific people indicated by including a name or familial title (i.e. friend, cousin, and dad).
2. Recommendations based on interest or other personal connections (i.e....because she likes science, because it is scary, or to someone who like math).
3. Recommendations based on the utility of the book (...because we can use it in math).
4. Not recommended: participant writes that they would not recommend the book (i.e. I would not recommend this book because it is boring.). The researcher developed a second coding guide that included the category names, definitions and examples (Weber, 1990). To test the clarity of both the coding guides a sample set of reading logs were coded by a professional unfamiliar with children's literature (See Appendices M for the coding guide). The researcher conducted the initial coding of each set of logs. Six additional coders were used to recode the five sets of reading logs. Each set of logs was coded twice to ensure consistency and reliability.

## Data Analysis

ANCOVA were conducted on the pre- and post-data to answer the three research questions in this study. ANCOVA is a parametric test used to determine whether the means of two or more groups differ. ANCOVA has several assumptions: (1) the data are normally distributed (2) homogeneity of variance (3) data have a linear relationship and
(4) data are independent. To address the threat to the internal validity and to control for pre-existing group differences on the pre-tests analysis of covariance (ANCOVA) was used to reduce the effects of initial group differences by reducing the within group error variance (Gall et al., 2007; Lomax \& Hahs-Vaughn, 2013). Post-mean scores for attitudes towards reading, reading motivation and NWEA Map RIT scores were explored while holding their pre-test measures as covariates. Additionally, Spearman's rank correlation coefficient was conducted to explore correlations between (1) autonomous motivation to read and NWEA MAP RIT scores, (2) attitudes towards reading and NWEA RIT scores and (3) ranking of reading ability as determined by the classroom teacher and NWEA RIT scores.

## Summary

Chapter Three describes the research methodology and procedures used in this book flood study. The chapter includes a description of the research design, participants, treatment conditions, instrumentation used to collect data and data analyses. The remaining chapters will present a summary and discussion of the results, implications, and recommendations for further research.

## CHAPTER FOUR

## RESULTS

The purpose of this research was to examine the impact of a book flood on fourthgrade students' reading motivation, attitudes towards reading and reading achievement. A book flood is the process of saturating a classroom with high-interest quality books from which students can read self-select material. The participants were 38 fourthgraders ( 17 boys and 21 girls) from a Title I ( $95 \%$ of the students were eligible for free and reduced lunch) elementary school with a high-priority designation located in a Midwestern urban community. The high-priority designation identifies the school as performing in the lowest $5 \%$ of schools in the state. The 38 participants comprised a treatment group ( $\mathrm{n}=19$ ) and control group $(\mathrm{n}=19)$ based on a convenience sample of two intact classrooms.

Prior to and at the end of the 12 -week treatment period data were collected. The researcher administered two instruments, a reading attitude survey, the Elementary Reading Attitude Survey (M. McKenna \& Kear, 1990) and a reading motivation questionnaire, the Self-Regulation Questionnaire-Reading Motivation (De Naeghel et al., 2012). Furthermore, all participants completed the district mandated reading achievement assessment, the Northwest Evaluation Association Measures of Academic Progress (NWEA, 2003). Moreover, a group of five students were interviewed to provide a platform for some participants to articulate their thoughts about preferred books and the
impact of the book flood in their classroom. In addition the teachers from both classrooms estimated and ranked participants by reading ability from the strongest reader in the class to the reader that required the most support.

During the 12-week treatment period participants read self-selected materials from the book flood for 15 minutes each day. Each participant maintained a reading log that included the title of the books, pages read each day, a critique of the book using a five-star rating (with five stars indicating an excellent read) and a statement that indicated if the student would recommend the book to a peer. The participants in the control group continued the reading practices as determined by reading program adopted by the school district. Pre-and post- comparisons were made to assess the impact of opportunities to read self-selected material from a book flood had on reading motivation, attitudes towards reading and reading achievement.

This chapter focuses on the analysis of the data collected from the study. The data were used to answer the three major questions:

1. How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
2. How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?
3. How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood? The data were also analyzed to note any relationships between attitudes towards reading, autonomous reading motivation and reading achievement.

## Reading Motivation

To explore how reading motivation is impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood the participants completed the Self-Regulation Questionnaire-Reading Motivation (SRQ) (De Naeghel et al., 2012). The SRQ measures two types of autonomous reading motivation, intrinsic regulation (reading is pleasurable) and identified regulation (reading is personally valuable) and two types of controlled reading motivation, introjected (internal pressure to read) and external regulation (external demands to read).

RQ 1: How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
$\mathrm{Y}_{\mathrm{i}}=\beta_{0}+\beta_{1}\left(\mathrm{X}_{\mathrm{i}}\right)+\beta_{2}\left(\mathrm{C}_{\mathrm{i}}\right)+\varepsilon_{\mathrm{i}}$
$\operatorname{Post-Test}(S R Q)_{\mathrm{I}}=\beta_{0}+\beta_{1}\left(\right.$ Treatment $\left._{i}\right)+\beta_{2}\left(\right.$ Pre-testSRQ $\left._{i}\right)+\varepsilon$

Means and standard deviations associated with the control and treatment group for the SRQ recreational and academic subscales and total scale are presented in Table 2. The participants in the control group expressed less motivation to engage in both recreational and academic reading at the end of the 12 -week treatment period. At the end of the treatment period participants in the treatment group were less motivated to participate in recreational reading but were slightly more motivated to participate in academic reading. A one-way ANCOVA was conducted to determine a statistically significant difference between the control group and treatment group on results of the

SRQ post-test controlling for the SRQ pre-test results. The assumptions for the ANCOVA model were tested and met prior to conducting the analyses (See Appendix P). There was no statistically significant difference on the pre-test and the homogeneity of regression condition was met. The results of the ANCOVA for the total reading composite reveal that there were statistically significant differences between the control group and treatment group on the post-test after controlling for the pre-test, $F(1,35)=$ $14.90, p<.001, \eta^{2=} .299$. The p -value indicates that the null hypothesis is tentatively rejected. The rejection of the null hypotheses must be considered with care.

ANCOVA was also conducted to determine statistical differences between the control group and treatment group on the post-test results for the sub-scales recreational, $F(1,35)=19.95, p<.001$ and academic reading $F(1,34)=.912, p=.346$. ANCOVA results indicate a statistically significant difference in motivation to read recreationally between the control and treatment group as indicated by post-test scores. No statistically significant difference was found between the control and treatment group regarding motivation to read for academic purposes.

Additional ANCOVAs were conducted to examine if the post-test means of the four different reading motivation subscales (Recreational Autonomous, Recreational Controlled, Academic Autonomous, and Academic Controlled) are different between the treatment and controlled group after controlling for the pre-test. The results of the ANCOVA suggest a statistically significant effect on the post-test subscales for Recreational Autonomous, $F(1,35)=7.811, p=.008, \eta^{2}=.182$; Academic Autonomous, $F(1,35)=5.628, p=.023, \eta^{2}=.139 ;$ Recreational Controlled $F(1,35)=9.278, p=.004$,
$\eta^{2}=.210$; and Academic Controlled $F(1,35)=4.586, p=.039, \eta^{2}=.116$. The effect size for each of the four constructs (RA, AA, RC and AC) is small and suggests that no more than $21 \%$ of the variance in the post-test can be accounted for by the treatment. This indicates that the study lacks sufficient power to detect any significant effects, which is reasonable due to the small sample size.

## Attitudes Towards Reading

To examine the impact of opportunities to read self-selected material provided through a book flood on attitudes towards reading participants completed the Elementary Reading Attitude Survey (M. McKenna \& Kear, 1990) both prior to and at the end of the 12-week treatment period. The survey comprises two subscales measuring attitude towards recreational and academic reading (school-related).

RQ 2: How are attitudes towards reading impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?

$$
\mathrm{Y}_{\mathrm{i}}=\beta_{0}+\beta_{1}\left(\mathrm{X}_{\mathrm{i}}\right)+\beta_{2}\left(\mathrm{C}_{\mathrm{i}}\right)+\varepsilon_{\mathrm{i}}
$$

$$
\text { Post-Test }(\text { ERAS })_{I}=\beta_{0}+\beta_{1}\left(\text { Treatment }_{i}\right)+\beta_{2}\left(\text { Pre-test ERAS }{ }_{i}\right)+\varepsilon
$$

Examination of the pre- and post-treatment scores on the ERAS for the control and treatment group as presented in Table 3 indicate that attitudes towards recreational and academic reading improved for the treatment group while staying the same for the control group. A One-way ANCOVA was conducted to determine a whether or not there was a statistically significant difference between the control group and treatment group on results of the ERAS post-test controlling for the ERAS pre-test results. The assumptions
for the ANCOVA model were tested prior to conducting the analyses. There was no statistically significant difference on the pre-test and the homogeneity of regression condition was met (See Appendix Q).

The results of the ANCOVA reveal that there was no statistically significant difference between the control group and treatment group on the post-test after controlling for the pre-test, $F(1,31)=3.443, p=.073$. The p-value of .073 indicates that the null hypothesis failed to be rejected at .05 . ANCOVA was also conducted to determine whether or not there was statistical differences between the control group and treatment group for the sub-scales recreational, $F(1,28)=2.527, p=.123$ and academic reading $F(1,31)=3.120, p=.087$. ANCOVA results indicate no statistically significant difference in attitudes towards recreational reading between the control and treatment group as indicated by post-test scores ( $\mathrm{p}<.05$ ). No statistically significant difference was found between the control and treatment group regarding academic reading ( $\mathrm{p}>.05$ ). The degrees of freedom differ because some participants did not complete all pre- and posttest.

The ERAS scores were also interpreted by identifying where the full-scale raw score falls in regard to the four-nodes on the scale. A full-scale raw score of 50 is midway on the scale and indicates a neutral or indifferent attitude towards reading (M. McKenna \& Kear, 1990). Therefore a raw score above 50 would be considered positive and a score below 50 would be considered negative. In this study the mean of the pretreatment full-scale raw score for the control group was 59.47 and the treatment group 61.57 which is positioned near the slightly smiling Garfield on the four-node, pictorial

Likert-like scale indicating that all the participants in the study had a slightly positive attitude towards reading in general prior to the treatment.

After the 12-week treatment period descriptive analysis of post-treatment fullscale raw scores revealed a difference in attitudes towards reading, 60.84 (+ 1.37) for the control group and a difference in attitude towards reading for the treatment group, $66.26(+4.69)$. The survey results show that prior to the treatment, participants in both the control and treatment group had a more favorable attitude towards recreational reading than academic reading. The post-treatment ERAS sub-scale scores indicate that while the participants in the treatment group demonstrate a slight improvement (+1.42) in attitude towards recreational reading a greater change in attitude was made towards academic reading $(+3.26)$. The test of significance reveals that these results are not significant.

## Attitudes towards reading by gender.

Descriptive examination of the ERAS scores by gender reveals that females in the control group ( $\mathrm{n}=11$ ) appear to indicate an improvement regarding attitudes towards recreational reading between the pre-test and the post-test ( +1.64 ) while attitude concerning recreational reading in the treatment group $(\mathrm{n}=10)$ remained the same. Female participants in the control group also appear to show a slight improvement in attitude towards academic reading as demonstrated by a difference of +0.91 between the pre-test (28.90) and post-test (29.81).

Table 2
Group Means and Standard Deviations for SRQ-Motivation Pre- and Post-Test

| Recreational |  | Academic |  | Total Reading |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Pre | Post | Pre | Post | Pre | Post |

Control Group ( $\mathrm{n}=19$ )

| Mean | 53.00 | 44.11 | 51.05 | 48.05 | 104.05 | 92.15 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| S.D. | 5.94 | 6.36 | 8.14 | 6.65 | 11.32 | 11.92 |

Treatment Group ( $\mathrm{n}=19$ )

| Mean | 54.00 | 52.42 | 55.21 | 55.16 | 109.21 | 107.57 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| S.D. | 5.99 | 4.81 | 5.84 | 6.50 | 8.75 | 9.89 |

Control Group Females ( $\mathrm{n}=11$ )

| Mean | 53.63 | 45.45 | 49.72 | 49.72 | 103.36 | 95.18 |
| :--- | ---: | ---: | ---: | ---: | ---: | :--- |
| S.D. | 5.60 | 5.73 | 8.78 | 7.34 | 10.46 | 11.83 |

Treatment Group Females ( $\mathrm{n}=10$ )

| Mean | 54.60 | 53.20 | 56.40 | 56.10 | 111.00 | 109.30 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| S.D. | 3.89 | 6.28 | 4.92 | 5.98 | 5.57 | 11.62 |

Control Group Males ( $\mathrm{n}=8$ )
$\begin{array}{lllllll}\text { Mean } & 52.12 & 42.25 & 52.87 & 45.75 & 105.00 & 88.00\end{array}$
$\begin{array}{lllllll}\text { S.D. } & 6.68 & 7.10 & 7.31 & 5.11 & 13.04 & 11.47\end{array}$
Treatment Group Males ( $\mathrm{n}=9$ )

| Mean | 53.33 | 51.55 | 53.88 | 54.11 | 107.22 | 105.66 |
| :--- | ---: | ---: | ---: | ---: | ---: | :---: |
| S.D. | 7.92 | 2.45 | 6.77 | 7.25 | 11.4 | 7.76 |

Pre- and post-test results appear to reveal that attitude towards recreational reading for males in the control group were less favorable by the end of the 12 -week period (-0.9) yet more favorable towards academic reading (+1.50). The male participants in the treatment group appear to show greater improved in attitudes towards both recreational $(+3.0)$ and academic reading $(+3.56)$. It must be noted though that only a test of significance can verify statistical difference. Due to the extremely small sample sizes for the genders by group, significance testing was not conducted.

A second way to interpret the ERAS scores is to compare them to the national norms. To examine the mean scores in relationship to a national sample (M. McKenna \& Kear, 1990), the raw scores were converted to percentile ranks by averaging the group means and matching the results to the ERAS mid-year percentile ranks by grade and scale (see Appendix F ). Prior to the treatment period the raw score of 61 for both the control and treatment group indicated that as a group of fourth-grade readers the participants in this study ranked at the $66^{\text {th }}$ percentile in attitude towards reading overall. At the end of the treatment period the control group remained at the $66^{\text {th }}$ percentile whereas the treatment group participants moved to the $83^{\text {rd }}$ percentile based on the fourth-grade midyear percentile ranks. In this study the post-treatment ERAS was administered at the end of the school year and should therefore be interpreted with caution or compared to percentile ranks for readers entering fifth grade.

## Reading Achievement

To examine how the reading achievement of fourth-grade students is impacted by daily opportunities to read self-selected materials provided through a book flood the RIT (Rasch unit) scores for winter and spring assessments were compared.

RQ 3: How is reading achievement impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood? $\mathrm{Y}_{\mathrm{i}}=\beta_{0}+\beta_{1}\left(\mathrm{X}_{\mathrm{i}}\right)+\beta_{2}\left(\mathrm{C}_{\mathrm{i}}\right)+\varepsilon_{\mathrm{i}}$ Post-Test $(\text { NWEA })_{I}=\beta_{0}+\beta_{1}\left(\right.$ Treatment $\left._{i}\right)+\beta_{2}\left(\right.$ Pre-testNWEA $\left._{i}\right)+\varepsilon$

The NWEA MAP is a set of computerized cross-grade adaptive assessments that measure growth over time in reading, mathematics and science. The MAP assessments are administered by the school district three times per school year as a form of progress monitoring and to chart academic growth from term-to-term and year-to-year (NWEA, 2003). The participants in this study were assessed in the fall, winter and spring of each year. Participants in both the control and treatment group demonstrated increased RIT scores indicating advancement in reading achievement. Based on the 2015 NWEA RIT scale normative data for fourth-grade readers a RIT score of $203.6(S D=14.96)$ is the national mean score for the reading assessment conducted mid-year (winter) and a RIT score of $205.9(S D=14.92)$ represents the fourth-grade national mean for the spring assessment (NWEA, 2015). The 12-week treatment was conducted between the winter and spring assessments.

Table 3
Group Means and Standard Deviations for ERAS Pre- and Post-Test

| Recreational |  | Academic |  | Total Reading |  |
| :---: | :---: | :--- | :--- | :--- | :--- |
| Pre | Post | Pre | Post | Pre | Post |

Control Group ( $\mathrm{n}=19$ )

| Mean | 30.15 | 30.73 | 29.31 | 30.47 | 59.47 | 60.84 |
| :--- | ---: | ---: | ---: | ---: | ---: | :--- |
| S.D. | 3.54 | 5.81 | 5.33 | 5.31 | 8.36 | 10.92 |

Treatment Group ( $\mathrm{n}=19$ )

| Mean | 32.16 | 33.58 | 29.42 | 32.68 | 61.57 | 66.26 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| S.D. | 3.83 | 2.79 | 2.95 | 4.32 | 6.22 | 6.07 |

Control Group Females ( $\mathrm{n}=11$ )

| Mean | 29.36 | 31.00 | 28.90 | 29.81 | 58.27 | 60.18 |
| :--- | ---: | ---: | ---: | ---: | ---: | :--- |
| S.D. | 3.50 | 5.21 | 6.07 | 5.65 | 9.02 | 10.86 |

Treatment Group Females $(\mathrm{n}=10)$

| Mean | 32.80 | 32.80 | 29.00 | 32.00 | 61.80 | 64.80 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| S.D. | 2.69 | 3.25 | 3.29 | 4.94 | 5.49 | 6.93 |

Control Group Males ( $\mathrm{n}=8$ )

| Mean | 31.25 | 30.35 | 29.87 | 31.37 | 61.12 | 61.75 |
| :--- | ---: | ---: | ---: | ---: | ---: | :--- |
| S.D. | 3.53 | 6.9 | 4.45 | 5.04 | 7.64 | 11.69 |

Treatment Group Males ( $\mathrm{n}=9$ )
$\begin{array}{lllllll}\text { Mean } & 31.44 & 34.44 & 29.88 & 33.44 & 61.33 & 67.89\end{array}$
$\begin{array}{llllllll}\text { S.D. } & 4.87 & 2.00 & 2.61 & 3.64 & 7.28 & 4.83\end{array}$

Data from the winter assessment were collected to represent the pre-test for reading achievement and data from the spring assessment were collected for the post-test. The control group pre-test RIT mean was $197.00(S D=18.73)$ which was slightly above the national norm for third grade mid-year (winter) mean scores $195.6(S D=15.14)$. The treatment group pre-test mean was $193.79(S D=12.07)$, which was slightly below the mid-year mean scores for third grade readers. The NWEA pre-test mean scores for the control and treatment group indicated that at the onset of the study both groups were approximately one year below grade level in reading. After the 12 -week treatment period the control group mean was $204.37(S . D=17.54)$ a change of +7.37 Rasch units. The treatment group mean score $197.74(S D=12.49)$ revealed a change of +3.95 . A Oneway ANCOVA was conducted to determine whether or not there was a statistically significant difference between the control group and treatment group on results of the NWEA post-test when controlling for the pre-test results. There was no statistically significant difference between the control group and treatment group on the post-test after controlling for the pre-test $F(1,32)=1.643, p=.209$. The p -value indicates that the results are not statistically significant.

An examination of NWEA means is presented in Table 4. NWEA RIT scores for females in the control group show a decrease between the pre-test (mid-year) and posttest (spring). The females in the treatment group show an increase in the mean RIT scores. Male participants in both the control and treatment group demonstrated an increase in the RIT score between the pre-test and post-test.

## Correlations of variables used in this study

Spearman's correlation was conducted for both the control and treatment group to investigate the strength and direction of associations between autonomous reading motivation, attitudes towards reading, teacher ranking of reading ability based on classroom performance and reading achievement as measured by the NWEA MAP assessment. Correlations are reported as weak (.10), moderate (.30) and strong (.50) (Cohen, 1992 ).

1. Autonomous motivation $\left(\mathrm{X}_{\text {autonomous motivation }}\right)$ and NWEA RIT scores $\left(\mathrm{X}_{\text {NWEA RIT }}\right.$ scores)

Spearman's correlation was run to assess the relationship between autonomous motivation to read and reading achievement as measured by the NWEA MAP assessment. The data for the treatment group revealed that there is no relationship between autonomous motivation to read and reading achievement measured by NWEA RIT scores. The analyses indicate no statistical significant correlation between autonomous motivation to read and reading achievement as measured by NWEA map assessments, $\mathrm{r}_{\mathrm{s}}=-.410, \mathrm{p}=.081$. The p -value of .081 indicates that the null hypothesis failed to be rejected.
2. Favorable attitude towards reading ( $\mathrm{X}_{\text {favorable attitude towards reading }}$ ) and NWEA Map RIT scores ( $\mathrm{X}_{\text {NWEA RIT scores }}$ )

Table 4
Group Means and Standard Deviations for NWEA Pre- and Post-Test

|  | Pre-test |  | Post-test |  |
| :---: | :---: | :---: | :---: | :---: |
|  | n | Mean | Mean | Change |
| Control Group Total | 19 | 197.00 | 204.37 | 7.37 |
| S D |  | 18.73 | 17.54 |  |
| Control Group Female | 11 | 170.81 | 140.72 | -30.09 |
| S D |  | 61.57 | 97.31 |  |
| Control Group Male | 8 | 207.25 | 211.87 | 4.6 |
| S D |  | 17.35 | 14.57 |  |
| Treatment Group Total | 19 | 193.79 | 197.74 | 3.95 |
| S D |  | 12.07 | 12.49 |  |
| Treatment Group Female | 10 | 194.40 | 196.70 | 2.30 |
| S D |  | 14.90 | 15.11 |  |
| Treatment Group Male | 9 | 195.11 | 198.88 | 5.77 |
| S D |  | 8.76 | 9.55 |  |

Note. District grade level pre-test mean 189.3 SD (19.0)
National Norm pre-test mean 203.6 SD (14.96)
District grade level post-test mean 190.1 SD (15.9)
National Norm post-test mean 205.9 SD (14.92)
Normative data cited from NWEA, (2015)

The data revealed no relationship between favorable attitude towards reading and reading achievement measured by NWEA RIT scores as indicated by the p value. The analyses indicate no statistical significant correlation between favorable attitudes towards reading and reading achievement for the participants in this study, $\mathrm{r}_{\mathrm{s}}=-.066, \mathrm{p}=.788$. The $\mathrm{p}-$ value of .788 indicates that the null hypothesis failed to be rejected.
3. Teacher-created class ranking ( $\mathrm{X}_{\text {teacher ranking }}$ ) of reading ability and the NWEA MAP assessment ( $\mathrm{X}_{\text {NWEA rit scores }}$ )

The data for the treatment group revealed no relationship between teacher ranking of student reading ability and reading achievement measured by NWEA RIT scores. The analyses indicate no statistical significant correlation between teacher ranking of ability to read based on classroom performance and NWEA RIT scores, $\mathrm{r}_{\mathrm{s}}=-.448, \mathrm{p}=.054$. The p-value of .054 indicates that there is not enough evidence to reject the null hypothesis. The small sample size ( $\mathrm{n}=19$ ) may explain or may have overestimated the borderline statistical significance (See Appendix P for a list of correlation coefficients).

## Informal Conversational Interviews

The researcher conducted two informal conversational interviews with five randomly selected students from the treatment group. The same group of students participated in both interviews. Interviews were conducted prior to the first installment of books and at the end of the 12 -week treatment period. The informal conversational interviews provided a platform for the participants to articulate their thoughts about books and the impact of the book flood in their classroom. The pre-treatment interview revealed that the participants each had books that they had borrowed from the modest
collection in the school library. The participants shared that they visited the school library on Monday of each week. During each weekly visit they were permitted to select one book to take home. The participants stated that they could not keep a book from the school library for more than one week. Nor were they allowed to check out a book that they had previously checked out. One participant explained the policy by stating, "We have to let the other kids have a turn to read the book." Another participant shared that he did not like that rule about keeping the book for only one week because he could not always finish the book before he had to return it to the library.

The participants were not familiar with the term genre but voiced interest in mysteries, scary and funny books. They also expressed interest in series books identifying the Diary of a Wimpy Kid (J. Kinney, 2007), Fly Guy (Arnold, 2009), Junie B. Jones (B. Park, 1992) and Captain Underpants (Pilkey, 1997) as their favorites. When asked the question: "If you could choose one book for your classroom, what would you like the book to be about?" The three male participants stated soccer, how to draw, and basketball. The female participants suggested Bill Nye the Science Guy and magazines about making jewelry. To ensure the books in the book flood collection addressed the expressed interest of the participants the researcher included the entire collection of the Diary of a Wimpy Kid (J. Kinney, 2007), and the A to Z Mysteries (Roy, 1997) as well as several titles from the Fly Guy series (Arnold, 2009). The collection of books was also comprised of several other grade appropriate series books from varied genre and formats (See appendix J for a complete list of books provided through the book flood). The collection also reflected participants' interest in sports and science.

After the 12-week treatment period the researcher met with the same group of students to explore their thoughts regarding having a collection of books in the classroom. All of the participants agreed that they liked having books in the classroom. One of the participants stated "I was able to read all of the Diary of a Wimpy Kid (J. Kinney, 2007) books." Another student eagerly shared "We stopped going to the library (school) because we have more books in the class to read than the library." The participants unanimously agreed that all classrooms should have books for the students to read. When asked about their favorite books from the book flood collection the participants identified, the Amulet series (Kibuishi, 2008), the Big Nate series (Pierce, 1991), the Nikki and Dejah series (English, 2009), Funny Bones (Tonatuih, 2015) and the Diary of a Wimpy Kid (J. Kinney, 2007).

At the end of the brief interview the teacher of the treatment group gave the researcher a set of thank you letters from the class. The participants wrote in their letters that they enjoyed and appreciated having the books in the classroom. Several letters indicated that having books in the class helped them practice reading. One letter stated "It is a good thing to have books in the class for [sic] we can practice." Another participant wrote "It is a good idea to have books in the class because we need to practice reading." One male student wrote, "I liked all the books you gave us. I wish I had time to read them all because it really help [sic] improve my reading score."

## Reading Log

During the 12-week treatment period the participants tracked their reading daily in a reading log. The logs were used to track titles, authors and the pages read during the

15 -minute sustained silent reading period. Participants also evaluated the book as a "good read" using a 5-star Likert-like scale with five stars representing an excellent read. After completing or abandoning a book each participant recorded in the log if they would recommend the book to a friend by writing, "I would/would not recommend this book to a friend because $\qquad$ ."

The participants in the treatment group received and documented their 15-minute reading sessions in five reading logs. The 12 -week treatment period included ten halfdays of school, six school vacation days and three snow days. Examination of the reading logs revealed that students recorded entries on seven of the ten half-day sessions. The maximum entries possible for any participant during the 12 -week treatment period were 48. The most entries documented by a female were 45 and 43 for a male participant.

Reading $\log \# 1$ revealed that most participants recorded the title of the book, the date, the page numbers read and a rating of the book based on the five-star Likert-like scale. A few female participants $(\mathrm{n}=4)$ wrote that they would recommend a book. The recommendations were not for people connected to the participants such as family or friends. Comments included "I would recommend this book to people that want to know about and learn braille." and "I would recommend this book to someone who likes history." No male participants included recommendations in their reading $\log \# 1$ entries. Entries were made for three books with a movie companion; the Peanuts Movie Novelization (West, 2015), Ant Man (Wyatt, 2015), and Star Wars: Original Trilogy

Graphic Novel (Ferrari, 2016). The nonfiction titles recorded were Super Cool Science and Engineering (Biskup, 2015) and Who is Jeff Kinney (P. Kinney, 2015).

Reading $\log \# 2$ included the basic information about each book read and several recommendations to others. Participants frequently included a rationale for recommending the book based on whether they found the book entertaining. Books were recommended to family, friends and the classroom teacher. Not all books received a favorable rating. After completing a book one male participant assigned it a one-star rating and stated that he would not recommend the book because it included "bad words." Nonfiction books recorded in reading log \#2 included the Sibert Honor Award book Spiders (Bishop, 2007), A Place for Bats (Stewart, 2012), Gross Science (Beck, 2011), and Who was Michael Jackson? (Stein, 2015). Three participants read and recorded Zoobots (Becker \& Ries, 2014).

Entries in reading log \#3 continued to include recommendations for specific individuals and also included general recommendations based on genre and content. Participant comments included "I would recommend this book to someone who likes fairy tales," "I would recommend this book to my mom because she likes scary books," and "I would recommend this book to someone who wants to learn about the American flag." Participants also made recommendations based on the reading complexity of the book as indicated in the comment "I would recommend this book to my cousin who is 6 because it was funny and very easy." Other comments included "I would recommend this book to my teacher so we could use it for science" and "It's like the movie so I would recommend it to a friend." The nonfiction titles included Flags over America
(Harness, 2014) and National Geographic Kids Animal Records: The Biggest, Fastest, Weirdest, Tiniest, Slowest, and Deadliest Creatures on the Planet (Wassner, 2015).

Reading log \#4 included an entry that identified the reading complexity as a reason not to complete a book. The participant wrote, "I didn't read it all because some words are hard." What's Smaller than a Pygmy Shrew? (Wells, 1995) and Who is Muhammad Ali? (Buckley, 2014) were the nonfiction titles recorded in reading log \#4. Participants continued to record books read and to rate books using the five-star Likertlike scale in reading $\log \# 5$. Nearly half of the participants ( $\mathrm{n}=8$ ) did not include recommendations for books recorded in reading $\log \# 5$. No nonfiction titles were recorded in the fifth reading log.

The books read and recorded in the reading logs most frequently by both male and female participants were from the Diary of a Wimpy Kid series (J. Kinney, 2007) with 47 entries. The books in the Diary of a Wimpy Kid series (J. Kinney, 2007) are written at a Lexile range of $900-1060$. The second most frequently read books written at a Lexile range of $310-410$, were from the Amulet series (Kibuishi, 2008) with 29 entries. Female participants $(\mathrm{n}=4)$ also read books from the Whatever After series (Mlynowski, 2013). The books in the Whatever After series (Mlynowski, 2013) are written at a Lexile range of $310-410$. No male participants recorded reading books from the Whatever After series (Mlynowski, 2013). Other commonly read books were from the Fly Guy series (Arnold, 2009). Books in the Fly Guy series (Arnold, 2009) are written at a 280 Lexile level and are rated as appropriate for Pre-school through third grade. Books from
the Fly Guy series (Arnold, 2009) were the only titles participants recommended for younger readers.

## Summary

The data collected and the analyses of these data have been shared in this chapter. The results from the study indicate that students provided with daily opportunities to read self- selected provided material through a book flood may demonstrate more autonomous motivation to read when compared to students in a control group. At face value the results in this study appear to indicate that the students in the treatment group expressed more autonomous motivation to read for academic purposes than recreational. Attitudes towards both academic and recreational reading improved for the participants in the treatment group while staying the same for the control group. Participants in both the control and treatment group demonstrated increased NWEA Map Rausch unit (RIT) scores indicating advancement in reading achievement. Although both the control and treatment group revealed increased RIT scores, the mean score remained below the national norm for students at the end of fourth-grade. ANCOVA results indicate that the changes are not statistically significant. It is possible that an increase in the sample size may show different results (Loken, 2017). In post-treatment interviews and studentcomposed letters, participants in the treatment group expressed that they enjoyed and benefitted from daily opportunities to read self-selected material in the classroom.

## CHAPTER FIVE

## DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

This chapter is organized to present the following: (1) a brief overview of the study, (2) discussion and conclusions concerning the results of the study (3) recommendations for future research and (4) a summary.

## Overview of the Study

The purpose of this research was to examine the impact of a book flood on fourthgrade students' reading motivation, attitudes towards reading and reading achievement. A book flood is the process of saturating a classroom with high-interest quality books from which students can read self-selected material. Thirty-eight fourth-graders (17 boys and 21 girls) from a Title I ( $95 \%$ of the students were eligible for free and reduced lunch) elementary school with a high-priority designation located in a Midwestern urban community participated in the study. The high-priority designation identifies the school as performing in the lowest $5 \%$ of schools in the state. The 38 participants comprised a treatment group $(\mathrm{n}=19)$ and control group $(\mathrm{n}=19)$ based on a convenience sample of two intact classrooms.

Prior to and at the end of the 12 -week treatment period the teachers from both classrooms estimated and ranked participants by reading ability from the strongest reader in the class to the reader that required the most support. The researcher administered the Elementary Reading Attitude Survey (M. McKenna \& Kear, 1990) and a reading motivation questionnaire, the Self-Regulation Questionnaire-Reading Motivation (De

Naeghel et al., 2012). All participants completed the district mandated reading achievement assessment, the Northwest Evaluation Association Measures of Academic Progress (NWEA, 2003).

During the 12 -week treatment period participants read self-selected materials from the book flood for 15 minutes each day. Each participant maintained a reading log that included the title of the books, pages read each day, a critique of the book using a five-star rating (with five stars indicating an excellent read) and a statement that indicated if the student would recommend the book to a peer. The participants in the control group continued the reading practices as determined by the reading program adopted by the school district.

The data were analyzed to examine differences in reading motivation, attitudes towards reading and reading achievement for the control and treatment group before and after the 12 -week treatment period. The data were used to answer the three major questions:

1. How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
2. How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?
3. How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood? The data were also analyzed to note any relationships between attitudes towards reading, autonomous reading motivation and reading achievement.

## Discussion and Conclusions

Question One: How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?

Motivation is a critical factor in fostering successful reading experiences and literacy development (Morrow, 2003). Autonomous motivation influences the degree to which an action, in this case reading, is freely initiated and sustained because of the inherent satisfaction of the task or the desire to gain access to information the reader finds personally valuable and interesting (Ryan \& Deci, 2000b). Students that lack full autonomous (intrinsic) motivation to read may not reach their full literacy potential (Marinak \& Gambrell, 2010). In this study students were provided daily opportunities to read self-selected material provided through a book flood. The results of the ANCOVA reveal that there were statistically significant differences between the control group and treatment group on the post-test measures regarding autonomous motivation to read after controlling for the pre-test differences. When compared to students in the control group, it appears that students in the treatment group were more autonomously motivated to read recreationally. The results indicated that after the treatment there was no statistically significant difference found between the two groups when measuring autonomous motivation to read academically. The analysis of the post-treatment mean score data for the control group indicated that autonomous motivation to read decreased for both recreational and academic reading based on the sub-scales of the SRQ-Motivation to read measurement. A closer examination of the mean scores of the SRQ-Motivation reveals
that both the control and treatment group total reading mean scores decreased between pre- and post-treatment assessments. The control group total reading mean score decreased from 104.05 to $92.15(-11.9)$ and the treatment group score decreased from 109.21 to 107.57 (-1.64).

It should also be noted that on face value the total reading mean scores for males in the control group showed the greatest decline with scores changing from a total composite mean score of 105.00 to a mean score of $88.00(-17)$. However the total composite mean scores for boys in the treatment group reveal the smallest decrease of all participants in the study. Mean scores for males in the treatment group decreased from a total reading pre-treatment mean score of 107.22 to a total reading post-treatment mean score of $105.66(-1.56)$. This is noteworthy and should be investigated further in the future because previous research (M. C. McKenna et al., 1995) documented gender differences in reading motivation with males indicating less motivation to read than their female peers.

It is possible that flooding the classroom with books during the middle of the school year created situational interest and excitement thereby positively impacting motivation to read books from the collection. The 500 books were displayed to create a visually enticing atmosphere that would promote enthusiasm towards reading. It is also conceivable that asking the students to evaluate if the books they read would interest their peers provided opportunities for them to voice their opinions and empowered them as readers while providing an authentic purpose to read books from the book flood collection. Prior research has suggested a mismatch between reading preferences and
students and may relate to the low levels of reading motivation documented about male readers in other studies (Ivey, 1999). The fact that the book flood collection included and the researcher prominently displayed several contemporary graphic novel series that boys find interesting may have privileged the boys in the treatment group and positively impacted their autonomous motivation to read. It is just as important to note that male readers are a diverse group with varied interest and in order to optimize the impact of books in the classroom and promote life-long reading for male readers the preferences of each group must be explored to ensure that all genre and topic interests are addressed through the classroom collection.

Question Two: How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?

Attitudes towards readings can have a profound impact on willingness to engage in reading-related activities. A positive attitude towards reading can promote and sustain engagement in reading -related activities. On the other hand, a negative attitude towards reading may result in avoidance of reading-related activities. One objective of this study was to investigate the impact of daily opportunities to read self-selected materials provided through a book flood on fourth-grade students' attitudes towards reading. After the 12 -week treatment period the mean of post-treatment full-scale raw score on the ERAS appear to reveal a small but not significant difference in attitudes towards reading, $60.84(+1.37)$ for the control group and the treatment group, $66.26(+4.69)$, though again, we must keep in mind that the ANOVA results reveal that this change was not significant after controlling for pre-test scores. The survey results show that prior to the
treatment, participants in both the control and treatment group had a more favorable attitude towards recreational reading than academic reading. The post-treatment ERAS sub-scale scores indicate that while the participants in the treatment group demonstrate a slight improvement (+1.42) in attitude towards recreational reading a greater difference in attitude was made towards academic reading (+3.26).

The participants in this study did not use a basal reader or reading anthology for reading instruction. They used books circulated through the school library for reading workshop. The post-treatment interviews revealed that the participants in the treatment group discontinued borrowing books from the school library once they received the 500 books through the book flood. It is possible that participants viewed any reading done during the school day, including the 15 -minutes for the study, as academic reading and reading done outside of school as recreational reading. It is also possible that the teacher began to use the books provided through the book flood for reading instruction. There is no observational evidence because the researcher was asked limit visits the classroom.

Examination of mean scores by gender appears to indicate that females in the treatment group showed greater improvement in attitudes towards academic reading $(+3.0)$ than females in the control group ( +0.91 ). Attitudes towards recreational reading showed no difference for females in the treatment group while improving slightly for females in the control group ( +1.64 ). The males in the treatment group showed improved attitudes towards both academic $(+3.56)$ and recreational reading $(+3.0)$ whereas the males from the control group demonstrated a decline in the mean score for recreational reading ( -0.9 ) and a slight increase in mean scores for academic reading (+1.5).

The 15-minute reading sessions of self-selected material done during the school day may have influenced the manner in which participants interpreted and responded to the academic subscale of the ERAS. Allowing the students the opportunity to self-select the reading material, the ability to discontinue reading a book without consequence and directing the purpose for reading towards deciding if a book was considered good for other fourth-grade readers may have facilitated an increase in positive attitudes towards reading. The findings regarding the increased positive attitude of the male participants in the treatment group are especially noteworthy due to the fact that it is frequently expected and accepted that as a group male students may display a more negative attitude towards reading than their female peers. Due to the small sample and the brevity of the treatment period the explanations regarding the increase in students' attitudes towards reading should be considered tentatively. It is also important to note that the tests of significance reveal no statistically significant difference between the control and treatment group on post-test results

Question Three: How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected material provided through a book flood?

To examine how the reading achievement of fourth-grade students is impacted by daily opportunities to read self-selected materials provided through a book flood, the RIT (Rasch unit) scores for winter and spring assessments were compared. The NWEA MAP is a set of computerized cross-grade adaptive assessments that measure growth over time in reading, mathematics and science. The participants in this study were assessed in the
fall, winter and spring. The 12-week treatment was conducted between the winter and spring assessments. Data from the winter assessment were collected to represent the pretest for reading achievement and data from the spring assessment were collected for the post-test. The Mean RIT scores for participants in both the control and treatment group were higher in the spring than during the winter indicating that both the control and treatment group demonstrated advancement in reading achievement based on the NWEA Map assessment. The NWEA pre-test mean scores for the control and treatment group indicated that at the onset of the study both groups were approximately one year below grade level in reading.

After the 12-week treatment period the control group mean was 204.37 (S.D. 17.54) a change of +7.37 Rasch units. The treatment group mean score 197.74 (S.D. 12.49) revealed a change of +3.95 . Based on the NWEA normative data (NWEA, 2015) the national norm spring (post-treatment) mean score for the NWEA reading assessment was 205.9 (S.D.14.92). While both groups demonstrated increased RIT scores the participants remained below the national norm and the ANCOVA results indicate that the changes in scores are not statistically significant.

A face value examination of NWEA means by gender reveal that the females in the control group show the greatest decline between the pre-test (mid-year) and post-test (spring) (-30). It is important to point out that the standard deviation of the RIT scores for the females in the control group on the post-treatment measure was 97.31 indicating significant distribution of the NWEA mean RIT scores. The females in the treatment group show an increase in the mean RIT score (+2.3). Male participants in both the
control (+4.6) and treatment group (+5.77) demonstrated an increase in the RIT score between the pre-test and post-test.

A major concern of classroom teachers is the frequency in testing that currently occurs in the classrooms. Therefore it is important to keep in mind the assessment conditions and student attitudes towards the on-going and frequent assessments they are required to complete. It is possible that student scores that plummet between testing periods may reflect testing fatigue and apathy towards the assessment. A potential explanation for the extreme drop in the mean scores for the females in the control group may stem from the fact that the final NWEA assessment is administered in the spring towards the end of the school year. It is possible that for those students the impending end to the school year and the end of the year activities may send the message that the assessment is not important resulting in a lackadaisical testing session.

## Conversational interviews

The informal conversational interviews provided a platform for the participants to articulate their thoughts about books and the impact of the book flood in their classroom. The pre-treatment interview revealed that the participants each had books that they had borrowed from the modest collection in the school library. The participants shared that their class visited the school library on Monday of each week. During each weekly visit they were permitted to select one book to take home. The participants stated that they could not keep a book from the school library for more than one week. Nor were they allowed to check out a selected title more than once during the school year. The short circulation period may be a reflection of the fact that the collection of books in the school
library was sparse and not adequate to address the preferences and topic interest of the entire student body.

The participants were not familiar with the term genre but voiced interest in mysteries, scary and funny books which was consistent with decades of previous research regarding preferences and interest in books (Ivey \& Broaddus, 2001; Worthy et al., 1999). The participants also indicated interest in several contemporary series and graphic novels. The specific titles that were requested during the interview were prominently displayed in the classroom with the cover facing forward to create excitement about the collection. Providing titles of books based on the expressed interest of the participants may have increased the desire to explore the book flood collection. After the 12-week treatment period the same group of students were interviewed to explore their thoughts regarding having a collection of books in the classroom. The participants agreed that they liked having books in the classroom. One participant shared that having the books in the classroom provided an opportunity to read all the books from one popular contemporary graphic novel series. Participants that were not interviewed expressed their opinions regarding the books provided through the book flood through letters. One student wrote "My favorite book of all was Amulet, 1,2,3,4,5,6." Another participant wrote "My favorite book series is Big Nate." A number of participants wrote that they "loved all the Diary of a Wimpy Kid books". These statements corroborate past research that indicates that students enjoy series books. Participants also indicated in their letters that having books in the classroom provided opportunities for them to practice reading. One male student wrote "I think it is a good idea to have books in the class so we can
practice reading." Another male wrote "Thank you for bringing the books it really help [sic] improve my reading score."

## Reading logs

The reading interest and genre preferences of students have been investigated for several decades using a variety of methods. This quasi-experimental study corroborates other empirical research that suggests students frequently enjoy books in series and sequels, humorous, cartoon and comics, books based on movies and action-packed or edgy material (Ivey \& Broaddus, 2001; Worthy et al., 1999). In this study the books read and recorded in the reading logs most frequently by both male and female participants were two graphic novels both from a contemporary series. The Diary of a Wimpy Kid series (J. Kinney, 2007) was recorded the most often with 47 entries. The books included in the Diary of a Wimpy Kid (J. Kinney, 2007) series vary in the level of text complexity from reading level 5.2 to 5.8. The second most frequently read and recorded books were from the Amulet series (Kibuishi, 2008) with 29 entries. The six books in the Amulet series range in text complexity from reading level 2.0 to 3.1. In the first set of reading logs entries were made for three books with a movie companion featured at the theater during the time the study was conducted: the Peanuts Movie Novelization (West, 2015), Ant Man, (Wyatt, 2015) and the Star Wars: Original Trilogy Graphic Novel (Ferrari, 2016). Informational text was selected and evaluated by at least one participant in all but one set of reading logs. The informational texts selected most often contained content about animals or were biographies.

Providing access to a wide-range of reading material based on student's reading preferences and topic interest can promote positive attitudes towards reading and nurture autonomous reading motivation. Preference and interest studies indicate consistent broad patterns regarding text students enjoy and value in reading material (Ivey \& Broaddus, 2001; Worthy et al., 1999). The reading logs maintained in this study support previous studies regarding the genre and formats preferred by other upper elementary students (Ivey \& Broaddus, 2001; Worthy et al., 1999).

## Limitations of the Study

The limitations of a quasi-experimental design and the small sample size in this study dictate that these results and implications cannot be generalized to other populations. The 12-week treatment period may have further limited the outcome of the data collected. The most challenging limitations are the potential threats to internal validity.

At the request of the school administrators the researcher was unable to make frequent visits to the site and could not observe the actual reading instruction for the two groups of students. Although there is no observed evidence, the close proximity of the classrooms may have resulted in the John Henry effect, whereby the control group participants may have perceived themselves in competition with the treatment group and performed beyond their normal levels (Gall et al., 2007). It is also possible that because the participants in the control group may were aware that the other class received the 500 books through the flood that they may have displayed resentful demoralization (Gall et al., 2007) and felt that they were being excluded or treated differently and became
disenchanted, which resulted in lower than normal post-test scores for both reading motivation and attitudes towards reading.

Further limitations may include several ecological validity issues. The novelty of having books flood the classroom in the middle of the school year may have caused situational interest and impacted the results of the study. It is also possible that the results were impacted by the implementation of the treatment. It is unknown to the researcher the extent to which the books were used beyond the 15 - minutes requested as part of the treatment. It is likely that if the students no longer used the books from the school library for reading instruction that they instead used books supplied through the book flood.

Data were collected for motivation to read and attitudes towards reading using self-report measures that have inherent limitations due to the fact that social desirability may influence participant responses. Additionally, motivation to read and attitudes towards reading may fluctuate over the course of the school year and may need monitoring at periodic intervals. Further limiting the study is the teacher's possible attitude towards Sustained Silent Reading and reading for pleasure that may impact the commitment to consistently provide daily opportunities to read.

## Recommendations for Future Research

Teachers have a pivotal role in maximizing the impact that access to books and opportunities to read self-selected materials can have on reading motivation, attitudes towards reading and reading achievement. Future studies should include teacher training that consists of (1) exploring tools to determine reading preferences and interest of
students, (2) strategies for matching inexperienced and struggling readers with the appropriate text based on student interest and the appropriate level of text complexity (3) procedures to promote systematic social interactions regarding books read, such as teacher and student-created electronic book talks designed to pique interest in available text and to promote books through on-going classroom discourse (4) daily read alouds and (5) literature circles.

The most important recommendation is that future studies are conducted with a larger sample size and for a longer timeframe, which might allow for pre-, mid- and posttreatment data collection and could provide additional information needed to fully understand the impact of daily opportunities to read self-selected material. To address the potential novelty and disruption effect it is recommended that the collection of books is in place at the onset of the school year, therefore making the large collection of books a normal part of the classroom environment. It is also advised that the researcher work with a team at a site where they have permission to spend time in the classrooms on a regular basis to observe any changes in reading instruction as well as to monitor the implementation of the SSR session.

## Summary

Children with limited books in the home depend on schools and the community to provide access to reading material. In low-income communities access to books and other forms of rich and engaging literacy resources are limited in the schools and the community as a whole (Neuman \& Celano, 2001). Literature anthologies, basal readers and whole-class sets of novels are prevalent in many classrooms. These kind of limited
selection will not necessarily provide inexperienced readers with text they find interesting and enjoyable. Access to interesting and engaging text is essential to providing students with positive experiences that may lead to fully developed intrinsic motivation to read for enjoyment and to access information.

This quasi-experimental study corroborates other empirical research that suggests students frequently enjoy books in series and sequels, funny, action-packed or edgy material and informational text (Ivey \& Broaddus, 2001; Worthy et al., 1999). Many contemporary students' favorite and preferred books comprise an array of titles that don't make the lists of classics and are not frequently found in schools (Ivey \& Broaddus, 2001; Worthy et al., 1999; Worthy \& Roser, 2010). A diverse collection of books that represents student interest can support reading instruction when combined with consistent opportunities for students to read self-selected materials. Too often students in lowincome communities experience reading only through instruction based on skill development and testing. These students may go through school never having an opportunity to practice and utilize the skills taught during reading instruction in a context that they find meaningful. Daily opportunities to read self-selected material without attaching testing to the experience could provide a chance for students to find reading pleasurable and may lead them towards fully developed autonomous motivation to read.

While the quantitative results of this study are tenuous, the student responses during the interviews, reading log entries and student letters suggest that fourth-grade students value reading and can read books critically to make recommendations to peers based on interests and utility when provided opportunities to read books they find
interesting. Additional research that combines quantitative and qualitative data collection is needed to further explore how motivation to read, attitudes towards reading and reading achievement are impacted when students read self-selected books.

## APPENDICES

## APPENDIX A

REQUEST FOR CONSENT TO CONDUCT RESEARCH IN THE CLASSROOM

## Request for Consent to Conduct Research in Your Classroom

## The Impact of a Book Flood on Reading Motivation and Reading Achievement of

## Fourth Grade Students

Dear Fourth-grade teacher:
My name is Sherry Andrews and I am a PhD candidate in the Reading and Language Arts Department at Oakland University in Rochester, Michigan. I am interested in conducting a research study on how a book flood impacts motivation to read and reading achievement of fourth-grade students. This research is partial fulfillment of the requirements for the degree of Doctor of Philosophy in Reading Education. I would appreciate the opportunity to conduct research in the fourth-grade classes in your building.

The study will be conducted for 12 weeks and involves randomly assigning one fourthgrade class to a control group and the other fourth-grade class to a treatment group. The students in the control group and the treatment group will complete a pre- and posttreatment survey to measure their attitudes towards reading and a questionnaire to measure their motivation to read. To ensure that the books reflect genre and topics the students identify as interesting and to allow students to express in their own words the impact of the book flood five students from the treatment group will be invited to participate in a pre- and post-treatment conversational interview over lunch.

The students in the control group will continue to receive reading instruction as determined by the district adopted reading program. At the end of the 12 -week treatment period 500 books will be added to the control group classroom. The students in the treatment group will receive reading as mandated by the district and will also read selfselected material from the 500 books provided through the book flood for 15 minutes each day. The students in the treatment group will document the books read in a reading $\log$ that I will supply. New reading logs will be provided biweekly. During the 12 -week treatment period I will observe the 15 -minute reading period on three separate classroom visits. Observational data will be collected regarding the students' level of engagement during the 15 -minute reading period. During the observations I will not interact with any students. The observations will be recorded as field notes in a notebook. I will provide a consent form for all parents of potential participants and an assent form for the students.

All data collected during the study will be confidential. Students will be assigned pseudonyms in place of their real names to guarantee confidentiality. Data will be stored in a locked fireproof cabinet that only I can access. Data kept on a computer will be
encrypted and password protected. After five years all of the data collected as a part of this study will be deleted and shredded.

The knowledge gained during this study may be used to improve the academic experiences of other children. Therefore, I may publish the findings in a journal written for educators and educational policy makers. Please feel free to contact Dr. Linda Pavonetti via email at pavonetti@oakland.edu or by phone at 248-370-4683 for additional information regarding the study. For questions regarding the rights of human subjects in research, please contact the Oakland University Institutional Review Board at 248-370-2762.

Thank you in advance,

Sherry Andrews

## Permission to Conduct Research in the Classroom

The Impact of a Book Flood on Reading Motivation and Reading Achievement of Fourth Grade Students

I $\qquad$ have read the information describing the purpose and procedures for the research study conducted by Sherry Andrews, PhD candidate from Oakland University. I understand that all data collected is confidential and that my identity and the identity of all students will be protected. I also understand that participation in the study is voluntary and has no direct impact on role as a teacher. My signature indicates that I give Sherry Andrews permission to conduct research in the fourth-grade classroom that I teach.

## Signature

$\qquad$ Date $\qquad$

## APPENDIX B

PARENT PERMISSION TO PARTICIPATE IN RESEARCH

Parent Permission to Participate in Research
The Impact of a Book Flood on Reading Motivation and Reading Achievement of Fourth Grade Students

## Introduction:

You are being asked to give permission for your child to participate in a research study that is being done by researchers from Oakland University. This study is being done by Sherry Andrews, under the direction of Linda Pavonetti, Professor, and the research study advisor for this project. This study is being conducted as part of the requirements for a Doctor of Philosophy in Reading Education. The purpose of this permission form is to let you know more about the study so you can decide whether to give permission for your child to participate in the study or not. Please read the form carefully. You may ask questions about why the research is being done, what your child will be asked to do, the possible risks and benefits, your/your child's rights as a participant, and anything else about the research or this form that is not clear. You may talk with your friends and family about this research study before making your decision. When all your questions have been answered, you can decide if you want your child to be in this study. If you decide to permit your child to be in the study you will be asked to sign this form and will receive a copy of the form. Your child will also be asked for their agreement to be in the study and you will receive a copy of a similar form written at his or her level of understanding to show that your child has also agreed to be in this study.

## Why is this study being done?

Teachers sometimes find it difficult to encourage students to read. This is especially true when students reach fourth-grade. Some researchers feel that students need a large collection of books that they find interesting in order to become motivated to read. This study will use a process called a book flood to add at least 500 books to the fourth-grade classrooms. The purpose of this research study is to answer three questions:
4. How is reading motivation impacted when fourth-grade students are provided daily opportunities to read self-selected materials provided through a book flood?
5. How are fourth-grade students' attitudes towards reading impacted by daily opportunities to read self-selected materials provided through a book flood?
6. How is the reading achievement of fourth-grade students impacted by daily opportunities to read self-selected materials provided through a book flood?

## Who can participate in this study?

You are being asked to give permission for your child to participate in the study because your child is in the fourth-grade.

## Who is sponsoring this study? <br> None

## Where is this study being done?

This study is being conducted in the classroom.

## What procedures are involved with this study?

If you agree for your child to take part in this research study, your child will be asked to do the following:
The classes will randomly be assigned as the control group or the treatment group.

The students in the control group class will continue to receive reading instruction as mandated by the school district and will be asked to:

- Complete a survey that shares how they feel about reading at the beginning and at the end of 12 -week treatment period.
- Complete a survey that shares why they read at the beginning and at the end of 12 -week treatment period.
- At the end of the 12 weeks 500 books will be added to the classroom.

The students in the treatment group will continue to receive reading instruction as mandated by the school district and will be asked to:

- Complete a survey that shares how they feel about reading at the beginning and at the end of the 12 -week treatment period.
- Complete a survey that shares why they read at the beginning and at the end of 12 -week treatment period.
- Five randomly selected students will talk to the researcher about books and reading.
- Choose a book from the books provided through the book flood.
- Read the book for 15 minutes each day in class.
- Keep track of the books read in a book log.
- Rate the book as a good read or not a good read for fourth-graders.
- At the beginning of the 12 weeks 500 books will be added to the classroom.


## How long will participation in this study last?

The study will take place for 12 weeks. The students in the control group will take:

- 15 minutes to complete a survey that shares how they feel about reading at the beginning and end of the 12 -week treatment period.
- 15 minutes to complete a survey that shares why they read at the beginning and end of the 12 -week treatment period.
The students in the treatment group will take:
- 15 minutes to complete a survey that shares how they feel about reading at the beginning and end of the 12 -week treatment period.
- 15 minutes to complete a survey that shares why they read at the beginning and end of the 12 -week treatment period.
- 15 minutes to read books during school each day.
- 5 minutes to record the pages read each day.
- Five randomly selected students in the treatment group will be invited to spend one lunch period to eat and discuss books and reading with the researcher at the beginning and at the end of the treatment period.

The researcher may stop your child's participation in this study at any time without your/your child's permission. Data will not be collected or analyzed for students who do not record pages read for more than $50 \%$ of the total days in school during the 12 -week research period. Students will be allowed to continue to read books from the book flood.

## How many people will be participating in this study?

The study will include two teachers and 80 students.

## What are the risks, side effects or discomforts that can be expected from participating in this study?

By taking part in this study, your child will experience no harm or discomfort greater than those ordinarily encountered in the school day. All data collected during the study will be confidential. Students will be assigned pseudonyms in place of their real names to guarantee confidentiality. Data will be stored in a locked cabinet that only I can access. Data kept on a computer will be encrypted and password protected. After three years all of the data collected as a part of this study will be deleted and shredded.

A breach of confidentiality is also a possible risk. Breach of confidentiality means that it is possible that individuals not associated with this research may accidentally gain access to information that personally identifies participants. Appropriate safeguards are set in place to minimize a breach of confidentiality (e.g. researcher's office is secure and computers and external storage devices are password protected); but no researcher can ever guarantee that this sort of breach will not occur.

## Are there any known benefits from taking part in this study?

There are no direct benefits to your child for participating in this study. However, the results of this study may benefit others in the future. The potential benefits to your child are access to additional books and improved reading ability.

## What are the alternatives to participation in this study?

You may choose not to give your permission for your child to participate in this study. Your child can also choose not to participate in this study.

## What are the costs of taking part in this study?

There is no cost to you or your child for participating in this study.

## What compensation is being provided for participation?

You and your child will not be paid for participating in this study.

## What are your/your child's rights if you give your permission for him or her to participate in this study?

Your decision to give your permission for your child to participate in this study is voluntary. You may choose to have your child leave the study at any time, or refuse to answer any questions that may be asked during the study. You/your child will not lose any benefits to which you/your child are otherwise entitled and your decision will not affect your/your child's present or future relationship with Oakland University, the researcher, the Reading and Language Arts department; or If you are a student or employee at Oakland University, your decision about participation will not affect your grades or employment status.

If you/your child would like to stop participating in this study, you/your child should contact the researcher, Sherry Andrews at 248-370-3054, who will provide instructions on how to withdraw from the study Any new information that may affect your/your child's willingness to participate in the study will be provided to you as soon as possible. Your child also has all of the rights listed above.

What will be done to keep my child's information confidential?
Every effort will be made to keep your child's study-related information confidential.

Personal information regarding your child's participation in this study may be disclosed if required by law. Also, your child's research records may be reviewed by the following groups:

- Regulatory authorities involved in the oversight of research (Office for Human Research Protections or other federal, state, or international regulatory agencies);
- Members or representatives of Oakland University Institutional Review Board (IRB) (in order to ensure that your child's rights as a research participant are being protected);
- When study results are presented at professional conferences or published in professional journals, your child's name will not be used.

What do you do if you have questions about the study or the rights of research participants?
For questions about the study you may contact Sherry Andrews at 248-370-3054 or smandrew@oakland.edu. You may also contact my advisor, Linda Pavonetti at 248-370-4683 or pavonett@oakland.edu.

For questions regarding your/your child's rights as a participant in human subjects research, you may contact the Oakland University Institutional Review Board, 248-3702762.

Signing the parental or legal guardian permission form You have read (or had someone read to you) this form and you are aware that you are being asked to provide permission for your child to participate in a research study. You have had the opportunity to ask questions and have had them answered to your satisfaction. You voluntarily agree to permit your child to participate in this study.

You are not giving up any legal rights by signing this form. You will be given a copy of this form.

Print name of participant/child

Print name of parent or other person authorized to provide permission for participant/child

## Signature of parent or other person provide permission for participant

$\qquad$
Relationship to the participant/child
Date and time

## Investigator/Research Staff

I have explained the research to the participant before requesting the signature above. There are no blanks in this document. A copy of this form has been given to the parent(s) or legal guardian.
$\qquad$
Signature of person obtaining the permission
Sherry Andrews
Print name of person obtaining the permission

## APPENDIX C

CHILD ASSENT FORM TREATMENT GROUP

## Child Assent Form

(7-12 year olds)
The impact of a Book Flood on Fourth-grade Readers

## Introduction

My name is Sherry Andrews. I am a student in the Department of Reading and Language Arts at Oakland University. I am working with Dr. Linda Pavonetti who is my advisor for the study and a professor at Oakland University. I am currently working on a research study about the way fourth-grade students feel about reading and which books they find interesting. The purpose of this form is to let you know more about the research study and to help you decide whether or not you want to take part.

## What is a research study?

A research study is done to learn more about something.

## Why is this study being done?

This research study is being done to help me understand how students feel about reading and what books students find interesting.

## Who can be in this study?

Any student who is in the fourth grade can be in this study.

## What will you need to do if you are in this study?

If you agree to be in this study I will need you to:
(1) Complete a survey about how you feel about reading.
(2) Complete a questionnaire about why you read.
(3) Talk to me about books that you like.
(4) Read a book for 15 minutes each day.
(5) Keep track of the books that you read in a reading log.
(6) Write in the reading $\log$ if you think other students might like to read the book.

## How long will you be in the study?

The study will last for 12 weeks.

## What good things might happen to you if you are in the study?

If you are in the study you might read a very interesting book.

## What bad things might happen to you if you are in the study?

There are no bad things that will happen if you are in the study.

## Will you be given anything for being in the study?

Your class will receive 500 new books for the classroom.

## Do you have to be in the study?

If you do not want to be in the study, it is okay to say "No". If you say "Yes" you can change your mind and quit being in the study at any time without getting in trouble. You also do not have to answer any questions that may be asked of you during the study if you do not want to. If you decide you want to be in the study, an adult (usually one of your parents) will also need to give permission for you to be in the study. Even if your parent(s) say "Yes", you can still say that you do not want to be in the study.

Who can you talk to about the study if you have any questions?
You may ask any questions about this study at any time. You may talk with me or with your parents, friends, or anyone else you would like.

Remember my name is Sherry Andrews and you can contact me at smandrew@oakland.edu if you have questions. You can also contact my advisor, Dr. Linda Pavonetti by email at pavonett@oakland.edu or by phone at 248-370-4683.

Agreement to be in the study (7-12 years old)
If you would like to be in this research study, please write your name below.


Date and time

## Investigator/Research Staff

I have explained the research to the participant before requesting the signature above. A copy of this form has been given to the participant or his/her parent or guardian.
$\qquad$
Signature of person obtaining the assent
Date and time

## APPENDIX D <br> CHILD ASSENT FORM CONTROL GROUP

## Child Assent Form

(7-12 year olds)
The impact of a Book Flood on Fourth-grade Readers

## Introduction

My name is Sherry Andrews. I am a student in the Department of Reading and Language Arts at Oakland University. I am working with Dr. Linda Pavonetti who is my advisor for the study and a professor at Oakland University.

I am currently working on a research study about the way fourth-grade students feel about reading and which books they find interesting. The purpose of this form is to let you know more about the research study to help you decide whether or not you want to take part.

## What is a research study?

A research study is done to learn more about something.

## Why is this study being done?

This research study is being done to help me understand how students feel about reading and what books students find interesting.

## Who can be in this study?

Any student who is in the fourth grade can be in this study.

## What will you need to do if you are in this study?

If you agree to be in this study I will need you to:
(1) Complete a survey about how you feel about reading at the beginning and end of 12 weeks.
(2) Complete a questionnaire about why you read at the beginning and end of 12 weeks.

## How long will you be in the study?

The study will last for 12 weeks

## What good things might happen to you if you are in the study?

This study will help teachers understand the way fourth-grade students feel about reading.

## What bad things might happen to you if you are in the study?

There are no bad things that will happen if you are part of this study.

## Will you be given anything for being in the study?

Your class will receive 500 new books for the class at the end of the 12 weeks.

## Do you have to be in the study?

If you do not want to be in the study, it is okay to say "No". If you say "Yes" you can change your mind and quit being in the study at any time without getting in trouble. You also do not have to answer any questions that may be asked of you during the study if you do not want to. If you decide you want to be in the study, an adult (usually one of your parents) will also need to give permission for you to be in the study. Even if your parent(s) say "Yes", you can still say that you do not want to be in the study.

Who can you talk to about the study if you have any questions?
You may ask any questions about this study at any time. You may talk with me or with your parents, friends, or anyone else you would like.

Remember my name is Sherry Andrews and you can contact me at smandrew@oakland.edu if you have questions. You can also contact my advisor, Dr. Linda Pavonetti by email at pavonett@oakland.edu or by phone at 248-370-4683.

Agreement to be in the study (7-12 years old)
If you would like to be in this research study, please write your name below.


#### Abstract

AM/PM Signature or printed name of participant

\section*{Date and time}

\section*{Investigator/Research Staff}

I have explained the research to the participant before requesting the signature above. A copy of this form has been given to the participant or his/her parent or guardian.


Signature of person obtaining the assent
Date and time

APPENDIX E
SELF-REGULATION QUESTIONNAIRE READING MOTIVATION

## Self-Regulation Questionnaire Reading Motivation

## Directions for Administration, Scoring and Interpretation

The Self-Regulation Questionnaire-Reading Motivation is intended to measure the quality of recreational and academic reading motivation based on Self-Determination Theory. The scale consists of 34 items that measure autonomous and controlled reading motivation for recreational and academic reading. Students are asked to indicate how strongly they agree or disagree with each statement on a 4-point scale ( $4=$ Strongly Agree, 1 = Strongly Disagree). The information gained from the questionnaire can be used to establish a reading climate in which students are positively motivated to read.

## Administration

Introduce the purpose of the questionnaire.
Say:
I am going to read some sentences to you. I want to know how you feel about reading. There are no right or wrong answers. I want to know how YOU feel about reading in your free time and reading for school. Your answers will help me understand why students read. I will read each statement twice. Do not mark your answers until I tell you. You will write an X in the box that best represents how you feel. The first time I read the statement I want you to think about the best answer. The second time I read the statement I want you to choose the answer that best represents your feelings and write an X in the box. Be sure to mark only one answer. Ok, let's begin.

Read each item twice. Remind students to think about the statement the first time and mark their answers the second time. Read the number of each item before the first reading.

## Scoring

To score the SRQ-Reading Motivation enter the following point values for each response on the scoring sheet (Strongly Agree $=4$, Agree $=3$, Disagree $=2$, Strongly Disagree $=1$ ) for each item number under the appropriate scale. Sum each column to obtain a raw score for each of the four scales.

## Interpretation

Each scale is interpreted in relation to its total possible score. The SRQ-Reading Motivation uses a 4-point scale. The highest total score for autonomous motivation is 32
and the highest raw score for controlled motivation is 36 . A score that falls closer to the maximum total points would indicate stronger (autonomous or controlled) motivation.

## The SRQ-Reading Motivation Scoring Sheet

Student name $\qquad$
Teacher $\qquad$ -
$\qquad$
$\qquad$

Scoring key: 4 = Strongly Agree
$3=$ Agree
$2=$ Disagree
1 = Strongly Disagree

| Scales |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Recreational Autonomous |  | Recreational Controlled |  | Academic Autonomous |  | Academic Controlled |  |
| 1 |  | 9 |  | 1 |  | 9 |  |
| 2 |  | 10 |  | 2 |  | 10 |  |
| 3 |  | 11 |  | 3 |  | 11 |  |
| 4 |  | 12 |  | 4 |  | 12 |  |
| 5 |  | 13 |  | 5 |  | 13 |  |
| 6 |  | 14 |  | 6 |  | 14 |  |
| 7 |  | 15 |  | 7 |  | 15 |  |
| 8 |  | 16 |  | 8 |  | 16 |  |
|  |  | 17 |  |  |  | 17 |  |
| Raw Score | /32 |  | /36 |  | /32 |  | /36 |

## Self-Regulation Questionnaire Reading Motivation

Read the following statement: Listed below are statements about reading. Some of the questions are about reading in your free time and others are about reading in school. There are no right or wrong answers. Your responses will help me learn the reasons that students read. I will read each question and you place an X on top of the emoticon that best represents how you feel.

|  | Recreational Context | Strongly <br> Agree | Agree | Disagree | Strongly <br> Disagree |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | I read in my free time because.... |  |  |  |  |
| 1 | I really like it. |  |  |  |  |
| 2 | It's fun to read. |  |  |  |  |
| 3 | I enjoy reading. |  |  |  |  |
| 4 | I think reading is fascinating. |  |  |  |  |
| 5 | I think reading is interesting. |  |  |  |  |
| 6 | I think reading is meaningful. |  |  |  |  |
| 7 | I think it is very useful for me to read. |  |  |  |  |
| 8 | It is important for me to read. |  |  |  |  |
| 9 | I will feel ashamed of myself if I don't read. |  |  |  |  |
| 10 | I don't want to disappoint others. |  |  |  |  |
| 11 | I will feel guilty if I don't do it. |  |  |  |  |
| 12 | I have to prove that I can get good reading grades. |  |  |  |  |
| 13 | I just can be proud of myself if I get good reading <br> grades. |  |  |  |  |
| 14 | That is what others expect me to do. |  |  |  |  |
| 15 | Others think that I have to. |  |  |  |  |
| 16 | Others will reward me if I read. |  |  |  |  |
| 17 | Others will punish me if I don't read. |  |  |  |  |

Read the following prompt: The next set of questions will tell me how you feel about reading in school. Remember there are no right or wrong answers. I will read each question and you will place an X on the emoticon that best represents how you feel.

|  | Academic Context | Strongly <br> Agree | Agree | Disagree | Strongly <br> Disagree |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | I read for school because.... |  |  |  |  |
| 1 | I really like it. |  |  |  |  |
| 2 | It's fun to read. |  |  |  |  |
| 3 | I enjoy reading. |  |  |  |  |
| 4 | I think reading is fascinating. |  |  |  |  |
| 5 | I think reading is interesting. |  |  |  |  |
| 6 | I think reading is meaningful. |  |  |  |  |
| 7 | I think it is very useful for me to read. |  |  |  |  |
| 8 | It is important for me to read. |  |  |  |  |
| 9 | I will feel ashamed of myself if I don't read. |  |  |  |  |
| 10 | I don't want to disappoint others. |  |  |  |  |
| 11 | I will feel guilty if I don't do it. |  |  |  |  |
| 12 | I have to prove that I can get good reading grades. |  |  |  |  |
| 13 | I just can be proud of myself if I get good reading <br> grades. |  |  |  |  |
| 14 | That is what others expect me to do. |  |  |  |  |
| 15 | Others think that I have to. |  |  |  |  |
| 16 | Others will reward me if I read. |  |  |  |  |
| 17 | Others will punish me if I don't read. |  |  |  |  |

## APPENDIX F

ELEMENTARY READING ATTITUDE SURVEY

## Elementary Reading Attitude Survey Directions for use

The Elementary Reading Attitude Survey provides a quick indication of student attitudes toward reading. It consists of 20 items and can be administered to an entire classroom in about 10 minutes. Each item presents a brief, simply worded statement about reading, followed by four pictures of Garfield. Each pose is designed to depict a different emotional state, ranging from very positive to very negative

## Administration

Begin by telling students that you wish to find out how they feel about reading. Emphasize that this is not a test and that there are no "right" answers. Encourage sincerity.
Distribute the survey forms and, if you wish to monitor the attitudes of specific students, ask them to write their names in the space at the top. Hold up a copy of the survey so that the students can see the first page. Point to the picture of Garfield at the far left of the first item. Ask the students to look at this same picture on their own survey form. Discuss with them the mood Garfield seems to be in (very happy). Then move to the next picture and again discuss Garfield's mood (this time, a little happy). In the same way, move to the third and fourth pictures and talk about Garfield's moods-a little upset and very upset. It is helpful to point out the position of Garfield's mouth, especially in the middle two figures.
Explain that together you will read some statements about reading and that the students should think about how they feel about each statement. They should then circle the picture of Garfield that is closest to their own feelings. (Emphasize that the students should respond according to their own feelings, not as Garfield might respond!) Read each item aloud slowly and distinctly; then read it a second time while students are thinking. Be sure to read the item number and to remind students of page numbers when new pages are reached.

## Scoring

To score the survey, count four points for each leftmost (happiest) Garfield circled, three for each slightly smiling Garfield, two for each mildly upset Garfield, and one point for each very upset (rightmost) Garfield. Three scores for each student can be obtained: the total for the first 10 items, the total for the second 10 , and a composite total. The first half of the survey relates to attitude toward recreational reading; the second half relates to attitude toward academic aspects of reading.

## Interpretation

You can interpret scores in two ways. One is to note informally where the score falls in regard to the four nodes of the scale. A total score of 50 , for example, would fall about mid-way on the scale, between the slightly happy and slightly upset figures, therefore indicating a relatively indifferent overall attitude toward reading. The other approach is more formal. It involves converting the raw scores into percentile ranks by means of Table 1. Be sure to use the norms for the right grade level and to note the column headings ( $\operatorname{Rec}=$ recreational reading, $\mathrm{Aca}=$ academic reading, $\mathrm{Tot}=$ total score). If you wish to determine the average percentile rank for your class, average the raw scores first; then use the table to locate the percentile rank corresponding to the raw score mean. Percentile ranks cannot be averaged directly.

## McKenna \& Kear

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## Elementary Reading Attitude Survey

School $\qquad$ Grade $\qquad$ Name $\qquad$

Please circle the picture that describes how you feel when you read a book.

2. How do you feel when you read a book in school during free time?

3. How do you feel about reading for fun at home?


Page 1
© PAWS - www.professorgarfield.org Survey designed by Dennis J. Kear, Wichita State University

Please circle the picture that describes how you feel when you read a book.


Page 2

Please circle the picture that describes how you feel when you read a book.


Page 3
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Survey designed by Dennis J. Kear, Wichita State University

Please circle the picture that describes how you feel when you read a book.


Please circle the picture that describes how you feel when you read a book.


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## Appendix

Technical Aspects of the Elementary Reading Attitude Survey

## The norming project

To create norms for the interpretation of scores, a large-scale study was conducted in late January 1989, at which time the survey was administered to 18,138 students in Grades $1-6$. A number of steps were taken to achieve a sample that was sufficiently stratified (i.e., reflective of the American population) to allow confident generalizations. Children were drawn from 95 school districts in 38 U.S. states. The number of girls exceeded by only 5 the number of boys. Ethnic distribution of the sample was also close to that of the U.S. population (Statistical abstract of the United States, 1989). The proportion of blacks ( $9.5 \%$ ) was within $3 \%$ of the national proportion, while the proportion of Hispanics ( $6.2 \%$ ) was within $2 \%$.

Percentile ranks at each grade for both subscales and the full scale are presented in Table 1. These data can be used to compare individual students' scores with the national sample and they can be interpreted like achievement-test percentile ranks.

Table 1
Mid-year percentile ranks by grade and scale

| Raw | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Scr | Rec Aca Tot | Rec Aca Tot | Rec Aca Tot | Rec Aca Tot | Rec Aca Tot | Rec Aca Tot |
| 80 | 99 | 99 | 99 | 99 | 99 | 99 |
| 79 | 95 | 96 | 98 | 99 | 99 | 99 |
| 78 | 93 | 95 | 97 | 98 | 99 | 99 |
| 77 | 92 | 94 | 97 | 98 | 99 | 99 |
| 76 | 90 | 93 | 96 | 97 | 98 | 99 |
| 75 | 88 | 92 | 95 | 96 | 98 | 99 |
| 74 | 86 | 90 | 94 | 95 | 97 | 99 |
| 73 | 84 | 88 | 92 | 94 | 97 | 98 |
| 72 | 82 | 86 | 91 | 93 | 96 | 98 |
| 71 | 80 | 84 | 89 | 91 | 95 | 97 |
| 70 | 78 | 82 | 86 | 89 | 94 | 96 |
| 69 | 75 | 79 | 84 | 88 | 92 | 95 |
| 68 | 72 | 77 | 81 | 86 | 91 | 93 |
| 67 | 69 | 74 | 79 | 83 | 89 | 92 |
| 66 | 66 | 71 | 76 | 80 | 87 | 90 |
| 65 | 62 | 69 | 73 | 78 | 84 | 88 |
| 64 | 59 | 66 | 70 | 75 | 82 | 86 |
| 63 | 55 | 63 | 67 | 72 | 79 | 84 |
| 62 | 52 | 60 | 64 | 69 | 76 | 82 |
| 61 | 49 | 57 | 61 | 66 | 73 | 79 |
| 60 | 46 | 54 | 58 | 62 | 70 | 76 |
| 59 | 43 | 51 | 55 | 59 | 67 | 73 |
| 58 | 40 | 47 | 51 | 56 | 64 | 69 |
| 57 | 37 | 45 | 48 | 53 | 61 | 66 |
| 56 | 34 | 41 | 44 | 48 | 57 | 62 |
| 55 | 31 | 38 | 41 | 45 | 53 | 58 |
| 54 | 28 | 35 | 38 | 41 | 50 | 55 |

## Elementary Reading Attitude Survey Scoring Sheet

Student Name $\qquad$
Teacher
Grade $\qquad$ Administration Date $\qquad$

## Scoring Guide

4 points Happiest Garfield
3 points Slightly smiling Garfield
2 points Mildly upset Garfield
1 point Very upset Garfield

Recreational reading

1. $\qquad$
2. $\qquad$
3. $\qquad$
4. $\qquad$
5. $\qquad$
6. $\qquad$
7. $\qquad$
8. $\qquad$
9. $\qquad$
10. $\qquad$
11. $\qquad$
12. $\qquad$
13. $\qquad$
14. $\qquad$
15. $\qquad$
16. $\qquad$
17. $\qquad$
18. $\qquad$
19. $\qquad$
20. $\qquad$

Raw Score: $\qquad$ Raw Score: $\qquad$
Full scale raw score . . . . . . . . . . (Recreational + Academic): $\qquad$
Percentile ranks: . . . . . . . . . . . . . . Recreational $\qquad$
Academic Full scale
$\qquad$
$\qquad$
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## APPENDIX G

INTERVIEW QUESTIONS

## Interview Questions

## Part I

Directions: Use the prompts and questions to engage three - five students in a natural conversation about reading. Avoid using instructional jargon (narrative or informational text) to minimize the chance of leading the conversation. Familiarize yourself with the questions prior to the interview. Follow up on interesting responses to gain a fuller understanding the student(s) reading experience.

Narrative Text Prompt:
I really like books and I enjoy talking about the ones I like. Today, I would like to hear about the books you have read.

1. Take a few minutes to think about the stories and books you have read (wait time). Now tell me about the most interesting story or book you have ever read.
2. Why was the story interesting?
3. How did you find out about the book?

Informational Text Prompt:
Sometimes we read to find out about something that we think is interesting. For example, a student I worked with enjoyed reading about spiders. I am going to ask you some questions about things you think are interesting and would enjoy reading about it in a book.

1. Think about something important or interesting that you learned about. Not from your teacher and not from television, but from something you read (wait time). Tell me what you learned.
2. Did the information come from a book, magazine or the internet?
3. Why was reading about $\qquad$ important or interesting?

## Part II

The following questions will provide general information regarding reading habits and academic reading vocabulary.

General Reading:

1. When was the last time you read a book?
2. What did you read?
3. Do you have a book that you are reading in your desk, backpack, or locker?
4. Tell me about the book?
5. Who is your favorite author?
6. Where do you or people you know get their books?
7. Do you have any interesting books in your classroom?
8. Have you ever talked about genre in school?
9. Tell me about genre?
10. What is a genre that you like? (explain genre if necessary)
11. Tell me about any books that you would like to read?
12. If you could have only one book about anybody or anything, what would you want that book to be about?

## Part III

The following questions will provide information regarding the reasons students read.

1. Do you like to read?
2. Do you know any students who don't like to read? (If all responses to question \#1 are yes, follow up with question \#2.)
3. Can you tell me why some students like to read?
4. Can you tell me why some students don't like to read?
5. Is a book a good gift?
6. What kind of things other than books do you read?
7. What can teachers do to make reading enjoyable?

## APPENDIX H

READING LOG SAMPLE

## Reading Log Sample

Name: John Smith
Book Title: The Diary of a Wimpy Kid
Author: Jeff Kinney
Color the stars to rate the book:

I give this book:


1 Star $=\mathrm{I}$ don't think this is a good book
2 Stars $=I$ think this book is so-so
3 stars $=\mathrm{I}$ think this book is a good book
4 Stars = I think this book is very good
5 Stars $=\mathrm{I}$ think this book is excellent

| DATE | Page Numbers Read |
| :---: | :--- |
| $1-30-16$ | $1-20$ |
| $1-31-16$ | $21-35$ |
| $2-1-16$ | $36-50$ |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## APPENDIX I

## LIST OF DONORS AND SCHOLARSHIPS

## LIST OF DONORS \& SCHOLARSHIPS

1. Oakland University Department of Reading and Language Arts
2. Caity Anast, Sales and Marketing Coodinator, Albert Whitman \& Company
3. Barbara Campbell, Director Educational Resource Laboratory, School of

Education and Human Services
4. Michael Freeman, Account manager, Dorling Kindersley
5. Nick Glass, Founder, TeachingBooksDotNet
6. Donna Raymond, Director, Accreditation and Reporting School of Education and Human Services
7. Doris Taylor, Sales and Marketing coordinator, Bearport Press
8. Senior Vice President for Academic affairs and Provost, James, Lentini, Oakland University, Graduate Research Scholarship

## APPENDIX J <br> LIST OF ALL BOOKS INCLUDED IN THE BOOK FLOOD

| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Abdel-Fattah, R. | The Friendship Matchmaker Goes Undercover | 2012 | Bloomsbury |
| Abdul-Jabbar, K. | What Color Is My World? | 2013 | Candlewick Press |
| Acher, D. | Urgency Emergency: Itsy Bitsy Spider | 2013 | Albert Whitman |
| Acher, D. | Urgency Emergency: Big Bad Wolf | 2013 | Albert Whitman |
| Acher, D. | Urgency Emergency: Little Elephant's Blocked Trunk | 2014 | Albert Whitman |
| Adderson, C. | Jasper John Dooley: Left Behind | 2013 | Kids Can Press |
| Adkins, J. | What If You Met A Cowboy? | 2013 | Roaring Brook Press |
| Aguirre, J. | Dragons Beware! | 2015 | First Second |
| Allan Morey, A. | Birds | 2015 | Amicus |
| Allegra, M. | Sarah Gives Thanks | 2012 | Albert Whitman |
| Allen, C. | The Magnificent Mya Tibbs | 2016 | HarperCollins |
| Allen, E. | Enchanted Sisters: <br> Autumn's Secret Gift | 2014 | Bloomsbury |
| Alter, A. | A New Arrival | 2016 | Knopf |
| Anastasio, D. | What Is The Super Bowl? | 2015 | Grosset \& Dunlap |
| Andrus, A. | Small to Scary Animals | 2016 | Scholastic |
| Angleberger, T. | Art2-D2's Guide To Folding And Doodling | 2013 | Abrams |
| Arlon, P. | Scholastic Discover More: Reptiles | 2013 | Scholastic |
| Arlon, P. | Scholastic Discover More: Weather | 2013 | Scholastic |
| Arlon, P. | Penguins | 2012 | Scholastic |
| Arlon, P. | Discover More Animal Faces | 2015 | Scholastic |
| Arnold, T. | Fly Guy Presents Insects | 2015 | Scholastic |
| Arnold, T. | Ride, Fly Guy, Ride! | 2012 | Cartwheel Books |
| Arnold, T. | I Spy Fly Guy | 2009 | Scholastic |
| Arnold, T. | Fly High, Fly Guy! | 2008 | Cartwheel Books |
| Arnold, T. | Hooray For Fly Guy! | 2008 | Cartwheel Books |
| Arnold, T. | Huggly's Christmas | 2001 | Scholastic |
| Arnold, T. | Prince Fly Guy | 2015 | Scholastic |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Auch, M. J. | One Plus One Equals Blue | 2013 | Holt |
| Baker, E.D. | The Perfect Match | 2015 | Bloomsbury |
| Baker, M. | If You Find This | 2015 | Little Brown and Co |
| Balliett, B. | Pieces And Players | 2015 | Scholastic |
| Baltzer, R. | Monsters And Other Mythical Creatures | 2015 | Abdo Publishing |
| BanerjeeDivakaruni, C | Grandma And The Great Gourd | 2013 | Roaring Brook |
| Banks, K. | Boy's Best Friend | 213 | Farrar Straus Giroux |
| Baptiste, T. | The Jumbles | 2016 | Scholastic |
| Bardoe, C. | Gregor Mendel: The Friar Who Grew Peas | 2006 | Abrams Books for Young Readers |
| Barrett, J. | The Marshmallow Incident | 2009 | Scholastic |
| Bass, G. | Secret Santa Agent Of X.M.A.S. | 2010 | Scholastic |
| Bateman, T. | The Bully Blockers Club (Albert Whitman Prairie Paperback) | 2006 | Albert Whitman |
| Bauer, J. | Almost Home | 2012 | Penguin |
| Beaty, A. | Fluffy Bunnies 2: The Schnoz of Doom | 2015 | Amulet |
| Beauvais, C. | Sleuth On Skates | 2015 | Holiday House |
| Beck, P. | Predator Splashdown | 2015 | Scholastic |
| Beck, P. | Gross Science | 2011 | Scholastic |
| Becker, H. | Zoobots | 2014 | Kids Can Press |
| Beechwood, B. | Side By Side | 2008 | Disney |
| Bentley, S. | Magic Bunny: Dancing Days | 2014 | Scholastic |
| Berk, S. | Dance Divas | 2013 | Bloomsbury |
| Berne, E. | World's Scariest Prisons | 2014 | Scholastic |
| Bildner, P. | A Whole New Ballgame | 2015 | Farrar Straus Giroux |
| Bildner, P. | The Soccer Fence | 2014 | Penguin |
| Bildner, P. | The Greatest Game ever Played | 2006 | Penguin |
| Birney, B. | Trouble According To Humphrey | 2007 | Scholastic |
| Birney, B. | Friendship According To Humphrey | 2015 | Scholastic |
| Birney, B. | Secrets According To Humphrey | 2015 | Scholastic |
| Birney, B. | Adventure According To Humphrey | 2014 | Scholastic |



| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Burks, J. | Bird \& Squirrel On The Edge | 2015 | Scholastic |
| Calhoun, D. | After The River The Sun | 2013 | Atheneum Books for Young Readers |
| Callery, S. | Branches of The Military | 2015 | Scholastic |
| Calmenson, S. | Teacher's Pets | 2014 | Henry Holt |
| Cammuso, F. | The Misadventures of Salem Hyde: Spelling Trouble | 2013 | Amulet |
| Carbone, C. | Macbeth \#Killing It | 2016 | Random House |
| Carman, P. | Omega Rising | 2016 | Random House |
| Carson, M. | The Park Scientists | 2014 | Houghton Mifflin |
| Carter, A. | Don't Judge A Girl By Her Cover | 2011 | Scholastic |
| Castaldo, N. | Sniffer Dogs | 2014 | Houghton Mifflin |
| Castellucci, C. | Moving Target | 2015 | Disney Lucasfilm Press |
| Caszatt-Allen, W. | Paleojoe's Dinosaur Detective Club: Raptor's Revenge | 2007 | Mackinac Island Press |
| Caszatt-Allen, W. | Secret Sabertooth (\#3 In <br> Paleojoe's Dinosaur <br> Detective Club Series) <br> (Paleojoe's Dinosaur <br> Detective Club) | 2007 | Mackinac Island Press |
| Caszatt-Allen, W. | Paleojoe's The Disappearance of Dinosaur Sue | 2006 | Mackinac Island Press |
| Caszatt-Allen, W. | Stolen Stegosaurus (\#2 In <br> Paleojoe's Dinosaur <br> Detective Club Series) <br> (Paleojoe's Dinosaur <br> Detective Club) | 2006 | Mackinac Island Press, Inc. |
| Cervantes, A. | Gaby, Lost And Found | 2013 | Scholastic |
| Chandler Warner, G. | The Boxcar Children Guide To Adventure | 2014 | Albert Whitman |
| Chandler Warner, G. | Mystery Of The Fallen Treasure | 2013 | Albert Whitman |
| Chandler Warner, G. | The Return Of The Graveyard Ghost | 2013 | Albert Whitman |
| Chandler Warner, G. | Spooktacular Special | 2013 | Albert Whitman |


| Author | Title | Year | Publisher |
| :--- | :--- | :---: | :--- |
| Chandler Warner, <br> G. | Boxcar Children: Blue Bay <br> Mystery | 1989 | Albert Whitman |
| Chandler Warner, <br> G. | The Lighthouse Mystery <br> (Boxcar Children) | 1990 | Albert Whitman |
| Chandler Warner, <br> G. | Mountain Top Mystery | 1990 | Albert Whitman |
| Chandler Warner, <br> G. | Schoolhouse Mystery <br> (Boxcar Children) | 1990 | Albert Whitman |


| Author | Title | Year | Publisher |
| :--- | :--- | :---: | :--- |
| Christopher, M. | The Kid Who Only Hit <br> Homers (Matt Christopher <br> Sports Series) | 1986 | Little, Brown <br> Young Readers |
| Claybourne, A. | 100 Most Disgusting <br> Things On The Planet | 2010 | Scholastic <br> Paperbacks |
| Cleary, B. | Ribsy | 1964 | Scholastic |
| Clements, A. | Extra Credit | 2009 | Atheneum Books <br> for Young Readers |
| Clements, A. | Trouble-Maker | 2011 | Atheneum |
| Clements, A. | Extra Credit | 2009 | Atheneum |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Coy, J. | Game Changer | 2015 | Carolrhoda Books |
| Cronin, D. | The Chicken Squad: The First Misadventure | 2013 | Scholastic |
| Crowl, M. | Eden's Wish | 2015 | Disney Hyperion |
| Cummings, T . | Pop Of The Bumpy Mummy | 2015 | Scholastic |
| Cummings, T . | Flurry Of The Snombies | 2015 | Scholastic |
| Cummings, T . | Day Of The Night Crawlers | 2013 | Branches |
| Cummings, T . | Attack Of The Shadow Smashers | 2013 | Branches |
| Cummins, J. | Flying Solo | 2013 | Roaring Brook |
| Curtis, C. | The Madman Of Piney Woods | 2014 | Scholastic |
| Cusick, D. | Cool Animal Names: <br> Porcupinefish, Zebra Eels, Leopard Geckos, Owl Monkeys, Giraffe Beetles, \& 251 Other Bizarre Creatures | 2011 | Imagine |
| Cusick, D. | Get the Scoop on animal Puke! | 2014 | Imagine |
| Daly, C. | The Ghost Of Christmas Past | 2012 | Scholastic |
| Darnton, K. | Chloe In India | 2016 | Delacorte |
| David, E. | Anna \& Elsa | 2015 | Random House |
| Davis Pinkney, A. | Peace Warriors | 2013 | Scholastic |
| Davis Pinkney, A. | Sit-In | 2010 | Little, Brown Books for Young Readers |
| Day-George, J. | Wednesdays In The Tower | 2013 | Bloomsbury |
| De La Pena, M. | Infinity Ring \#4 | 2013 | Scholastic |
| Diaz-Gonzalez, C. | Moving Target | 2015 | Scholastic Inc. |
| DiCamillo, K. | Flora \& Ulysses | 2013 | Candlewick |
| Diggs, T. | Mixed Me | 2015 | Feiwel \& Friends |
| Dillard, S. | Mouse Scouts | 2016 | Knopf |
| Dillard, S. | Make A Difference | 2015 | Knopf |
| Dilloway, M. | Momotaro: Xander and the Lost Island of Monsters | 2016 | Disney Books |
| Dinerstein, E. | What Elephants Know | 2016 | Disney Books |
| Disney Book Group | Star Wars The Original Trilogy Stories | 2015 | Disney Lucasfilm Press |
|  |  |  |  |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Disney Book Group | 5-Minute Star Wars Stories | 2015 | Disney Lucasfilm Press |
| Donohue, M. | Alfie The Apostrophe | 2010 | Albert Whitman |
| Dower, L. | Sunny And The Royal Party | 2013 | Disney Hyperion |
| Dower, L. | Sunny And The Snowy Surprise | 2013 | Disney Hyperion |
| Dower, L. | Sunny And The Secret <br> Passage | 2013 | Disney Hyperion |
| Draper, S. | The Backyard Animal Show | 2012 | Simon \& Schuster |
| Draper, S. | Shadows Of Caesar's Creek | 2011 | Aladdin |
| Draper, S. | Lost In The Tunnel Of Time | 2011 | Aladdin |
| Draper, S. | The Buried Bones Mystery | 2011 | Aladdin |
| Draper, S. | The Space Mission Adventure | 2012 | Aladdin |
| Duffy, C. | Fairy Tale Comics | 2013 | First Second |
| Durst, S. | The Girl Who Could Not Dream | 2015 | Clarion Books |
| Earhart, K. | Savanna Showdown (Race The Wild) | 2016 | Scholastic |
| Earhart, K. | Race The Wild Course \#1 | 2015 | Scholastic |
| Eaton, M. | The Flying Beaver Brothers And The Crazy Critter Race | 2015 | Knopf |
| Edwards, R. | Who Is Barack Obama? | 2009 | Penguin Group USA |
| Elliott, R. | Eva's Treetop Festival | 2015 | Scholastic |
| Ellsworth, M. | Gertrude Chandler Warner And The Boxcar Children | 1997 | Albert Whitman |
| Engle, M. | Mountain Dog | 2013 | Henry Holt and Company |
| English, K. | Don't Feed The Geckos! | 2015 | Clarion Books |
| English, K. | The Carver Chronicles: Skateboard Party | 2014 | Houghton Mifflin |
| English, K. | Nikki And Deja: Substitute Trouble | 2013 | Clarion Books |
| English, K. | The Carver Chronicles: Dog Days | 2013 | Clarion Books |
| English, K. | Nikki \& Deja: Wedding Drama | 2012 | Houghton Mifflin Harcourt |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| English, K. | Nikki \& Dejah: Election Madness | 2011 | Sandpiper |
| English, K. | Nikki \& Deja | 2010 | Sandpiper |
| English, K. | Nikki And Deja | 2009 | Sandpiper |
| English, K. | Nikki \& Deja | 2009 | Clarion Books |
| Evans, D. | The Classroom At The End Of The Hall | 1997 | Scholastic |
| Evans, K. | A Bundle Of Sticks | 1971 | Albert Whitman |
| Eyre, L. | The Mean Girl Meltdown | 2015 | Scholastic |
| Feder, S. | Daisy's Defining Day | 2013 | Kids Can Press |
| Ferraiolo, J. | The Big Splash | 2011 | Amulet Books |
| Ferrari, A. | Star Wars: Original Trilogy Graphic Novel | 2016 | Disney Lucasfilm |
| Finne, S. | Golden Retrievers | 2015 | Abdo Publishing |
| Fleming, C. | The Fabled Fourth Graders of Aesop Elementary School | 2007 | Scholastic |
| Fleming, I. | Chitty Chitty Bang Bang | 2013 | Candlewick Press |
| Fletcher, S. | Dadblamed Union Army Cow | 2007 | Candlewick |
| Fletcher, S. | Walk Across The Sea | 2001 | Atheneum |
| Fletcher, S. | Flight Of The Dragon Kyn | 1993 | Atheneum |
| Floca, B. | Moonshot: The Flight Of Apollo 11 | 2009 | Atheneum/Richard Jackson Books |
| Floca, B. | Lightship | 2007 | Atheneum/Richard Jackson Books |
| Flor-Ada, A. | Yes! We Are Latinos | 2013 | Charlesbridge |
| Foreman, M. | The Seeds Of Friendship | 2015 | Candlewick |
| Franklin, J. | I'm An Alien And I Want To Go Home | 2015 | Clarion Books |
| Frazer-Blakemore, M. | The Water Castle | 2013 | Bloomsbury |
| Frazier, S. | Cleo Edison Oliver Playground Millionaire | 2016 | Arthur A. Levine Books |
| Freeman, M. | Strudel's Forever Home | 2016 | Holiday House |
| Fry, J. | The Weapon Of A Jedi | 2015 | Disney Lucasfilm Press |
| Fry, J. | Star Wars Rebels Servants Of The Empire: Imperial Justice | 2015 | Disney Lucasfilm Press |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Funaro, G. | Alistair Grim's Odd Aquaticum | 2016 | Disney Hyperion |
| Funke, C. | The Pirate Pig | 2015 | Random House Books for Young Readers |
| Furgang, K. | National Geographic Animal Records | 2015 | Scholastic |
| Galante, C. | Willa Bean To The Rescue | 2013 | Random House |
| Gemeinhart, D. | The Honest Truth | 2015 | Scholastic |
| George, S. | Who Put The Cookies In The Cookie Jar? | 2013 | Henry Holt |
| George, K. | The Enchanted Egg | 2015 | Disney Hyperion |
| Gerstein, M. | How To Bicycle To The Moon To Plant Sunflowers | 2013 | Roaring Brook Press |
| Gilbert-Murdock, C. | Heaven Is Paved With Oreos | 2013 | Houghton Mifflin |
| Gilson, J. | My Teacher Is An Idiom | 2015 | Houghton Mifflin |
| Glass, C. | Minnie \& Daisy Best Friends Forever \#1: Much Ado About Juliet | 2013 | Disney Press |
| Glenn, S. | Good Sports | 2013 | Sandpiper/Houghton Mifflin Harcourt |
| Goodman, S. | The First Step: How one girl put segregation on trial | 2016 | Bloomsbury |
| Gordon-Bruening, S. | Sweet Feet | 2013 | Bloomsbury |
| Grabenstein, C. | Mr. Lemoncello's Library Olympics | 2016 | Random House |
| Grabenstein, C. | The Island of Dr. Libris | 2015 | Random House |
| Grabenstein, C. | I Totally Funniest |  | Random House |
| Graff, L. | Absolutely Almost | 2014 | Scholastic |
| Gratz, A. | The League Of Seven | 2014 | Starscape |
| Gray, S. | Oceans | 2015 | DK Publishing |
| Green, D. | Sparkling Jewel | 2015 | Scholastic |
| Green, D. | Scholastic Discover More | 2013 | Scholastic |
| Green, T. | Home Run | 2016 | HarperCollins |
| Greenwald, T. | Charlie Joe Jackson's Guide To Summer Vacation | 2013 | Roaring Brook Press |
| Greenwald, T. | Jack Strong Takes A Stand | 2013 | Roaring Brook Press |
| Greenwald, T. | Crime Biters! |  | Scholastic |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Grey, C | Flight Of The King | 2015 | Disney Hyperion |
| Griffiths, A. | The 13-Story Treehouse | 2013 | Feiwel \& Friends |
| Grigsby, S. | First Peas To The Table | 2012 | Albert Whitman |
| Grimes, N . | Make Way For Dyamonde Daniel | 2010 | Puffin |
| Grine, C. | Chickenhare | 2013 | Graphix / Scholastic |
| Guiberson, B. | Mummy Mysteries (My Readers Level 3): Tales From North America | 2013 | Square Fish |
| Guiberson, B. | Frog Song | 2012 | Henry Holt and Company |
| Gutman, D. | Ms. Cuddly Is Nutty | 2015 | Scholastic |
| Gutman, D. | Mr. Granite Is From Another Planet | 2015 | Scholastic |
| Gutman, D. | Coach Hyatt Is A Riot | 2009 | Scholastic |
| Gutman, D. | Officer Spence Makes No Sense | 2009 | Scholastic |
| Gutman, D. | Mrs. Dole Is Out Of Control | 2008 | Scholastic |
| Gutman, D. | Mr. Sunny Is Funny | 2008 | Scholastic |
| Hale, B. | Big Bad Detective Agency | 2015 | Scholastic |
| Hammond, P. | Dinosaurs Of The Jurassic <br> World And Beyond | 2015 | Scholastic |
| Hannigan, K. | Ida B: . . . And Her Plans To Maximize Fun, Avoid Disaster, And (Possibly) Save The World (Bank Street College Of Education Josette Frank Award (Awards)) | 2004 | Greenwillow |
| Harness, C. | Flags Over America | 2014 | Albert Whitman |
| Haskins-Houran, L. | How To Spy On A Shark | 2015 | Albert Whitman |
| Hayes, J. | $\begin{aligned} & \text { Don't Say A Word, Mamá } \\ & = \end{aligned}$ | 2013 | Cinco Puntos Press |
| Heather, A. | Step Into The Spotlight! | 2015 | Scholastic |
| Heder, T. | The Bear Report |  | Abrams |
| Helakoski, L. | Woolbur | 2008 | HarperCollins |
| Henkes, K. | The Year of Billie Miller | 2013 | HarperCollins |
| Henkes, K. | Olive's Ocean | 2003 | Greenwillow Books |
| Hennesy, C. | Pandora Gets Frightened | 2013 | Bloomsbury |
| Herman, G. | Who Is Derek Jeter? | 2015 | Grosset \& Dunlap |


| Author | Title | Year | Publisher |
| :--- | :--- | :---: | :--- |
| Hicks, B. | The Worm Whisperer | 2013 | Roaring Brook |
| Hicks, D. | Tower Of The Five Orders | 2013 | Houghton Mifflin |
| Hill, K. | Bo At Ballard Creek | 2013 | Henry Holt |
| Hillestad-Butler, D. | The Buddy Files: The Case <br> Of The Library Monster | 2012 | Albert Whitman |
|  |  |  |  |
| Hillestad-Butler, D. | The Case Of The Fire <br> Alarm | The Buddy Files: The Case <br> of the Missing Family | 2011 |
| Albert Whitman |  |  |  |
| Hillestad-Butler, D. | The Buddy Files: The Case <br> of the Mixed-Up Mutts | 2010 | Albert Whitman |
| Hillestad-Butler, D. | The Buddy Files: The Case <br> of the Lost Boy | 2010 | Albert Whitman |
| Hillestad-Butler, D. | 2010 | Albert Whitman |  |
| Hillestad-Butler, D. | The Buddy Files | 2010 | Albert Whitman |
| Hillestad-Butler, D. | The Buddy Files - The <br> Case Of The School Ghost | 200 | VIZ Media LLC |
| Himekawa, A | The Legend of Zelda: <br> Ocarina Of Time Part 1 | 2008 | 2014 |
| Bloomsbury |  |  |  |
| Hinshaw-Patent, D. | Super Sniffers | 2013 | Macmillan |
| Hobbs, V. | Wolf | 2001 | Scholastic |
| Hoffman, A. | Aquamarine | 2014 | Random House |
| Holm, J. | Comics Squad | 2014 | Random House |
| Holm, J. | The Fourteenth Goldfish | 2015 | GRAPHIX |
| Holm, J. | Sunny Side Up | 2016 | Disney Books |
| Hood, S. | Leaps And Bounce | Schwartz \& Wade <br> Books |  |
| Hopkinson, D. | Annie And Helen | 2012 | 2015 |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Irvine, A. | Captain America | 2014 | Little, Brown and Company |
| Irvine, A. | Iron Man | 2014 | Little, Brown and Company |
| Isabella, J. | The Red Bicycle : | 2015 | CitizenKid |
| Iserles, I. | Foxcraft, The Taken Book 1 | 2015 | Scholastic |
| Jackson, A. | Chris Paul | 2015 | Mason Crest |
| Jackson, T. | The Magic School Bus: Polar Animals | 2015 | Scholastic |
| Jackson, T. | The Magic School Bus Presents Insects | 2015 | Scholastic |
| Jackson, T. | Magic School Bus <br>  <br> Earthquakes | 2014 | Scholastic |
| Jackson, T. | The Magic School Bus Presents The Rain Forest | 2014 | Scholastic |
| Jackson, T. | The Magic School Bus: Dinosaurs | 2015 | Scholastic |
| Jenkins, S. | The Animal Book | 2013 | Houghton Mifflin |
| Jenkins, S. | Eye To Eye | 2014 | Houghton Mifflin |
| Joiner, S. | After the Ashes | 2015 | Holiday House |
| Jones, C. | Time Stoppers | 2016 | Bloomsbury |
| Jones, G. | Ninja Meerkats \#5: The Tomb Of Doom | 2012 | Square Fish |
| Jones, G. | Ninja Meerkats: Big City Bust-Up | 2012 | Square Fish |
| Jones, U. | Beauty And The Beast | 2012 | Albert Whitman |
| Jones, U. | The Princess Who Had No Kingdom | 2009 | Albert Whitman |
| Joy-Singleton, L. | The Curious Cat Spy Club | 2015 | Albert Whitman |
| Joy-Singleton, L. | The Mystery Of The Zorse's Mask | 2015 | Albert Whitman |
| Jung, M. | Unidentified Suburban Object | 2016 | Arthur A. Levine Books |
| Katz, A. | The Day The Mustache Took Over | 2015 | Bloomsbury |
| Kchodl, J. | Raptor's Revenge | 2007 | Mackinac Island |
| Kchodl, J. | The Disappearance of Dinosaur Sue | 2006 | Mackinac Island |
| Kearney, M. | Trouper | 2013 | Scholastic |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Kehret, P. | Shelter Dogs: Amazing Stories Of Adopted Strays | 2003 | Albert Whitman |
| Kehret, P. | Small Steps: The Year I Got Polio | 2000 | Albert Whitman |
| Keller, L. | Bowling Alley Bandit | 2013 | Christy Ottaviano Books |
| Kelley Puckett | Batman's Dark Secret | 2016 | Scholastic |
| Kelley, K. | Basketball Superstars 2016 | 2016 | Scholastic |
| Kelley, K. | Football Superstars 2015 | 2015 | Scholastic |
| Kelley, K. | Quarterback Superstars 2015 | 2015 | Scholastic |
| Kelly, D. | The Wrigley Riddle | 2013 | Random House |
| Kelly, E. | Blackbird Fly | 2015 | HarperCollins |
| Kerrin, J. | A Narrow Escape | 2013 | Kids Can Press |
| Ketteman, H. | The Ghosts Go Haunting | 2014 | Albert Whitman |
| Ketteman, H. | Armadilly Chili | 2008 | Albert Whitman |
| Kibuishi, K | Escape From Lucien | 2014 | Amulet |
| Kibuishi, K | Amulet Book Five | 2012 | GRAPHIX |
| Kibuishi, K | Amulet : Book Four - The Last Council | 2011 | Scholastic |
| Kibuishi, K | The Cloud Searchers | 2010 | Scholastic |
| Kibuishi, K | Amulet: The Stonekeeper's Curse | 2009 | GRAPHIX |
| Kibuishi, K | Amulet: The Stonekeeper | 2008 | GRAPHIX |
| Kimmel, E. | Sopa De Cactus/ Cactus Soup | 2007 | Marshall Cavendish Children's Books |
| King, B. | The Drake Equation | 2016 | Disney Books |
| Kinney, J. | Diary Of A Wimpy Kid | 2015 | Amulet |
| Kinney, J. | Diary Of A Wimpy Kid: The Long Haul | 2014 | Amulet |
| Kinney, J. | Diary Of A Wimpy Kid 8: Hard Luck | 2013 | Abrams |
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| Stewart, M. | No Monkeys, No Chocolate | 2013 | Charlesbridge |
| Stewart, M. | A Place For Bats | 2012 | Peachtree Publishers |
| Stier, C. | If I Were President | 2004 | Albert Whitman \& Company |
| Stilton, G. | Spacemice The Underwater Planet | 2016 | Scholastic |
| Stilton, G. | Mouse Overboard | 2016 | Scholastic |
| Stine, M. | Who was Michael Jackson | 2015 | Grosset \& Dunlap |
| Stine, R. L. | Slappy's Tales Of Horror | 2015 | Scholastic |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Stone, J. | Lion | 2013 | Random House |
| Stoudemire, A. | Stat \#4 | 2013 | Scholastic |
| Stutson, C. | Cats' Night Out | 2010 | Simon and Schuster |
| Suneby, E. | Razia's Ray Of Hope | 2013 | Kids Can Press |
| Tapia, J. | Hippomobile! | 2013 | Clarion Books |
| Tarshis, L. | I Survived The Nazi Invasion, 1944 | 2014 | Scholastic |
| Tarshis, L. | I Survived True Stories | 2014 | Scholastic |
| Tarshis, L. | I Survived The San Francisco Earthquake, 1906 | 2012 | Scholastic |
| Tarshis, L. | I Survived The Bombing Of Pearl Harbor, 1941 | 2011 | Scholastic |
| Tarshis, L. | I Survived The Sinking Of The Titanic, 1912 | 2010 | Scholastic |
| Tarshis, L. | I Survived The Shark Attacks Of 1916 | 2010 | Scholastic |
| Tarshis, L. | I Survived The Joplin Tornado, 2011 | 2015 | Scholastic |
| Tashjian, J. | My Life As A Cartoonist | 2013 | Henry Holt and Company |
| Tashjian, J. | Einstein The Class Hamster | 2012 | Henry Holt and Company |
| Tavares, M. | Growing Up Pedro | 2015 | Candlewick Press |
| Tavares, M. | Henry Aaron's Dream | 2012 | Candlewick Press |
| Taylor, S. | Goal! | 2014 | Henry Holt and Company |
| Tennapel, D. | Nnewts. | 2015 | Scholastic |
| Tennapel, D. | Tommysaurus Rex | 2013 | Graphix / Scholastic |
| Theis Raven, M. | Let Them Play Edition 1. (True Story) | 2005 | Sleeping Bear Press |
| Thompson, C. | Space Dumplins | 2015 | Scholastic |
| Thompson, G. | Escape From the Pipe Men | 2013 | Houghton Mifflin Harcourt |
| Thomson, S. | Ancient Animals | 2013 | Charlesbridge |
| Thorpe, K. | Into The Waves | 2016 | Random House |
| Thorpe, K. | A Pinch Of Magic | 2014 | Random House |
| Thorpe, K. | The Never Girls: The Space Between | 2013 | Disney Books for Young Readers |
| Thorpe, K. | The Never Girls: In A Blink | 2013 | Random House |
| Thorpe, K. | A Dandelion Wish | 2013 | Random House |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Thorpe, K. | From The Mist | 2013 | Random House |
| Tonatiuh, D. | Funny Bones | 2015 | Abrams |
| Torres, J. | The Sound Of Thunder | 2014 | Kids Can Press |
| Torres, J. | Bigfoot Boy: Into the Woods | 2012 | Kids Can Press |
| Torres, J. | Into The Woods | 2012 | Kids Can Press |
| Travers, P.L. | Mary Poppins | 1934 | Houghton Mifflin |
| Trine, G. | Shifty Business | 2013 | Houghton Mifflin Harcourt |
| Tucker, K. | The Seven Chinese Sisters | 2007 | Albert Whitman |
| Turner, P. | The Frog Scientist | 2011 | Houghton Mifflin Harcourt |
| Uhlberg, M. | A Storm Called Katrina | 2011 | Peachtree Publishers |
| Urey, G. | Super Schnoz And The Booger Blaster Breakdown | 2015 | Albert Whitman |
| Urey, G. | Super Schnoz And The Invasion Of The Snore Snatchers | 2014 | Albert Whitman |
| Urey, G. | Super Schnoz and the Gates of Smell | 2013 | Albert Whitman |
| Vaccaro Seeger, L. | Bully | 2013 | Roaring Brook Press |
| Vamos, S. | The Cazuela That The Farm Maiden Stirred | 2011 | Charlesbridge |
| Van Draanen, W. | Sammy Keyes And The Hotel Thief | 1998 | Yearling |
| Vande Velde, V. | Frogged | 2013 | Harcourt |
| Viau, N. | City Street Beat | 2014 | Albert Whitman |
| Viva, F. | A Long Way Away / Frank Viva. | 2013 | Little, Brown Books for Young Readers |
| Viva, F. | Along A Long Road | 2011 | Little, Brown Books for Young Readers |
| Walker, S. | Mammals | 2015 | DK Publishing |
| Wang, A. | Malala Yousafzai | 2015 | Abdo Publishing |
| Wan-Long Shang, W. | The Way Home Looks Now | 2015 | Scholastic |
| Ward, J. | Friends On Ice | 2013 | Disney Press |
| Warren-Stewig, J. | Nobody Asked The Pea | 2013 | Holiday House |
| Watson, J. | The 39 Clues: Mission Titanic | 2015 | Scholastic |
| Watson, T. | Stick Dog Wants A Hot Dog | 2013 | Scholastic |


| Author | Title | Year | Publisher |
| :---: | :---: | :---: | :---: |
| Weatherford, C. | Voice of Freedom: Fannie Lou Hamer | 2015 | Candlewick Press |
| Weatherford, C. | Gordon Parks | 2015 | Albert Whitman |
| Weatherford, C. | Sugar Hill | 2014 | Albert Whitman |
| Weatherford, C. | The Voice Of Freedom | 2015 | Candlewick Press |
| Wells, R. | Why Do Elephants Need The Sun? | 2012 | Albert Whitman |
| Wells, R. | What's So Special About Planet Earth? | 2010 | Albert Whitman |
| Wells, R. | How Do You Know What Time It Is? | 2002 | Albert Whitman |
| Wells, R. | Can You Count To A Googol? | 2000 | Albert Whitman |
| Wells, R. | How Do You Lift A Lion? | 1996 | Albert Whitman |
| Wells, R. | What's Smaller Than A Pygmy Shrew? | 1995 | Albert Whitman |
| West, T. | The Peanuts Movie | 2015 | Simon Spotlight |
| West, T. | Secret Of The Water Dragon | 2015 | Scholastic |
| West, T. | The Croods | 2013 | Simon Spotlight |
| Williams, P. | Happy! | 2015 | Putnam's |
| Willis- Holt, K. | Dear Hank Williams | 2013 | Henry Holt |
| Will-Wissinger, T. | Gone Fishing | 2013 | Houghton Mifflin Harcourt |
| Winkler, H. | Always Dance With A Hairy Buffalo | 2013 | Scholastic |
| Winston, S. | Fifth Grade For President | 2011 | Little Brown \& Co |
| Winter, J. | Lillian's Right To Vote | 2015 | Random House |
| Winter, J. | Sonia Sotomayor: A Judge Grows In The Bronx | 2009 | Atheneum |
| Wolfe, M. | Kid Pickers | 2013 | Feiwel \& Friends |
| Wong, J. | Declaration Of Interdependence | 2012 | Createspace |
| Wong, J. | Knock On Wood: Poems About Superstitions | 2003 | Margaret K. McElderry |
| Woodrow, A. | Class Dismissed |  | Scholastic |
| Woodrow, A. | Class Dismissed | 2015 | Scholastic |
| Woods, B. | The Blossoming Universe Of Violet Diamond | 2014 | Scholastic |
| Woodson, J. | Each Kindness | 2012 | The Penguin Group |


| Author | Title | Year | Publisher |
| :--- | :--- | :---: | :--- |
| Worth, V. | Pug And Other Animal <br> Poems | 2012 | Margaret Ferguson <br> Books, Farrar Straus <br> Giroux |
| Wulfferson, D. | The Upside-Down Ship | 1986 | Albert Whitman |
| Wyatt, C. | Ant-Man | 2015 | Marvel |
| Wyeth, S. | The Granddaughter <br> Necklace | 2013 | Arthur A. Levine <br> Books |
| York, P. | Bugs | 2015 | DK Publishing |
| Young, A. | Follow Your Heart | 2015 | Disney Books |
| Zappa, M. | Denver Broncos | 2015 | Abdo Publishing |
| Zappa, S. | Sage's Story | 2014 | Disney Books |
|  | How The Second Grade <br> Got \$8,205.50 To Visit The <br> Statue Of Liberty | 1992 | Albert Whitman |
| Zimelman, N. | 10 True Tales: Heroes Of <br> Hurricane Katrina | 2015 | Scholastic |
| Zullo, A. | Bad Pets Save Christmas! | 2013 | Scholastic |
| Zullo, A. | Surviving Sharks And <br> Other Dangerous Creatures | 2006 | Scholastic |
| Zullo, A. |  |  |  |

## APPENDIX K

LIST OF ALL BOOKS RECORDED IN THE READING LOGS

## Author

1. Abdal-Fattah
2. Alexander, H
3. Aguirre, J.
4. Arnold, T.
5. Arnold, T.
6. Bass, Guy
7. Beck, Paul
8. Becker, H.
9. Bildner, P.
10. Birney, B.
11. Birney, B.
12. Biskup, A.
13. Black, .J
14. Buckley, J.
15. Cammuso, F. The Misadventures of Salem Hyde
16. Carlson, E World's Scariest Prisons
17. Chandler, G Boxcar Children
18. Cheng, A. The Year of the Baby
19. Coy, J Game Changer
20. Cummings, T. The Notebook of Doom
21. Daly, C. The Ghost of Christmas Past

| 22. | Diggs, T. | Mixed Me |
| :--- | :--- | :--- |
| 23. | D.K. | Eye Wonder: Ocean |
| 24. | Dower, L. | Sunny and the Secret Passage |
| 25. | Earhart, C | Race the Wild |
| 26. | Edwards, R. | Who is Barack Obama |
| 27. | Elliott, R. | Owl Diaries: Tree top festival |
| 28. | English, K. | Nikki and Deja |
| 29. | Ferrari, | Star Wars: Original Trilogy Graphic Novel |
| 30. | Gerstein, M. | How to bicycle to the Moon |
| 31. | Griffiths, A. | The 13-Story Treehouse |
| 32. | Grine, C. | Chicken Hare |
| 33. | Harness, C. | Flags over America |
| 34. | Holm, J. | Sunny Side Up |
| 35. | Hopkinson, D. | Annie and Helen |
| 36. | Jones, U. | The Princess Who had no Kingdom |
| 37. | Keller, L. | Arnie the Doughnut |
| 38. | Ketteman, H. | The Ghosts Go Haunting |
| 39. | Kibuishi, K. | Amulet: The Stonekeeper |
| 40. | Kibuishi, K. | Amulet: The Stonekeeper's Curse |
| 41. | Kibuishi, K. | Amulet: The Cloud Searchers |
| 42. | Kibuishi, K. | Amulet: The Last Council |

43. Kibuishi, K.
44. Kibuishi, K.
45. Kinney, J.
46. Kinney, J.
47. Kinney, J.
48. Kinney, J.
49. Kinney, J.
50. Kinney, J.
51. Kinney, J. Diary of a Wimpy Kid: The Third Wheel
52. Kinney, J.
53. Kinney, J. Diary of a Wimpy Kid: the long Haul
54. Kinney, J. Diary of a Wimpy Kid: Old School
55. Kinney, P. Who is Jeff Kinney
56. Mackler, C. Best Friend Next Door
57. Meadows, D Blossom the Flower Girl Fairy
58. Meadows, D Emily Prickleback's Clever Idea
59. Mlynowski, S. Whatever After: Fairest of All
60. Mlynowski, S. Whatever After: Dream On
61. Mlynowski, S. Whatever After: Cold as Ice
62. Mlynowski, S. Whatever After: Sink or Swim
63. Mlynowski, S. Whatever After: If the Shoe Fits
64. Mlynowski, S. Whatever After: Bad Hair Day
65. Myers, C Firebird
66. Nolen, J. PB \& J Hooray
67. Novesky, A. Mr. and Lady Day
68. O'Connor How to Steal a Dog
69. Pallotta, J. The Extinct Alphabet Book
70. Peirce, L. Big Nate: Dibs on this Chair
71. Peirce, L. Big Nate: Makes a Splash
72. Peirce, L. Big Nate: Pray for a Fire Drill
73. Peterson, M. Meet the Marvel Super Heroes
74. Pope Osborne, M. The Magic Treehouse: Dinosaurs
75. Preller, J. Scary Tales: Swamp Monster
76. Proimos, J. Apocalypse Meow Meow
77. Puckett, K. Batman's Dark Secret
78. Riordan, R. Throne of Fire Graphic Novel
79. Rudnick, E. Captain America: The First Avenger
80. Schoen, K. Milo is Not a Dog Today
81. Slavin, Bill Big Top Otto
82. Simon, S. Spiders
83. Soderberg, E. Puppy Pirates Catnapped
84. Spires, A. Binky: Under Pressure
85. Spires, A. Binky: Binky takes Charge
86. Stewart, M. A Place for Bats
87. Stein, M. Who was Michael Jackson
88. Stone, T Who Says women Can't Be Doctors?
89. Tarshis, L. I Survived True Stories
90. Thaler, M. The Thanksgiving from the Black Lagoon
91. Thompson, C. Space Dumplins
92. Thorpe, K. The Never Girls: In a Blink
93. Thorpe, K. The Never Girls: The Space between Fairies
94. Tonatiuh, D. Funny Bones: Posada and his Day of the Dead Calaveras
95. Torres, J. Bigfoot Boy: Into the Woods
96. Torres, J. Bigfoot Boy: The Sound of Thunder
97. Urey, G. Super Schnoz
98. Weatherford, C. B. Sugar Hill: Harlem's Historical Neighborhood
99. West, T. (Adaptor) Peanuts Movie
100. West, T.

Bakugan
101. Winter, J. Lillian's Right to Vote
102. Wyatt, C. Ant Man

## APPENDIX L

READING LOG CODING FORM A

## Book Flood Reading Log Coding Form A

This coding process is used to document the books that were selected by participants in the study at least two times during the treatment period. Coding the logs will answer the question: Which books were selected most often during the 12 -week treatment period?

## Directions:

- Locate the log number on the cover of one of the logs.
- Write the log number on the coding sheet in the section labeled log\# $\qquad$ .
- Look at each page in the student reading $\log$ for the title of the book selected.
- Locate the book title on the coding sheet.
- Write a tally mark in the appropriate box next to the title on the coding sheet.

Tally mark complete entries in box $\mathbf{C}$
Tally mark incomplete entries in box I
NOTE: An entry is considered complete if the participant included both the title of the book and the number of pages read. Record entries that are comprised of a book title only as incomplete.

- Total the tally marks and write your initials in the upper right hand corner of the reading log coding sheet.

| Author | Book Title | Log \# | TOTAL |
| :---: | :---: | :---: | :---: |
| Alexander, H | The Amazing Stardust Friends | C |  |
|  |  | I |  |
| Arnold, T. | Hooray for Fly Guy | C |  |
|  |  | I |  |
| Arnold, T. | I Spy Fly Guy | C |  |
|  |  | I |  |
| Beck, P. | Gross Science (nf) | C |  |
|  |  | I |  |
| Becker, H. | Zoobots (nf) | C |  |
|  |  | I |  |
| Bildner, P. | The Soccer Fence | C |  |
|  |  | I |  |
| Birney, B. | School Days According to Humphrey | C |  |
|  |  | I |  |
| Biskup, A. | Super Cool Science and Engineering (nf) | C |  |
|  |  | I |  |
| Black, J. | Head to Head Legends | C |  |
|  |  | I |  |
| Buckley, J. | Who is Muhammad Ali? (nf) | C |  |
|  |  | I |  |
| Carlson, E. | World's Scariest Prisons (nf) | C |  |
|  |  | I |  |
| Chandler, G. | Boxcar Children | C |  |
|  |  | I |  |
| Cummings, T . | The Notebook of Doom | C |  |
|  |  | I |  |


| Edwards, R. | Who is Barack Obama | C |  |
| :---: | :---: | :---: | :---: |
|  |  | I |  |
| Elliott, R. | Owl Diaries: Tree top festival | C |  |
|  |  | I |  |
| Ferrari, | Star Wars: Original Trilogy Graphic Novel | C |  |
|  |  | I |  |
| Grine, C. | Chicken Hare | C |  |
|  |  | I |  |
| Harness, C. | Flags over America (nf) | C |  |
|  |  | I |  |
| Holm, J. | Sunny Side Up | C |  |
|  |  | I |  |
| Hopkinson, D. | Annie and Helen | C |  |
|  |  | I |  |
| Ketteman, H. | The Ghosts Go Haunting | C |  |
|  |  | I |  |
| Kibuishi, K. | Amulet: The Stonekeeper | C |  |
|  |  | I |  |
| Kibuishi, K. | Amulet: The Stonekeeper's Curse | C |  |
|  |  | I |  |
| Kibuishi, K. | Amulet: The Cloud Searchers | C |  |
|  |  | I |  |
| Kibuishi, K. | Amulet: The Last Council | C |  |
|  |  | I |  |
| Kibuishi, K. | Amulet: Prince of the Elves | C |  |
|  |  | I |  |


| Kibuishi, K. | Amulet: Escape from Lucien | C |  |
| :---: | :---: | :---: | :---: |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: Roderick Rules | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: the Last Straw | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: Dog Days | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: The Ugly Truth | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: Cabin Fever | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: The Third Wheel | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: Hard Luck | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: The Long Haul | C |  |
|  |  | I |  |
| Kinney, J. | Diary of a Wimpy Kid: Old School | C |  |
|  |  | I |  |
| Kinney, P. | Who is Jeff Kinney | C |  |
|  |  | I |  |
|  |  |  |  |


| Meadows, D. | Blossom the Flower Girl Fairy | C |  |
| :---: | :---: | :---: | :---: |
|  |  | I |  |
| Mlynowski, S. | Whatever After: Fairest of All | C |  |
|  |  | I |  |
| Mlynowski, S. | Whatever After: Dream On | C |  |
|  |  | I |  |
| Mlynowski, S. | Whatever After: Cold as Ice | C |  |
|  |  | I |  |
| Mlynowski, S. | Whatever After: Sink or Swim | C |  |
|  |  | I |  |
| Mlynowski, S. | Whatever After: If the Shoe Fits | C |  |
|  |  | I |  |
| Mlynowski, S. | Whatever After: Bad Hair Day | C |  |
|  |  | I |  |
| Myers, C. | Firebird | C |  |
|  |  | I |  |
|  |  |  |  |
| Novesky, A. | Mr. and Lady Day: Billie Holiday | C |  |
|  |  | I |  |
| O'Connor. | How to Steal a Dog | C |  |
|  |  | I |  |
| Pallotta, J. | The Extinct Alphabet Book (nf) | C |  |
|  |  | I |  |
| Peirce, L. | Big Nate: Dibs on this Chair | C |  |
|  |  | I |  |
|  |  |  |  |


| Peirce, L. | Big Nate: Makes a Splash | C |  |
| :---: | :---: | :---: | :---: |
|  |  | I |  |
| Peirce, L. | Big Nate: Pray for a Fire Drill | C |  |
|  |  | I |  |
| Peterson, M. | Meet the Marvel Super Heroes | C |  |
|  |  | I |  |
| Proimos, J. | Apocalypse Meow Meow | C |  |
|  |  | I |  |
| Puckett, K. | Batman's Dark Secret | C |  |
|  |  | I |  |
| Riordan, R. | Throne of Fire Graphic Novel | C |  |
|  |  | I |  |
| Schoen, K. | Milo is Not a Dog Today | C |  |
|  |  | I |  |
| Slavin, B. | Big Top Otto | C |  |
|  |  | I |  |
| Simon, S. | Spiders (nf) | C |  |
|  |  | I |  |
| Spires, A. | Binky: Under Pressure | C |  |
|  |  | I |  |
| Spires, A. | Binky: Binky Takes Charge | C |  |
|  |  | I |  |
| Stewart, M. | A Place for Bats (nf) | C |  |
|  |  | I |  |
|  |  |  |  |


| Stein, M. | Who was Michael Jackson (nf) | C |  |
| :---: | :---: | :---: | :---: |
|  |  | I |  |
| Thompson, C. | Space Dumplins | C |  |
|  |  | 1 |  |
| Thorpe, K. | The Never Girls: In a Blink | C |  |
|  |  | I |  |
| Thorpe, K. | The Never Girls: The Space between Fairies | C |  |
|  |  | I |  |
| Tonatiuh, D. | Funny Bones: Posada and his Day of the Dead Calaveras | C |  |
|  |  | I |  |
| Torres, J. | Bigfoot Boy: Into the Woods | C |  |
|  |  | I |  |
| Torres, J. | Bigfoot Boy: The Sound of Thunder | C |  |
|  |  | I |  |
| Weatherford, C.B. | Sugar Hill: Harlem's Historical Neighborhood | C |  |
|  |  |  |  |
|  |  | I |  |
| West, | Peanuts Movie | C |  |
|  |  | 1 |  |
| Winter, J. | Lillian's Right to Vote | C |  |
|  |  | I |  |
| Wulfferson, D. | The Upside-Down Ship | C |  |
|  |  | I |  |
| Wyatt, C. | Ant Man | C |  |
|  |  | I |  |
|  |  |  |  |


| Young, A | Follow Your Heart | C |  |
| :---: | :---: | :---: | :---: |
|  |  | I |  |
| Zappa, M | Sage's Story | C |  |
|  |  | I |  |
| Zimelman, N. | How the Second Grade Got \$8, 205.50 to go Visit the Statue of Liberty | C |  |
|  |  | I |  |
| .Zullo, A. | Bad Pets Save Christmas | C |  |
|  |  | I |  |
|  |  | C |  |
|  |  | I |  |

## APPENDIX M

READING LOG CODING FORM B

Reading Log \# $\qquad$

| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |
| Abdal-Fattah | The Friendship Matchmaker Goes <br> Under Cover |  |  |  |  |  |  |
| Alexander, H | The Amazing Stardust Friends |  |  |  |  |  |  |
| Aguirre, J. | Dragons Beware |  |  |  |  |  |  |
| Arnold, T. | Hooray for Fly Guy |  |  |  |  |  |  |
| Arnold, T. | I Spy Fly Guy |  |  |  |  |  |  |
| Bass, Guy | Secret Santa |  |  |  |  |  |  |
| Beck, Paul | Gross Science (nf) |  |  |  |  |  |  |
| Becker, H. | Zoobots (nf) |  |  |  |  |  |  |
| Bildner, P. | The Soccer Fence |  |  |  |  |  |  |
| Birney, B. | School Days According to <br> Humphrey |  |  |  |  |  |  |
| Birney, B. | Friendship According to Humphrey |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Biskup, A. | Super Cool Science and Engineering <br> (nf) |  |  |  |  |  |  |
| Black, J | Head to Head Legends |  |  |  |  |  |  |
| Buckley, J. | Who is Muhammad Ali? (nf) |  |  |  |  |  |  |
| Cammuso, F. | The Misadventures of Salem Hyde: <br> Spelling Trouble |  |  |  |  |  |  |
| Carlson, E | World's Scariest Prisons (nf) |  |  |  |  |  |  |
| Chandler, G | Boxcar Children |  |  |  |  |  |  |
| Cheng, A. | The Year of the Baby |  |  |  |  |  |  |
| Coy, J | Game Changer |  |  |  |  |  |  |
| Cummings, T. | The Notebook of Doom |  |  |  |  |  |  |
| Daly, C. | The Ghost of Christmas Past |  |  |  |  |  |  |
| Diggs, T. | Mixed Me |  |  |  |  |  |  |
| D.K. | Eye Wonder: Ocean |  |  |  |  |  |  |
| Dower, L. | Sunny and the Secret Passage |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Earhart, C | Race the Wild |  |  |  |  |  |  |
| Edwards, R. | Who is Barack Obama |  |  |  |  |  |  |
| Elliott, R. | Owl Diaries: Tree top festival |  |  |  |  |  |  |
| English, K. | Nikki and Deja |  |  |  |  |  |  |
| Ferrari, | Star Wars: Original Trilogy Graphic <br> Novel |  |  |  |  |  |  |
| Gerstein, M. | How to bicycle to the Moon |  |  |  |  |  |  |
| Griffiths, A. | The 13-Story Treehouse |  |  |  |  |  |  |
| Grine, C. | Chicken Hare |  |  |  |  |  |  |
| Harness, C. | Flags over America (nf) |  |  |  |  |  |  |
| Holm, J. | Sunny Side Up |  |  |  |  |  |  |
| Hopkinson, D. | Annie and Helen |  |  |  |  |  |  |
| Jones, U. | The Princess Who had no Kingdom |  |  |  |  |  |  |
| Keller, L. | Arnie the Doughnut |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Ketteman, H. | The Ghosts Go Haunting |  |  |  |  |  |  |
| Kibuishi, K. | Amulet: The Stonekeeper |  |  |  |  |  |  |
| Kibuishi, K. | Amulet: The Stonekeeper's Curse |  |  |  |  |  |  |
| Kibuishi, K. | Amulet: The Cloud Searchers |  |  |  |  |  |  |
| Kibuishi, K. | Amulet: The Last Council |  |  |  |  |  |  |
| Kibuishi, K. | Amulet: Prince of the Elves |  |  |  |  |  |  |
| Kibuishi, K. | Amulet: Escape from Lucien |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid: Roderick <br> Rules |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid: the Last <br> Straw |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid: Dog Days |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid: The Ugly <br> Truth |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid: Cabin Fever |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Kinney, J. | Diary of a Wimpy Kid: The Third <br> Wheel |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid: Hard Luck |  |  |  |  |  |  |
| Kinney, J. | Diary of a Wimpy Kid: the long <br> Haul |  |  |  |  |  |  |
| Diary of a Wimpy Kid: Old School |  |  |  |  |  |  |  |
| Kinney, J. | Who is Jeff Kinney |  |  |  |  |  |  |
| Mackler, C. | Best Friend Next Door |  |  |  |  |  |  |
| Meadows, D. | Blossom the Flower Girl Fairy |  |  |  |  |  |  |
| Meadows, D. | Emily Prickleback's Clever Idea |  |  |  |  |  |  |
| Mlynowski, S. | Whatever After: Fairest of All |  |  |  |  |  |  |
| Mlynowski, S. | Whatever After: Dream On |  |  |  |  |  |  |
| Mlynowski, S. | Whatever After: Cold as Ice |  |  |  |  |  |  |
| Mlynowski, S. | Whatever After: Sink or Swim |  |  |  |  |  |  |
| Mlynowski, S. | Whatever After: If the Shoe Fits |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Mlynowski, S. | Whatever After: Bad Hair Day |  |  |  |  |  |  |
| Myers, C | Firebird |  |  |  |  |  |  |
| Nolen, J. | PB \& J Hooray |  |  |  |  |  |  |
| Novesky, A. | Mr. and Lady Day: Billie Holiday |  |  |  |  |  |  |
| O'Connor | How to Steal a Dog |  |  |  |  |  |  |
| Pallotta, J. | The Extinct Alphabet Book |  |  |  |  |  |  |
| Peirce, L. | Big Nate: Dibs on this Chair |  |  |  |  |  |  |
| Peirce, L. | Big Nate: Makes a Splash |  |  |  |  |  |  |
| Peirce, L. | Big Nate: Pray for a Fire Drill |  |  |  |  |  |  |
| Peterson, M. | Meet the Marvel Super Heroes |  |  |  |  |  |  |
| Pope Osborne, | The Magic Treehouse |  |  |  |  |  |  |
| Pope Osborne, | The Magic Treehouse: Dinosaurs <br> Before Dark |  |  |  |  |  |  |
| Preller, J. | Scary Tales: Swamp Monster |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Proimos, J. | Apocalypse Meow Meow |  |  |  |  |  |  |
| Puckett, K. | Batman's Dark Secret |  |  |  |  |  |  |
| Riordan, R. | Throne of Fire Graphic Novel |  |  |  |  |  |  |
| Rudnick, E. | Captain America: The First Avenger |  |  |  |  |  |  |
| Schoen, K. | Milo is Not a Dog Today |  |  |  |  |  |  |
| Slavin, Bill | Big Top Otto |  |  |  |  |  |  |
| Simon, S. | Spiders |  |  |  |  |  |  |
| Soderberg, E. | Puppy Pirates Catnapped |  |  |  |  |  |  |
| Spires, A. | Binky: Under Pressure |  |  |  |  |  |  |
| Spires, A. | Binky: Binky takes Charge |  |  |  |  |  |  |
| Stewart, M. | A Place for Bats (nf) |  |  |  |  |  |  |
| Stein, M. | Who was Michael Jackson |  |  |  |  |  |  |
| Stone, T | Who Says women Can't Be <br> Doctors? |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Tarshis, L. | I Survived True Stories (nf) |  |  |  |  |  |  |
| Thaler, M. | The Thanksgiving from the Black <br> Lagoon |  |  |  |  |  |  |
| Thompson, C. | Space Dumplins |  |  |  |  |  |  |
| Thorpe, K. | The Never Girls: In a Blink |  |  |  |  |  |  |
| Thorpe, K. | The Never Girls: The Space between <br> Fairies |  |  |  |  |  |  |
| Tonatiuh, D. | Funny Bones: Posada and his Day of <br> the Dead Calaveras |  |  |  |  |  |  |
| Torres, J. | Bigfoot Boy: Into the Woods |  |  |  |  |  |  |
| Torres, J. | Bigfoot Boy: The Sound of Thunder |  |  |  |  |  |  |
| Urey, G. | Super Schnoz |  |  |  |  |  |  |
| Weatherford, <br> C. B. | Sugar Hill: Harlem's Historical <br> Neighborhood |  |  |  |  |  |  |
| West, T. <br> (Adaptor) | Peanuts Movie |  |  |  |  |  |  |
| West, T. | Bakugan |  |  |  |  |  |  |
| Winter, J. | Lillian's Right to Vote |  |  |  |  |  |  |


| Author | Book Title | Rec | Specific | Interest | Utility | Not Rec | RP |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Wulfferson, D. | The Upside-Down Ship |  |  |  |  |  |  |
| Wyatt, C. | Ant Man |  |  |  |  |  |  |
| Young, A. | Follow your Heart |  |  |  |  |  |  |
| Zappa, S. | Sage's Story |  |  |  |  |  |  |
| Zimelman, N | How Second Grade Got $\$ 8,205.50$ <br> to Visit the Statue of Liberty |  |  |  |  |  |  |
| Zullo, A. | Bad Pets Save Christmas |  |  |  |  |  |  |

## APPENDIX N

IRB APPROVAL LETTER


## Institutional Review Board for the Protection of Human Subjects

DATE: February 2, 2016
TO: Sherry Andrews
FROM: Oakland University IRB

PROJECT TITLE: The Impact of a Book Flood on Reading Motivation and Reading Achievement of Fourth Grade Students

REFERENCE \#: 812541-3
SUBMISSION TYPE: New Project

ACTION: APPROVED
APPROVAL DATE: February 2, 2016
EXPIRATION DATE: February 1, 2017
REVIEW TYPE: Expedited Review
REVIEW CATEGORY: Expedited review category \# 5 \& 7
IRB MEETING DATE: February 18, 2016

Thank you for your submission of New Project materials for this project. The Oakland University IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission. The submission packages include the following approved documents:

- Application (IRBNet Package \#812541-2)
- Child Assent Control Version 2-2-2016 which has been published as a Board Document under Reviews in IRBNet.
- Child Assent Treatment Version 2-2-2016 which has been published as a Board Document under Reviews in IRBNet
- Parental Permission Version 2-2-2016 which has been published as a Board

Document under Reviews in IRBNet

- Parent Information Letter (IRBNet Package \# 812541-2)
- Recruitment Script Control (IRBNet Package \# 812541-3)
- Recruitment Script Treatment (IRBNet Package \# 812541-3)
- Conversational Interview Script (IRBNet Package 812541-2)
- McKenna \& Kear Questionnaire (IRBNet Package 812541-1)
- SRQ Reading Motivation Survey (IRBNet Package 812541-1)

This submission has received Expedited Review based on the applicable federal regulation. Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document. The IRB approved consent and assent documents (Version 2-2-2016) have been published as Board Documents under Review in IRBNet. IRB approved consent and assent documents MUST be used in recruitment and consent of participants in the research.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure. Do not collect data while the revised application is being reviewed. Data collected during this time cannot be used. All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this committee. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office. This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of February 1, 2017. Please note that all research records must be retained for a minimum of three years after the completion of the project. Please retain a copy of this correspondence for your record. If you have any questions, please contact Kate Wydeven M.S. at (248) 370-4306 or kwydeven@oakland.edu.

Please include your project title and reference number in all correspondence with this committee. This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Oakland University IRB Records.

## APPENDIX O

## COPYRIGHT APPROVALS

From: Hutchinson, Adele [AHutchinson@apa.org](mailto:AHutchinson@apa.org)
To: Sherry Andrews [mailto:smandrew@oakland.edu]
Sent: Wednesday, November 30, 2016 4:45 PM

Subject: Re: Copyright permission

## File: Andrews, Sherry (author)

Re: Use of Figure 1, p. 442, from Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. Journal of Educational Psychology, 80(4), 437-447. http://dx.doi.org/10.1037/0022-0663.80.4.437

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Best,
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email: ahuchinson@apa.org | www.apa.org


Oakland UNIVERSTY

Department of Reading and Language Arts School of Education and Human Services Rochester, Michigan $48309-449 \mathrm{n}$

September 21, 2016
University of Rochester Press
Boydell \& Brewer Inc.
668 Mount Hope Avenue
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To whom it may concern:
I am completing a doctoral dissertation at Oakland University entitled "The Impact of a Book Flood on Reading Motivation and Reading Achievement of Fourth Grade Students." I am requesting permission to reprint in my dissertation excerpts from the following: Ryan, R. M. , \& Deci, E. L. (2002) Overview of self-determination theory: An organismic dialectical perspective. In E. Deci \& R. Ryan (Eds.), Handbook of Self-determination Theory (pp.3-33). Rochester, N.Y.: University of Rochester Pres.

The excerpt to be reproduced is: Figure 1.1 "The Self-Determination Continuum, with Types of Motivation and Types of Regulation" located on page 16.

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## Garfield revisited: Unlimited extension of permission to copy the ERAS

Michael C. McKenna
Georgia Southern University, Savannah, USA
Dennis J. Kear
Wichita State University, Kansas, USA

The appearance of the Elementary Reading Attitude Survey (ERAS) in the May 1990 issue of $R T$ was based originally on an agreement with United Media, which allowed the survey to be reproduced through December 31, 1995. The Garfield character has since been acquired from United Media by the creator Jim Davis and his company, Paws, Inc., and the agreement was extended to December 31, 1999. Davis contributed to the development of the instrument by producing the four poses of Garfield used in the pictorial scale. He has now kindly consented to extend permission to reproduce the ERAS until further notice.

Educators wishing to use the scale for classroom use should copy and paste the following credit line on each page of the scale:
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ty for classroom use until further notice by Paws,
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express prior written consent of Paws is prohibited.
Since its appearance, the ERAS has grounded a
number of research studies of reading attitudes, which have contributed to an understanding of the instrument. The following sources may be useful to educators who have used the ERAS.

## Research references

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Jessie De Naeghel [jessie.denaeghel@gmail.com](mailto:jessie.denaeghel@gmail.com)

## To Hilde, me

## Dear Sherry Andrews

You can definitely make use of the SRQ-Reading motivation.
Please refer to the attached article in all of your output.
Good luck with your dissertation research!

Kind regards,
Jessie
2015-09-02 16:17 GMT+02:00 Jessie De Naeghel < Jessie.DeNaeghel@augent.be>:

Van: Sherry Andrews
Verzonden: woensdag 2 september 2015 16:17:01 (UTC+01:00) Brussel, Kopenhagen, Madrid, Parijs
Aan: Jessie De Naeghel
Onderwerp: Request for permission to use the SRQ-Reading Motivation Questionnaire

APPENDIX P
LIST OF CORRELATION COEFFICIENT FOR ALL MEASURES

| Correlation Coefficients for all Measures |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Control Group |  |  |  | Treatment Group |  |  |  |  |  |  |
| Measure | M | SD | N | M | SD | N | df | $F$ | Sig. | $\begin{gathered} \text { Partial } \\ \text { Eta } \\ \text { Squared } \end{gathered}$ |
| SRQ TR | 92.16 | 11.93 | 19 | 108 | 9.89 | 19 | 35 | 14.9 | . 000 | . 299 |
| SRQ RA | 24.68 | 4.85 | 19 | 27.58 | 2.88 | 19 | 35 | 7.81 | . 008 | . 182 |
| SRQ RC | 19.42 | 4.74 | 19 | 24.84 | 4.40 | 19 | 35 | 9.28 | . 004 | . 210 |
| SRQ AA | 26.32 | 3.88 | 19 | 28.37 | 2.81 | 19 | 35 | 5.62 | . 023 | . 139 |
| SRQ AC | 21.74 | 5.28 | 19 | 26.79 | 5.61 | 19 | 35 | 4.58 | . 039 | . 116 |
| ERAS TR | 62.00 | 10.97 | 15 | 66.26 | 6.07 | 19 | 31 | 3.44 | . 073 | . 100 |
| ERAS RR | 30.41 | 6.44 | 12 | 33.57 | 2.79 | 19 | 28 | 2.52 | . 123 | . 083 |
| ERAS AR | 31.33 | 5.16 | 15 | 32.68 | 4.32 | 19 | 31 | 3.12 | . 087 | . 091 |
| NWEA | 204 | 17.54 | 16 | 198 | 12.49 | 19 | 32 | 1.64 | . 209 | . 049 |

Note: $\mathrm{M}=$ Means, $\mathrm{SD}=$ Standard Deviation, $\mathrm{N}=$ Number, $\mathrm{df}=$ degrees of freedom, F $=$ test statistics, Sig. $=$ observed $p$ value/significance,

## APPENDIX Q

OUTPUT OF STATISTICAL ANALYSIS

GET
FILE='/Users/rla/Desktop/SRQSPSS/Gilmore_SRQ_PRE.sav'. DATASET NAME DataSet2 WINDOW=FRONT.
DATASET ACTIVATE DataSet1.
DATASET CLOSE DataSet2.
UNIANOVA PRESRQtotalcom BY Group
/METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Group.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :---: | :---: | :---: |
| Group | 1 | Control |
|  | 2 | Teatment |

Tests of Between-Subjects Effects
Dependent Variable: Pre SRQ survey Total Composit

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $252.737^{\mathrm{a}}$ | 1 | 252.737 | 2.460 | .126 |
| Intercept | 432071.158 | 1 | 432071.158 | 4206.089 | .000 |
| Group | 252.737 | 1 | 252.737 | 2.460 | .126 |
| Error | 3698.105 | 36 | 102.725 |  |  |
| Total | 436022.000 | 38 |  |  |  |
| Corrected Total | 3950.842 | 37 |  |  |  |

a. $R$ Squared $=.064$ (Adjusted $R$ Squared $=.038$ )

UNIANOVA PostSRQtotal BY Group WITH PRESRQtotalcom /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Group PRESRQtotalcom Group*PRESRQtotalcom.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :---: | :--- | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Tests of Between-Subjects Effects
Dependent Variable: PostSRQtotal

|  | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Source | $2759.416^{\text {a }}$ | 3 | 919.805 | 8.185 | .000 |
| Corrected Model | 1057.809 | 1 | 1057.809 | 9.413 | .004 |
| Intercept | .316 | 1 | .316 | .003 | .958 |
| Group | 494.216 | 1 | 494.216 | 4.398 | .043 |
| PRESRQtotalcom | 9.945 | 1 | 9.945 | .088 | .768 |
| Group *PRESRQtotalcom | 3820.926 | 34 | 112.380 |  |  |
| Error | 385581.000 | 38 |  |  |  |
| Total | 6580.342 | 37 |  |  |  |
| Corrected Total |  |  |  |  |  |

a. R Squared $=.419$ (Adjusted R Squared $=.368$ )

UNIANOVA PostSRQtotal BY Group WITH PRESRQtotalcom /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PRESRQtotalcom=MEAN) /EMMEANS=TABLES(OVERALL) WITH(PRESRQtotalcom=MEAN) /PRINT=ETASQ DESCRIPTIVE HOMOGENEITY /CRITERIA=ALPHA(.05)
/DESIGN=PRESRQtotalcom Group.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :---: | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

## Descriptive Statistics

Dependent Variable: PostSRQtotal

| Group | Mean | Std. Deviation | N |
| :--- | ---: | ---: | ---: |
| Control | 92.1579 | 11.92692 | 19 |
| Teatment | 107.5789 | 9.89004 | 19 |
| Total | 99.8684 | 13.33593 | 38 |

## Levene's Test of Equality of Error Variances

| Dependent Variable: |  | PostSRQtotal |  |
| :---: | :---: | :---: | :---: |
| F | df1 | df2 | Sig. |
| 1.010 | 1 | 36 | . 322 |

Tests the null hypothesis that the error
variance of the dependent variable is equal variance of the dependent variable is equal across groups.
a. Design: Intercept + PRESRQtotalcom + Group

## Tests of Between-Subjects Effects

Dependent Variable: PostSRQtotal

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | $2749.471^{\text {a }}$ | 2 | 1374.736 | 12.560 | . 000 | . 418 |
| Intercept | 1201.632 | 1 | 1201.632 | 10.978 | . 002 | . 239 |
| PRESRQtotalcom | 490.287 | 1 | 490.287 | 4.479 | . 041 | . 113 |
| Group | 1630.958 | 1 | 1630.958 | 14.901 | . 000 | . 299 |
| Error | 3830.871 | 35 | 109.453 |  |  |  |
| Total | 385581.000 | 38 |  |  |  |  |
| Corrected Total | 6580.342 | 37 |  |  |  |  |

a. $R$ Squared $=.418$ (Adjusted $R$ Squared $=.385$ )

## Estimated Marginal Means

## 1. Group

Dependent Variable: PostSRQtotal

|  |  |  | $95 \%$ Confidence Interval |  |
| :--- | :---: | :---: | ---: | ---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $93.097^{\mathrm{a}}$ | 2.441 | 88.142 | 98.052 |
| Teatment | $106.640^{\mathrm{a}}$ | 2.441 | 101.685 | 111.595 |

a. Covariates appearing in the model are evaluated at the following values: Pre SRQ survey Total Composit $=106.63$.

| 2. Grand Mean |  |  |  |
| :---: | :---: | :---: | :---: |
| Dependent Variable: | PostSRQtotal <br> 95\% Confidence Interval |  |  |
| Mean | Std. Error | Lower Bound | Upper Bound |
| $99.868^{\mathrm{a}}$ | 1.697 | 96.423 | 103.314 |

a. Covariates appearing in the model are evaluated at the following values: Pre SRQ survey Total Composit $=106.63$.

```
GRAPH
    /SCATTERPLOT(BIVAR)=PRESRQtotalcom WITH PostSRQtotal
    /MISSING=LISTWISE
    /TITLE='SRQ-Pre-Tests vs. Post_test'.
```

Graph


Page 4
[DataSet12] /Users/rla/Desktop/Book Flood_srqpreandpost_COM.sav
Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :--- | :--- | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Tests of Between-Subjects Effects
Dependent Variable: PreSRQsurvey recreational

| Source | Type IIII Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | :--- |
| Corrected Model | $9.500^{\mathrm{a}}$ | 1 | 9.500 | .266 | .609 |
| Intercept | 108765.500 | 1 | 108765.500 | 3049.500 | .000 |
| Group | 9.500 | 1 | 9.500 | .266 | .609 |
| Error | 1284.000 | 36 | 35.667 |  |  |
| Total | 110059.000 | 38 |  |  |  |
| Corrected Total | 1293.500 | 37 |  |  |  |

a. R Squared $=.007$ (Adjusted R Squared $=-.020$ )

UNIANOVA PostSRQREC BY Group WITH PreSRQREC /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Group PreSRQREC Group*PreSRQREC.
Univariate Analysis of Variance

| Between-Subjects Factors |  |  |  |
| :--- | :--- | :--- | ---: |
|  |  | Value Label | N |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Page 2
Tests of Between-Subjects Effects
Dependent Variable: Post SRQ recreationl

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $726.686^{\mathrm{a}}$ | 3 | 242.229 | 7.649 | .000 |
| Intercept | 589.336 | 1 | 589.336 | 18.610 | .000 |
| Group | $6.271 \mathrm{E}-6$ | 1 | $6.271 \mathrm{E}-6$ | .000 | 1.000 |
| PreSRQREC | 62.105 | 1 | 62.105 | 1.961 | .170 |
| Group * | 7.364 | 1 | 7.364 | .233 | .633 |
| PreSRQREC | 1076.682 | 34 | 31.667 |  |  |
| Error | 90318.000 | 38 |  |  |  |
| Total | 1803.368 | 37 |  |  |  |
| Corrected Total |  |  |  |  |  |

a. R Squared $=.403$ (Adjusted $R$ Squared $=.350$ )

UNIANOVA PostSRQREC BY Group WITH PreSRQREC
/METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES (OVERALL) WITH(PreSRQREC=MEAN)
/EMMEANS=TABLES(Group) WITH(PreSRQREC=MEAN)
/PRINT=ETASQ HOMOGENEITY DESCRIPTIVE
/CRITERIA=ALPHA(.05)
/DESIGN=PreSRQREC Group.

## Univariate Analysis of Variance

Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :---: | :--- | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Descriptive Statistics
Dependent Variable: Post SRQ recreationl

| Group | Mean | Std. Deviation | N |
| :--- | :---: | ---: | ---: |
| Control | 44.11 | 6.367 | 19 |
| Teatment | 52.42 | 4.811 | 19 |
| Total | 48.26 | 6.981 | 38 |

Levene's Test of Equality of Error

Variances ${ }^{3}$ \begin{tabular}{|c|c|c|c|}
\hline Dependent Variable: \& Post SRQ recreationl <br>

| F | df1 | df 2 |
| :---: | :---: | :---: |
| 2.322 | 1 | 36 |

\end{tabular}

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + PreSRQREC + Group

Tests of Between-Subjects Effects
Dependent Variable: Post SRQ recreationl

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | $719.322^{\text {a }}$ | 2 | 359.661 | 11.612 | . 000 | . 399 |
| Intercept | 589.750 | 1 | 589.750 | 19.041 | . 000 | . 352 |
| PreSRQREC | 62.375 | 1 | 62.375 | 2.014 | . 165 | . 054 |
| Group | 618.012 | 1 | 618.012 | 19.953 | . 000 | . 363 |
| Error | 1084.046 | 35 | 30.973 |  |  |  |
| Total | 90318.000 | 38 |  |  |  |  |
| Corrected Total | 1803.368 | 37 |  |  |  |  |

a. R Squared $=.399$ (Adjusted R Squared $=.365$ )

## Estimated Marginal Means

1. Grand Mean

Dependent Variable: Post SRQ recreationl

|  |  | $95 \%$ Confidence Interval |  |
| :---: | :---: | :---: | :---: |
| Mean | Std. Error | Lower Bound | Upper Bound |
| $48.263^{\text {a }}$ | .903 | 46.430 | 50.096 |

a. Covariates appearing in the model are evaluated at the following values: PreSRQsurvey recreational = 53.50.
2. Group

Dependent Variable: Post SRQ recreationl

|  |  |  | 95\% Confidence Interval |  |
| :--- | :---: | :---: | ---: | ---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $44.215^{\mathrm{a}}$ | 1.279 | 41.619 | 46.812 |
| Teatment | $52.311^{\mathrm{a}}$ | 1.279 | 49.714 | 54.908 |

a. Covariates appearing in the model are evaluated at the following values: PreSRQsurvey recreational = 53.50.

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```
UNIANOVA PRESRQAca BY Group
    /METHOD=SSTYPE (3)
    /INTERCEPT=INCLUDE
    /EMMEANS=TABLES(OVERALL)
    /EMMEANS=TABLES(Group)
    /PRINT=ETASQ HOMOGENEITY DESCRIPTIVE
    /CRITERIA=ALPHA(.05)
    /DESIGN=Group.
```


## Univariate Analysis of Variance

|  | Value Label |  | N |  |
| :---: | :---: | :---: | :---: | :---: |
| Group | Control <br> Teatment |  | $\begin{aligned} & 19 \\ & 19 \end{aligned}$ |  |
| Descriptive Statistics |  |  |  |  |
| Dependent Variable: PreSRQsurvey academic |  |  |  |  |
| Group | Mean | Std. D | tion | N |
| Control | 51.05 |  |  | 19 |
| Teatment | 55.21 |  |  | 19 |
| Total | 53.13 |  | 01 | 38 |

## Levene's Test of Equality of Error

 VariancesDependent Variable: PreSRQsurvey academic

| $F$ | df1 | df2 | Sig. |
| :---: | ---: | ---: | ---: |
| 1.483 | 1 | 36 | .231 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + Group

Tests of Between-Subjects Effects
Dependent Variable: PreSRQsurvey academic

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $164.237^{\mathrm{a}}$ | 1 | 164.237 | 3.270 | .079 | .083 |
| Intercept | 107272.658 | 1 | 107272.658 | 2135.836 | .000 | .983 |
| Group | 164.237 | 1 | 164.237 | 3.270 | .079 | .083 |
| Error | 1808.105 | 36 | 50.225 |  |  |  |
| Total | 109245.000 | 38 |  |  |  |  |
| Corrected Total | 1972.342 | 37 |  |  |  |  |

a. R Squared $=.083$ (Adjusted R Squared $=.058$ )

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## Estimated Marginal Means

| 1. Grand Mean |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Dependent Variable: |  | PreSRQsurvey academic |  |  |
| Mean | Std. Error | 95\% Confidence Interval |  |  |
|  |  | Lower Bound | Upper Bound |  |
| 53.132 | 1.150 | 50.800 | 55.463 |  |
| 2. Group |  |  |  |  |
| Dependent Variable: PreSRQsurvey academic |  |  |  |  |
| Group | Mean | Std. Error | 95\% Confidence Interval |  |
|  |  |  | Lower Bound | Upper Bound |
| Control | 51.053 | 1.626 | 47.755 | 54.350 |
| Teatment | 55.211 | 1.626 | 51.913 | 58.508 |

UNIANOVA PostSRQAca BY Group WITH PRESRQAca /METHOD=SSTYPE (3) /INTERCEPT=INCLUDE
/EMMEANS=TABLES(OVERALL) WITH(PRESRQAca=MEAN)
/EMMEANS=TABLES(Group) WITH(PRESRQAca=MEAN)
/PRINT=ETASQ HOMOGENEITY DESCRIPTIVE
/CRITERIA=ALPHA(.05)
/DESIGN=Group PRESRQAca Group*PRESRQAca.

## Univariate Analysis of Variance

Between-Subjects Factors

|  |  | Value Label | N |
| :--- | :--- | :--- | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Descriptive Statistics
Dependent Variable: Post SRQ Academic

| Group | Mean | Std. Deviation | N |
| :--- | :---: | ---: | ---: |
| Control | 48.05 | 6.654 | 19 |
| Teatment | 55.16 | 6.509 | 19 |
| Total | 51.61 | 7.424 | 38 |

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## Levene's Test of Equality of Error Variances ${ }^{2}$

Dependent Variable: Post SRQ Academic

| $F$ | df1 | df2 | Sig. |
| :---: | ---: | ---: | ---: |
| .224 | 1 | 36 | .639 |

Tests the null hypothesis that the error
variance of the dependent variable is equal
across groups.
a. Design: Intercept + Group + PRESRQAca + Group * PRESRQAca

Tests of Between-Subjects Effects

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | $642.041^{\text {a }}$ | 3 | 214.014 | 5.209 | . 005 | . 315 |
| Intercept | 907.074 | 1 | 907.074 | 22.076 | . 000 | . 394 |
| Group | 69.013 | 1 | 69.013 | 1.680 | . 204 | . 047 |
| PRESRQAca | 74.573 | 1 | 74.573 | 1.815 | . 187 | . 051 |
| Group * PRESRQAca | 37.485 | 1 | 37.485 | . 912 | . 346 | . 026 |
| Error | 1397.037 | 34 | 41.089 |  |  |  |
| Total | 103237.000 | 38 |  |  |  |  |
| Corrected Total | 2039.079 | 37 |  |  |  |  |

a. R Squared $=.315$ (Adjusted R Squared $=.254$ )

## Estimated Marginal Means

1. Grand Mean

Dependent Variable: Post SRQ Academic

|  |  | $95 \%$ Confidence Interval |  |
| :---: | :---: | :---: | :---: |
| Mean | Std. Error | Lower Bound | Upper Bound |
| $51.921^{\mathrm{a}}$ | 1.091 | 49.704 | 54.139 |

a. Covariates appearing in the model are evaluated at the following values: PreSRQsurvey academic = 53.13.
2. Group

Dependent Variable: Post SRQ Academic

|  |  |  | 95\% Confidence Interval |  |
| :--- | :---: | :---: | ---: | ---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $48.814^{\mathrm{a}}$ | 1.520 | 45.724 | 51.904 |
| Teatment | $55.028^{\mathrm{a}}$ | 1.566 | 51.846 | 58.210 |

a. Covariates appearing in the model are evaluated at the following values: PreSRQsurvey academic $=$ 53.13 .

UNIANOVA PostSRQAca BY Group WITH PRESRQAca
/METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(OVERALL) WITH(PRESRQAca=MEAN)
/EMMEANS=TABLES (Group) WITH(PRESRQAca=MEAN)
/PRINT=ETASQ HOMOGENEITY DESCRIPTIVE
/CRITERIA=ALPHA(.05)
/DESIGN=PRESRQAca Group.
Univariate Analysis of Variance
Between-Subjects Factors

|  |  | Value Label | N |
| :--- | :--- | :--- | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Descriptive Statistics
Dependent Variable: Post SRQ Academic

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 48.05 | 6.654 | 19 |
| Teatment | 55.16 | 6.509 | 19 |
| Total | 51.61 | 7.424 | 38 |

Levene's Test of Equality of Error Variances ${ }^{\text {a }}$

| Dependent Variable: Post SRQ Academic |  |  |  |
| :---: | :---: | ---: | :---: |
| F | df 1 | df 2 | Sig. |
| .114 | 1 | 36 | .737 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + PRESRQAca + Group

Tests of Between-Subjects Effects
Dependent Variable: Post SRQ Academic

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $604.557^{\mathrm{a}}$ | 2 | 302.278 | 7.375 | .002 | .296 |
| Intercept | 892.303 | 1 | 892.303 | 21.771 | .000 | .383 |
| PRESRQAca | 124.951 | 1 | 124.951 | 3.049 | .090 | .080 |
| Group | 314.801 | 1 | 314.801 | 7.681 | .009 | .180 |
| Error | 1434.522 | 35 | 40.986 |  |  |  |
| Total | 103237.000 | 38 |  |  |  |  |
| Corrected Total | 2039.079 | 37 |  |  |  |  |

a. R Squared $=.296$ (Adjusted $R$ Squared $=.256$ )

## Estimated Marginal Means

## 1. Grand Mean

Dependent Variable: Post SRQ Academic

|  |  | $95 \%$ Confidence Interval |  |
| :---: | :---: | ---: | ---: |
| Mean | Std. Error | Lower Bound | Upper Bound |
| $51.605^{\mathrm{a}}$ | 1.039 | 49.497 | 53.714 |

a. Covariates appearing in the model are evaluated at the following values: PreSRQsurvey academic = 53.13.
2. Group
Dependent Variable: Post SRQ Academic

|  |  |  | $95 \%$ Confidence Interval |  |
| :--- | :---: | :---: | :---: | :---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $48.599^{\mathrm{a}}$ | 1.502 | 45.551 | 51.648 |
| Teatment | $54.611^{\mathrm{a}}$ | 1.502 | 51.563 | 57.660 |

a. Covariates appearing in the model are evaluated at the following values: PreSRQsurvey academic = 53.13.

DATASET ACTIVATE DataSet2.
DATASET CLOSE DataSet12.
DATASET ACTIVATE DataSet2.
SAVE OUTFILE='/Users/rla/Desktop/BOOK FLOOD_SRQpreandpostscores.sav' /COMPRESSED.
DATASET ACTIVATE DataSet11.
DATASET CLOSE DataSet2.
GET
FILE='/Users/rla/Desktop/BOOK FLOOD_ERAS_SRQ.sav'.
DATASET NAME DataSet13 WINDOW=FRONT.


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Page 1.

## Between-Subjects Factors

|  |  | Value Label |
| :---: | :---: | :---: |
| Group | 1 | Control |
|  | 2 | Teatment |
|  | 2 | 19 |

Tests of Between-Subjects Effects
Dependent Variable: PRErecAutonomous

|  | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Source | $22.132^{\text {a }}$ | 1 | 22.132 | 1.794 | .189 |
| Corrected Model | 27432.658 | 1 | 27432.658 | 2223.215 | .000 |
| Intercept | 22.132 | 1 | 22.132 | 1.794 | .189 |
| Group | 444.211 | 36 | 12.339 |  |  |
| Error | 27899.000 | 38 |  |  |  |
| Total | 466.342 | 37 |  |  |  |
| Corrected Total |  |  |  |  |  |

a. R Squared $=.047$ (Adjusted $R$ Squared $=.021$ )

UNIANOVA POSTrecAutonomous BY Group WITH PRErecAutonomous /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Group PRErecAutonomous Group*PRErecAutonomous.
Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :---: | :---: | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

## Page 2

Tests of Between-Subjects Effects
Dependent Variable: POSTrecAutonomous

|  | Type Ill Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Source | $152.712^{\text {a }}$ | 3 | 50.904 | 3.464 | .027 |
| Corrected Model | 141.525 | 1 | 141.525 | 9.631 | .004 |
| Intercept | 4.174 | 1 | 4.174 | .284 | .598 |
| Group | 71.591 | 1 | 71.591 | 4.872 | .034 |
| PRErecAutonomous | .467 | 1 | .467 | .032 | .860 |
| Group <br> PRErecAutonomous | 499.630 | 34 | 14.695 |  |  |
| Error | 26601.000 | 38 |  |  |  |
| Total | 652.342 | 37 |  |  |  |
| Corrected Total |  |  |  |  |  |

a. $R$ Squared $=.234$ (Adjusted R Squared $=.167$ )

UNIANOVA POSTrecAutonomous BY Group WITH PRErecAutonomous /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PRErecAutonomous=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(PRErecAutonomous=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=PRErecAutonomous Group.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :--- | :--- | :--- |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Descriptive Statistics
Dependent Variable: POSTrecAutonomous

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 24.68 | 4.854 | 19 |
| Teatment | 27.58 | 2.874 | 19 |
| Total | 26.13 | 4.199 | 38 |

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| Levene's Test of Equality of Error Variance's |  |  |  |
| :---: | :---: | :---: | :---: |
| Dependent Variable: |  | POSTrecAutonomous |  |
| F | df1 | df2 | Sig. |
| 9.970 | 1 | 36 | . 003 |

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Design: Intercept + PRErecAutonomous + Group

Tests of Between-Subjects Effects
Dependent Variable: POSTrecAutonomous

|  | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Source | $152.245^{\text {a }}$ | 2 | 76.123 | 5.328 | .010 | .233 |
| Corrected Model | 141.125 | 1 | 141.125 | 9.877 | .003 | .220 |
| Intercept | 72.640 | 1 | 72.640 | 5.084 | .031 | .127 |
| PRErecAutonomous | 111.611 | 1 | 111.611 | 7.811 | .008 | .182 |
| Croup | 500.097 | 35 | 14.288 |  |  |  |
| Error | 26601.000 | 38 |  |  |  |  |
| Total | 652.342 | 37 |  |  |  |  |
| Corrected Total |  |  |  |  |  |  |

a. R Squared $=.233$ (Adjusted R Squared $=.190$ )

## Estimated Marginal Means

| 1. Group |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Dependent Variable: |  | POSTrecAutonomous |  |  |
|  |  |  | 95\% Confid | nce Interval |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $24.376^{\text {a }}$ | . 878 | 22.593 | 26.158 |
| Teatment | $27.888^{\text {a }}$ | . 878 | 26.105 | 29.670 |

a. Covariates appearing in the model are evaluated at the following values: PRErecAutonomous = 26.87.

## 2. Grand Mean

Dependent Variable: POSTrecAutonomous
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| :---: | ---: | ---: | ---: |
| $26.132^{\text {a }}$ | .613 | 24.887 | 27.376 |

a. Covariates appearing in the model are evaluated at the following values: PRErecAutonomous $=$ 26.87.

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Page 1


Page 1


Page 1

```
UNIANOVA PRErecControl BY Group
    /METHOD=SSTYPE (3)
    /INTERCEPT=INCLUDE
    /EMMEANS=TABLES(Group)
    /EMMEANS=TABLES(OVERALL)
    /PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
    /CRITERIA=ALPHA(.05)
    /DESIGN=Group.
```

Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :--- | :--- | :--- | :--- |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

## Descriptive Statistics

Dependent Variable: PRErecControl

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 25.37 | 3.760 | 19 |
| Teatment | 27.89 | 4.496 | 19 |
| Total | 26.63 | 4.283 | 38 |

## Levene's Test of Equality of

 Error VariancesDependent Variable: PRErecControl

| F | df1 | df2 | Sig. |
| :--- | ---: | ---: | :--- |
| .289 | 1 | 36 | .594 |

Tests the null hypothesis that the error
variance of the dependent variable is equal
across groups.
a. Design: Intercept + Group

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Tests of Between-Subjects Effects
Dependent Variable: PRErecControl

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $60.632^{\mathrm{a}}$ | 1 | 60.632 | 3.531 | .068 | .089 |
| Intercept | 26951.158 | 1 | 26951.158 | 1569.436 | .000 | .978 |
| Group | 60.632 | 1 | 60.632 | 3.531 | .068 | .089 |
| Error | 618.211 | 36 | 17.173 |  |  |  |
| Total | 27630.000 | 38 |  |  |  |  |
| Corrected Total | 678.842 | 37 |  |  |  |  |

a. R Squared $=.089$ (Adjusted R Squared $=.064$ )

## Estimated Marginal Means

1. Group

Dependent Variable: PRErecControl

|  |  |  | $95 \%$ Confidence Interval |  |
| :--- | :---: | ---: | ---: | ---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | 25.368 | .951 | 23.440 | 27.297 |
| Teatment | 27.895 | .951 | 25.967 | 29.823 |

2. Grand Mean

Dependent Variable: PRErecControl
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| ---: | ---: | ---: | ---: |
| 26.632 | .672 | 25.268 | 27.995 |

```
UNIANOVA POSTrecControl BY Group WITH PRErecControl /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PRErecControl=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(PRErecControl=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=Group PRErecControl Group*PRErecControl.
```


## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :---: | :--- | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

## Descriptive Statistics

Dependent Variable: POSTrecControl

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 19.42 | 4.741 | 19 |
| Teatment | 24.84 | 4.400 | 19 |
| Total | 22.13 | 5.282 | 38 |

Levene's Test of Equality of Error Variances
Dependent Variable: POSTrecControl

| F | df1 | df2 | Sig. |
| :--- | ---: | ---: | :--- |
| .962 | 1 | 36 | .333 |

Tests the null hypothesis that the error
variance of the dependent variable is equal
across groups.
a. Design: Intercept + Group + PRErecControl + Group * PRErecControl

Tests of Between-Subjects Effects
Dependent Variable: POSTrecControl

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $367.577^{\mathrm{a}}$ | 3 | 122.526 | 6.267 | .002 |
| Intercept | 161.843 | 1 | 161.843 | 8.278 | .007 |
| Group | 5.350 | 1 | 5.350 | .274 | .604 |
| PRErecControl | 54.086 | 1 | 54.086 | 2.766 | .105 |
| Group * PRErecControl | 19.925 | 1 | 19.925 | 1.019 | .320 |
| Error | 664.765 | 34 | 19.552 |  |  |
| Total | 19645.000 | 38 |  |  |  |
| Corrected Total | 1032.342 | 37 |  |  |  |

Tests of Between-Subjects Effects
Dependent Variable: POSTrecControl

| Source | Partial Eta <br> Squared |
| :--- | ---: |
| Corrected Model | .356 |
| Intercept | .196 |
| Group | .008 |
| PRErecControl | .075 |
| Group * PRErecControl | .029 |
| Error |  |
| Total |  |
| Corrected Total |  |

a. R Squared $=.356$ (Adjusted $R$ Squared $=.299$ )

## Estimated Marginal Means

## 1. Group

Dependent Variable: POSTrecControl
95\% Confidence Interval

| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| :--- | ---: | ---: | ---: | ---: |
| Control | $19.570^{\mathrm{a}}$ | 1.073 | 17.389 | 21.751 |
| Teatment | $24.232^{\mathrm{a}}$ | 1.056 | 22.086 | 26.378 |

a. Covariates appearing in the model are evaluated at the following values: PRErecControl $=26.63$.

## 2. Grand Mean

Dependent Variable: POSTrecControl
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| :---: | :---: | :---: | :---: |
| $21.901^{\mathrm{a}}$ | .753 | 20.371 | 23.431 |

a. Covariates appearing in the model are evaluated at the following values: PRErecControl $=26.63$.

UNIANOVA POSTrecControl BY Group WITH PRErecControl /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PRErecControl=MEAN)
/EMMEANS=TABLES(OVERALL) WITH (PRErecControl=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=PRErecControl Group.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :---: | :--- | :---: |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

## Descriptive Statistics

Dependent Variable: POSTrecControl

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 19.42 | 4.741 | 19 |
| Teatment | 24.84 | 4.400 | 19 |
| Total | 22.13 | 5.282 | 38 |

## Levene's Test of Equality of

 Error Variance'sDependent Variable: POSTrecControl

| F | df1 | df2 | Sig. |
| :--- | ---: | ---: | :--- |
| .797 | 1 | 36 | .378 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + PRErecControl + Group

Tests of Between-Subjects Effects
Dependent Variable: POSTrecControl

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $347.652^{\mathrm{a}}$ | 2 | 173.826 | 8.886 | .001 | .337 |
| Intercept | 150.021 | 1 | 150.021 | 7.669 | .009 | .180 |
| PRErecControl | 68.468 | 1 | 68.468 | 3.500 | .070 | .091 |
| Group | 181.502 | 1 | 181.502 | 9.278 | .004 | .210 |
| Error | 684.690 | 35 | 19.563 |  |  |  |
| Total | 19645.000 | 38 |  |  |  |  |
| Corrected Total | 1032.342 | 37 |  |  |  |  |

a. R Squared $=.337$ (Adjusted R Squared $=.299$ )

## Estimated Marginal Means

| 1. Group <br> Dependent Variable: |  |  |  | POSTrecControl |  |
| :--- | ---: | ---: | ---: | ---: | :---: |
|  |  | $95 \%$ Confidence Interval |  |  |  |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |  |
| Control | $19.841^{\mathrm{a}}$ | 1.039 | 17.732 | 21.951 |  |
| Teatment | $24.422^{\mathrm{a}}$ | 1.039 | 22.312 | 26.532 |  |

a. Covariates appearing in the model are evaluated at the following values: PRErecControl $=26.63$

## 2. Grand Mean

Dependent Variable: POSTrecControl
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| :---: | :---: | :---: | ---: |
| $22.132^{\mathrm{a}}$ | .717 | 20.675 | 23.588 |

a. Covariates appearing in the model are evaluated at the following values: PRErecControl $=26.63$


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Page 1

```
UNIANOVA PREacaAutonomous BY Group
    /METHOD=SSTYPE(3)
    /INTERCEPT=INCLUDE
    /EMMEANS=TABLES(Group)
    /EMMEANS=TABLES(OVERALL)
    /PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
    /CRITERIA=ALPHA(.05)
    /DESIGN=Group.
```


## Univariate Analysis of Variance

Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :--- | :--- | :--- |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Descriptive Statistics
Dependent Variable: PREacaAutonomous

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 25.74 | 4.863 | 19 |
| Teatment | 25.53 | 4.611 | 19 |
| Total | 25.63 | 4.676 | 38 |

Levene's Test of Equality of Error Variances

Dependent Variable: PREacaAutonomous

| F | df1 | df2 | Sig. |
| :---: | ---: | ---: | ---: |
| .184 | 1 | 36 | .671 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + Group

Tests of Between-Subjects Effects
Dependent Variable: PREacaAutonomous

| Source | Type Ill Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $.421^{\mathrm{a}}$ | 1 | .421 | .019 | .892 | .001 |
| Intercept | 24965.158 | 1 | 24965.158 | 1111.730 | .000 | .969 |
| Group | .421 | 1 | .421 | .019 | .892 | .001 |
| Error | 808.421 | 36 | 22.456 |  |  |  |
| Total | 25774.000 | 38 |  |  |  |  |
| Corrected Total | 808.842 | 37 |  |  |  |  |

a. $R$ Squared $=.001$ (Adjusted R Squared $=-.027$ )

## Estimated Marginal Means

1. Group

Dependent Variable: PREacaAutonomous

|  |  |  | 95\% Confidence Interval |  |
| :--- | ---: | ---: | ---: | ---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | 25.737 | 1.087 | 23.532 | 27.942 |
| Teatment | 25.526 | 1.087 | 23.321 | 27.731 |

2. Grand Mean

Dependent Variable: PREacaAutonomous
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| ---: | ---: | ---: | ---: | ---: |
| 25.632 | .769 | 24.073 | 27.191 |

UNIANOVA POSTacaAutonomous BY Group WITH PREacaAutonomous /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PREacaAutonomous=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(PREacaAutonomous=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=Group PREacaAutonomous Group*PREacaAutonomous.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  | Value Label | N |
| :---: | :---: | :---: |
| Group | 1 | Control |
|  | 2 | Teatment |

## Descriptive Statistics

Dependent Variable: POSTacaAutonomous

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 26.32 | 3.888 | 19 |
| Teatment | 28.37 | 2.813 | 19 |
| Total | 27.34 | 3.505 | 38 |

Levene's Test of Equality of Error Variance's

Dependent Variable: POSTacaAutonomous

| F | df1 | df2 | Sig. |
| :---: | :---: | :---: | :---: |
| 2.608 | 1 | 36 | .115 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + Group + PREacaAutonomous + Group * PREacaAutonomous

Tests of Between-Subjects Effects

| Dependent Variable: POSTacaAutonomous |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
| Corrected Model | $242.810^{\text {a }}$ | 3 | 80.937 | 12.996 | . 000 |
| Intercept | 338.579 | 1 | 338.579 | 54.366 | . 000 |
| Group | 76.209 | 1 | 76.209 | 12.237 | . 001 |
| PREacaAutonomous | 133.735 | 1 | 133.735 | 21.474 | . 000 |
| Group * <br> PREacaAutonomous | 59.035 | 1 | 59.035 | 9.479 | . 004 |
| Error | 211.743 | 34 | 6.228 |  |  |
| Total | 28863.000 | 38 |  |  |  |
| Corrected Total | 454.553 | 37 |  |  |  |

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Tests of Between-Subjects Effects
Dependent Variable: POSTacaAutonomous

| Source | Partial Eta <br> Squared |
| :--- | ---: |
| Corrected Model | .534 |
| Intercept | .615 |
| Group | .265 |
| PREacaAutonomous | .387 |
| Group <br> PREacaAutonomous | .218 |
| Error |  |
| Total |  |
| Corrected Total |  |

a. $R$ Squared $=.534$ (Adjusted $R$ Squared $=.493$ )

## Estimated Marginal Means

## 1. Group

Dependent Variable: POSTacaAutonomous
95\% Confidence Interval

| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| :--- | :---: | :---: | :---: | ---: |
| Control | $26.244^{\mathrm{a}}$ | .573 | 25.081 | 27.408 |
| Teatment | $28.383^{\mathrm{a}}$ | .573 | 27.219 | 29.547 |

a. Covariates appearing in the model are evaluated at the following values: PREacaAutonomous $=$ 25.63.

## 2. Grand Mean

Dependent Variable: POSTacaAutonomous

> 95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| :---: | :---: | :---: | :---: |
| $27.314^{\text {a }}$ | .405 | 26.491 | 28.137 |

a. Covariates appearing in the model are evaluated at the following values: PREacaAutonomous $=$ 25.63.

UNIANOVA POSTacaAutonomous BY Group WITH PREacaAutonomous /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PREacaAutonomous=MEAN)
/EMMEANS=TABLES (OVERALL) WITH(PREacaAutonomous=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY /CRITERIA=ALPHA(.05)
/DESIGN=PREacaAutonomous Group.
Univariate Analysis of Variance
Between-Subjects Factors

|  |  | Value Label |
| :---: | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

Descriptive Statistics
Dependent Variable: POSTacaAutonomous

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 26.32 | 3.888 | 19 |
| Teatment | 28.37 | 2.813 | 19 |
| Total | 27.34 | 3.505 | 38 |

Levene's Test of Equality of Error Variances
Dependent Variable: POSTacaAutonomous

| F | df1 | df2 | Sig. |
| :---: | ---: | :---: | :---: |
| 1.068 | 1 | 36 | .308 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + PREacaAutonomous + Group

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Tests of Between-Subjects Effects

| Dependent Variable: <br> Source | POSTacaAutonomous |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| Corrected Model | $183.775^{\text {a }}$ | 2 | 91.887 | 11.877 | . 000 | . 404 |
| Intercept | 325.830 | 1 | 325.830 | 42.116 | . 000 | . 546 |
| PREacaAutonomous | 143.748 | 1 | 143.748 | 18.581 | . 000 | . 347 |
| Group | 43.541 | 1 | 43.541 | 5.628 | . 023 | . 139 |
| Error | 270.778 | 35 | 7.737 |  |  |  |
| Total | 28863.000 | 38 |  |  |  |  |
| Corrected Total | 454.553 | 37 |  |  |  |  |

a. $R$ Squared $=.404$ (Adjusted $R$ Squared $=.370$ )

## Estimated Marginal Means

## 1. Group

| Dependent Variable: |  | POSTacaAutonomous |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Group | Mean | Std. Error | 95\% Confidence Interval |  |
|  |  |  | Lower Bound | Upper Bound |
| Control | $26.271^{\text {a }}$ | . 638 | 24.976 | 27.567 |
| Teatment | $28.413^{\text {a }}$ | . 638 | 27.117 | 29.708 |

a. Covariates appearing in the model are evaluated at the following values: PREacaAutonomous $=$ 25.63.

## 2. Grand Mean

Dependent Variable: POSTacaAutonomous

| Mean | Std. Error | Lower Bound | Upper Bound |
| :---: | ---: | ---: | ---: |
| $27.342^{\mathrm{a}}$ | .451 | 26.426 | 28.258 |

a. Covariates appearing in the model are evaluated at the following values: PREacaAutonomous $=$ 25.63.



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```
UNIANOVA PREacaControl BY Group
    /METHOD=SSTYPE(3)
    /INTERCEPT=INCLUDE
    /EMMEANS=TABLES(Group)
    /EMMEANS=TABLES(OVERALL)
    /PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
    /CRITERIA=ALPHA(.05)
    /DESIGN=Group.
```


## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :--- | :--- | :--- | :--- |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

Descriptive Statistics
Dependent Variable: PREacaControl

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 25.32 | 5.323 | 19 |
| Teatment | 29.68 | 4.485 | 19 |
| Total | 27.50 | 5.336 | 38 |

Levene's Test of Equality of Error Variances

Dependent Variable: PREacaControl

| F | df1 | df2 | Sig. |
| :---: | ---: | ---: | ---: |
| 1.007 | 1 | 36 | .322 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + Group

## Tests of Between-Subjects Effects

Dependent Variable: PREacaControl

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $181.289^{\mathrm{a}}$ | 1 | 181.289 | 7.483 | .010 | .172 |
| Intercept | 28737.500 | 1 | 28737.500 | 1186.124 | .000 | .971 |
| Group | 181.289 | 1 | 181.289 | 7.483 | .010 | .172 |
| Error | 872.211 | 36 | 24.228 |  |  |  |
| Total | 29791.000 | 38 |  |  |  |  |
| Corrected Total | 1053.500 | 37 |  |  |  |  |

a. R Squared $=.172$ (Adjusted R Squared $=.149$ )

## Estimated Marginal Means

1. Group

Dependent Variable: PREacaControl
95\% Confidence Interval

| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| :--- | ---: | ---: | ---: | ---: |
| Control | 25.316 | 1.129 | 23.026 | 27.606 |
| Teatment | 29.684 | 1.129 | 27.394 | 31.974 |

2. Grand Mean

Dependent Variable: PREacaControl
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| ---: | ---: | ---: | ---: | ---: |
| 27.500 | .798 | 25.881 | 29.119 |

UNIANOVA POSTacaControl BY Group WITH PREacaControl /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PREacaControl=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(PREacaControl=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=Group PREacaControl Group*PREacaControl.
Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :--- | :--- | :--- | :--- |
| Group | 1 | Control | 19 |
|  | 2 | Teatment | 19 |

## Descriptive Statistics

Dependent Variable: POSTacaControl

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 21.74 | 5.279 | 19 |
| Teatment | 26.79 | 5.613 | 19 |
| Total | 24.26 | 5.953 | 38 |

Levene's Test of Equality of Error Variances

Dependent Variable: POSTacaControl

| F | df1 | df2 | Sig. |
| :--- | ---: | ---: | ---: |
| .223 | 1 | 36 | .639 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + Group + PREacaControl + Group * PREacaControl

Tests of Between-Subjects Effects
Dependent Variable: POSTacaControl

|  | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Source | $464.336^{\text {a }}$ | 3 | 154.779 | 6.213 | .002 |
| Corrected Model | 248.433 | 1 | 248.433 | 9.972 | .003 |
| Intercept | 125.715 | 1 | 125.715 | 5.046 | .031 |
| Group | 69.769 | 1 | 69.769 | 2.801 | .103 |
| PREacaControl | 184.117 | 1 | 184.117 | 7.390 | .010 |
| Group * PREacaControl | 847.033 | 34 | 24.913 |  |  |
| Error | 23682.000 | 38 |  |  |  |
| Total | 1311.368 | 37 |  |  |  |
| Corrected Total |  |  |  |  |  |

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Tests of Between-Subjects Effects

| Dependent Variable: | POSTacaControl <br> Partial Eta <br> Squared |
| :--- | ---: |
| Source | .354 |
| Corrected Model | .227 |
| Intercept | .129 |
| Group | .076 |
| PREacaControl | .179 |
| Group * PREacaControl |  |
| Error |  |
| Total |  |
| Corrected Total |  |

a. R Squared $=.354$ (Adjusted $R$ Squared $=.297$ )

## Estimated Marginal Means

## 1. Group

Dependent Variable: POSTacaControl

|  |  |  | $95 \%$ Confidence Interval |  |
| :--- | :---: | :---: | :---: | :---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $21.345^{\mathrm{a}}$ | 1.243 | 18.820 | 23.871 |
| Teatment | $25.144^{\mathrm{a}}$ | 1.280 | 22.542 | 27.746 |

a. Covariates appearing in the model are evaluated at the following values: PREacaControl = 27.50 .

## 2. Grand Mean

Dependent Variable: POSTacaControl
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| :---: | :---: | :---: | ---: |
| $23.245^{\mathrm{a}}$ | .892 | 21.432 | 25.058 |

a. Covariates appearing in the model are evaluated at the following values: PREacaControl = 27.50 .

UNIANOVA POSTacaControl BY Group WITH PREacaControl /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(PREacaControl=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(PREacaControl=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
Page 4
/CRITERIA=ALPHA(.05)
/DESIGN=PREacaControl Group.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :--- | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

## Descriptive Statistics

Dependent Variable: POSTacaControl

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 21.74 | 5.279 | 19 |
| Teatment | 26.79 | 5.613 | 19 |
| Total | 24.26 | 5.953 | 38 |

## Levene's Test of Equality of

 Error Variance?Dependent Variable: POSTacaControl

| F | df1 | df 2 | Sig. |
| :--- | ---: | ---: | :--- |
| .307 | 1 | 36 | .583 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + PREacaControl + Group

## Tests of Between-Subjects Effects

Dependent Variable: POSTacaControl

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | $280.218^{\text {a }}$ | 2 | 140.109 | 4.756 | . 015 | . 214 |
| Intercept | 385.027 | 1 | 385.027 | 13.069 | . 001 | . 272 |
| PREacaControl | 37.692 | 1 | 37.692 | 1.279 | . 266 | . 035 |
| Group | 135.101 | 1 | 135.101 | 4.586 | . 039 | .116 |
| Error | 1031.150 | 35 | 29.461 |  |  |  |
| Total | 23682.000 | 38 |  |  |  |  |
| Corrected Total | 1311.368 | 37 |  |  |  |  |

a. R Squared $=.214$ (Adjusted R Squared $=.169$ )

## Estimated Marginal Means

| 1. Group |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Dependent Variable: |  | POSTacaControl |  |  |
|  |  |  | 95\% Confid | nce Interval |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $22.191^{\text {a }}$ | 1.308 | 19.535 | 24.847 |
| Teatment | $26.335^{\text {a }}$ | 1.308 | 23.679 | 28.991 |

a. Covariates appearing in the model are evaluated at the following values: PREacaControl $=$ 27.50 .

## 2. Grand Mean

Dependent Variable: POSTacaControl

|  |  | $95 \%$ Confidence Interval |  |
| :---: | :---: | :---: | ---: |
| Mean | Std. Error | Lower Bound | Upper Bound |
| $24.263^{\mathrm{a}}$ | .881 | 22.476 | 26.051 |

a. Covariates appearing in the model are evaluated at the following values: PREacaControl = 27.50 .


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## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :---: | :--- | :---: |
| Group | 1 | Control | 15 |
|  | 2 | Teatment | 19 |

## Descriptive Statistics

Dependent Variable: ERASpreSUMSCORE

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 60.8000 | 8.92188 | 15 |
| Teatment | 61.5789 | 6.22107 | 19 |
| Total | 61.2353 | 7.41848 | 34 |

## Levene's Test of Equality of

 Error Variance'sDependent Variable: ERASpreSUMSCORE

| F | df1 | df2 | Sig. |
| :---: | ---: | ---: | :--- |
| 2.992 | 1 | 32 | .093 |

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Design: Intercept + Group

Tests of Between-Subjects Effects
Dependent Variable: ERASpreSUMSCORE

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | $5.086{ }^{\text {a }}$ | 1 | 5.086 | . 090 | . 766 | . 003 |
| Intercept | 125539.204 | 1 | 125539.204 | 2218.213 | . 000 | . 986 |
| Group | 5.086 | 1 | 5.086 | . 090 | . 766 | . 003 |
| Error | 1811.032 | 32 | 56.595 |  |  |  |
| Total | 129308.000 | 34 |  |  |  |  |
| Corrected Total | 1816.118 | 33 |  |  |  |  |
| a. R Squared $=.003$ (Adjusted R Squared $=-.028$ ) |  |  |  |  |  |  |
| UNIANOVA ERASpostSUMSCORE BY Group WITH ERASpreSUMSCORE /METHOD=SSTYPE (3) <br> /INTERCEPT=INCLUDE |  |  |  |  |  |  |

/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=Group ERASpreSUMSCORE ERASpreSUMSCORE*Group.
Univariate Analysis of Variance
Between-Subjects Factors

|  |  | Value Label |
| :---: | :---: | :---: |
| Group | 1 | Control |
|  | 2 | Teatment |

Descriptive Statistics
Dependent Variable: ERASpostSUMSCORE

| Group | Mean | Std. Deviation | N |
| :--- | :---: | ---: | ---: |
| Control | 62.0000 | 10.97400 | 15 |
| Teatment | 66.2632 | 6.07218 | 19 |
| Total | 64.3824 | 8.70741 | 34 |

Levene's Test of Equality of Error Variances
Dependent Variable: ERASpostSUMSCORE

| F | df1 | df2 | Sig. |
| :---: | :---: | :---: | :---: |
| 1.118 | 1 | 32 | .298 |

Tests the null hypothesis that the error
variance of the dependent variable is equal
across groups.
a. Design: Intercept + Group + ERASpreSUMSCORE + Group * ERASpreSUMSCORE

Tests of Between-Subjects Effects
Dependent Variable: ERASpostSUMSCORE

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $1590.713^{\mathrm{a}}$ | 3 | 530.238 | 17.455 | .000 |
| Intercept | 78.835 | 1 | 78.835 | 2.595 | .118 |
| Group | 72.844 | 1 | 72.844 | 2.398 | .132 |
| ERASpreSUMSCORE | 1189.836 | 1 | 1189.836 | 39.169 | .000 |
| Group * <br> ERASpreSUMSCORE | 54.504 | 1 | 54.504 | 1.794 | .190 |
| Error | 911.316 | 30 | 30.377 |  |  |
| Total | 143435.000 | 34 |  |  |  |
| Corrected Total | 2502.029 | 33 |  |  |  |

Tests of Between-Subjects Effects
Dependent Variable: ERASpostSUMSCORE

| Source | Partial Eta <br> Squared |
| :--- | ---: |
| Corrected Model | .636 |
| Intercept | .080 |
| Group | .074 |
| ERASpreSUMSCORE | .566 |
| Group * | .056 |
| ERASpreSUMSCORE |  |
| Error |  |
| Total |  |
| Corrected Total |  |

$$
\text { a. } R \text { Squared }=.636(\text { Adjusted } R \text { Squared }=.599)
$$

UNIANOVA ERASpostSUMSCORE BY Group WITH ERASpreSUMSCORE
/METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=ERASpreSUMSCORE Group.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :---: | :---: | :---: |
| Group | 1 | Control |
|  | 2 | Teatment |

## Descriptive Statistics

Dependent Variable: ERASpostSUMSCORE

| Group | Mean | Std. Deviation | N |
| :--- | ---: | ---: | ---: |
| Control | 62.0000 | 10.97400 | 15 |
| Teatment | 66.2632 | 6.07218 | 19 |
| Total | 64.3824 | 8.70741 | 34 |

## Levene's Test of Equality of

 Error VariancesDependent Variable: ERASpostSUMSCORE

| F | df1 | df2 | Sig. |
| :--- | ---: | ---: | :--- |
| .883 | 1 | 32 | .354 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + ERASpreSUMSCORE + Group

Tests of Between-Subjects Effects
Dependent Variable: ERASpostSUMSCORE

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | $\begin{aligned} & \text { Partial Eta } \\ & \text { Squared } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | $1536.210^{\text {a }}$ | 2 | 768.105 | 24.654 | . 000 | . 614 |
| Intercept | 54.011 | 1 | 54.011 | 1.734 | . 198 | . 053 |
| ERASpreSUMSCORE | 1383.864 | 1 | 1383.864 | 44.418 | . 000 | . 589 |
| Group | 107.265 | 1 | 107.265 | 3.443 | . 073 | . 100 |
| Error | 965.820 | 31 | 31.155 |  |  |  |
| Total | 143435.000 | 34 |  |  |  |  |
| Corrected Total | 2502.029 | 33 |  |  |  |  |

a. $R$ Squared $=.614$ (Adjusted $R$ Squared $=.589$ )

GRAPH
/SCATTERPLOT(BIVAR)=ERASpreSUMSCORE WITH ERASpostSUMSCORE
/MISSING=LISTWISE
/TITLE='ERAS Pre vs Post test'.

## Graph



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GRAPH
/HISTOGRAM(NORMAL)=ERASpreSUMSCORE.
Graph


GRAPH
/HISTOGRAM(NORMAL)=ERASpostSUMSCORE.

## Graph

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```
UNIANOVA ERASpreREC BY Group
    /METHOD=SSTYPE(3)
    /INTERCEPT=INCLUDE
    /EMMEANS=TABLES(Group)
    /EMMEANS=TABLES(OVERALL)
    /PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
    /CRITERIA=ALPHA(.05)
    /DESIGN=Group.
```


## Univariate Analysis of Variance

Between-Subjects Factors

|  |  | Value Label |
| :---: | :---: | :---: |
| Group | 1 | Control |
|  | 2 | Teatment |

Descriptive Statistics
Dependent Variable: ERASpreREC

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 31.0000 | 3.48466 | 15 |
| Teatment | 32.1579 | 3.83352 | 19 |
| Total | 31.6471 | 3.67533 | 34 |

Levene's Test of Equality of Error Variances
Dependent Variable: ERASpreREC

| F | df1 | df2 | Sig. |
| :--- | ---: | ---: | :--- |
| .064 | 1 | 32 | .801 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + Group

## Tests of Between-Subjects Effects

Dependent Variable: ERASpreREC

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $11.238^{\mathrm{a}}$ | 1 | 11.238 | .828 | .370 | .025 |
| Intercept | 33436.533 | 1 | 33436.533 | 2462.380 | .000 | .987 |
| Group | 11.238 | 1 | 11.238 | .828 | .370 | .025 |
| Error | 434.526 | 32 | 13.579 |  |  |  |
| Total | 34498.000 | 34 |  |  |  |  |
| Corrected Total | 445.765 | 33 |  |  |  |  |

a. $R$ Squared $=.025$ (Adjusted $R$ Squared $=-.005$ )

## Estimated Marginal Means

## 1. Group

Dependent Variable: ERASpreREC

> 95\% Confidence Interval

| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| :--- | :---: | ---: | ---: | ---: |
| Control | 31.000 | .951 | 29.062 | 32.938 |
| Teatment | 32.158 | .845 | 30.436 | 33.880 |

## 2. Grand Mean

Dependent Variable: ERASpreREC

|  |  | $95 \%$ Confidence Interval |  |
| ---: | :---: | :---: | ---: |
| Mean | Std. Error | Lower Bound | Upper Bound |
| 31.579 | .636 | 30.283 | 32.875 |

UNIANOVA ERASpostREC BY Group WITH ERASpreREC /METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(ERASpreREC=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(ERASpreREC=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=Group ERASpreREC ERASpreREC*Group.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :---: | :---: | :---: |
| Group | 1 | Control |
|  | 2 | Teatment |

## Descriptive Statistics

Dependent Variable: ERASpostREC

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 30.4167 | 6.44499 | 12 |
| Teatment | 33.5789 | 2.79515 | 19 |
| Total | 32.3548 | 4.72968 | 31 |

Levene's Test of Equality of Error Variances

Dependent Variable: ERASpostREC

| F | df1 | df2 | Sig. |
| :---: | ---: | :---: | :---: |
| 2.174 | 1 | 29 | .151 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + Group + ERASpreREC + Group * ERASpreREC

## Tests of Between-Subjects Effects

Dependent Variable: ERASpostREC

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $395.619^{\mathrm{a}}$ | 3 | 131.873 | 12.925 | .000 |
| Intercept | 4.013 | 1 | 4.013 | .393 | .536 |
| Group | 104.173 | 1 | 104.173 | 10.210 | .004 |
| ERASpreREC | 304.198 | 1 | 304.198 | 29.815 | .000 |
| Group * ERASpreREC | 92.512 | 1 | 92.512 | 9.067 | .006 |
| Error | 275.478 | 27 | 10.203 |  |  |
| Total | 33123.000 | 31 |  |  |  |
| Corrected Total | 671.097 | 30 |  |  |  |

Tests of Between-Subjects Effects

| Dependent Variable: | ERASpostREC <br> Partial Eta <br> Squared |
| :--- | ---: |
| Source | .590 |
| Corrected Model | .014 |
| Intercept | .274 |
| Group | .525 |
| ERASpreREC | .251 |
| Group * ERASpreREC |  |
| Error |  |
| Total |  |
| Corrected Total |  |

a. R Squared $=.590$ (Adjusted R Squared $=.544$ )

## Estimated Marginal Means

| 1. Group |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Dependent Variable: |  | ERASpostREC |  |  |
|  |  |  | 95\% Confid | nce Interval |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $31.577^{\text {a }}$ | . 949 | 29.630 | 33.523 |
| Teatment | $33.367^{\text {a }}$ | . 740 | 31.849 | 34.885 |

a. Covariates appearing in the model are evaluated at the following values: ERASpreREC = 31.6452.

## 2. Grand Mean

Dependent Variable: ERASpostREC
95\% Confidence Interval

| Mean | Std. Error | Lower Bound | Upper Bound |
| :---: | :---: | :---: | :---: |
| $32.472^{\mathrm{a}}$ | .601 | 31.238 | 33.706 |

a. Covariates appearing in the model are evaluated at the following values: ERASpreREC $=$ 31.6452.

UNIANOVA ERASpostREC BY Group WITH ERASpreREC /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(ERASpreREC=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(ERASpreREC=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=ERASpreREC Group.
Univariate Analysis of Variance
Between-Subjects Factors

|  |  | Value Label |
| :---: | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

## Descriptive Statistics

Dependent Variable: ERASpostREC

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 30.4167 | 6.44499 | 12 |
| Teatment | 33.5789 | 2.79515 | 19 |
| Total | 32.3548 | 4.72968 | 31 |

Levene's Test of Equality of Error Variances

Dependent Variable: ERASpostREC

| F | df1 | df2 | Sig. |
| :---: | ---: | ---: | :--- |
| 5.690 | 1 | 29 | .024 |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + ERASpreREC + Group

Tests of Between-Subjects Effects
Dependent Variable: ERASpostREC

| Source | Type ill Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $303.106^{\mathrm{a}}$ | 2 | 151.553 | 11.532 | .000 | .452 |
| Intercept | 26.394 | 1 | 26.394 | 2.008 | .167 | .067 |
| ERASpreREC | 229.558 | 1 | 229.558 | 17.467 | .000 | .384 |
| Group | 33.215 | 1 | 33.215 | 2.527 | .123 | .083 |
| Error | 367.990 | 28 | 13.143 |  |  |  |
| Total | 33123.000 | 31 |  |  |  |  |
| Corrected Total | 671.097 | 30 |  |  |  |  |

a. R Squared $=.452$ (Adjusted $R$ Squared $=.412$ )

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## Estimated Marginal Means

| 1. Group |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: |
| Dependent Variable: | ERASpostREC |  |  |  |
|  |  |  | $95 \%$ Confidence Interval |  |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $31.032^{\mathrm{a}}$ | 1.057 | 28.867 | 33.196 |
| Teatment | $33.191^{\mathrm{a}}$ | .837 | 31.476 | 34.905 |

a. Covariates appearing in the model are evaluated at the following values: ERASpreREC = 31.6452.

## 2. Grand Mean

Dependent Variable: ERASpostREC

| Mean | Std. Error | Lower Bound |  | Upper Bound |
| :---: | :---: | ---: | ---: | ---: |
| $32.111^{\mathrm{a}}$ | .669 | 30.741 | 33.481 |  |

a. Covariates appearing in the model are evaluated at the following values: ERASpreREC = 31.6452.

GRAPH
/SCATTERPLOT(BIVAR)=ERASpreREC WITH ERASpostREC /MISSING=LISTWISE.

## Graph



GRAPH /HISTOGRAM (NORMAL) =ERASpreREC.

## Graph

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GRAPH /HISTOGRAM (NORMAL) $=$ ERASpostREC .

Graph

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## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :---: | :---: | :--- | :---: |
| Group | 1 | Control | 15 |
|  | 2 | Teatment | 19 |

Tests of Between-Subjects Effects
Dependent Variable: ERASpreAcaTotal

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $1.204^{\mathrm{a}}$ | 1 | 1.204 | .060 | .808 |
| Intercept | 29398.027 | 1 | 29398.027 | 1462.971 | .000 |
| Group | 1.204 | 1 | 1.204 | .060 | .808 |
| Error | 643.032 | 32 | 20.095 |  |  |
| Total | 30410.000 | 34 |  |  |  |
| Corrected Total | 644.235 | 33 |  |  |  |

a. R Squared $=.002$ (Adjusted R Squared $=-.029$ )

UNIANOVA PostACA BY Group WITH ERASpreAcaTotal
/METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(.05)
/DESIGN=Group ERASpreAcaTotal.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :--- | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

Tests of Between-Subjects Effects
Dependent Variable: PostACA

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $504.246^{\mathrm{a}}$ | 2 | 252.123 | 26.607 | .000 |
| Intercept | 27.742 | 1 | 27.742 | 2.928 | .097 |
| Group | 29.561 | 1 | 29.561 | 3.120 | .087 |
| ERASpreAcaTotal | 484.085 | 1 | 484.085 | 51.086 | .000 |
| Error | 293.754 | 31 | 9.476 |  |  |
| Total | 35614.000 | 34 |  |  | $I$ |
| Corrected Total | 798.000 | 33 |  |  |  |

a. R Squared $=.632$ (Adjusted $R$ Squared $=.608$ )

UNIANOVA PostACA BY Group WITH ERASpreAcaTotal /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY /CRITERIA=ALPHA(.05) /DESIGN=ERASpreAcaTotal Group.
Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label | N |
| :--- | :---: | :--- | :---: |
| Group | 1 | Control | 15 |
| 2 | Teatment | 19 |  |

## Descriptive Statistics

Dependent Variable: PostACA

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 31.1333 | 5.61715 | 15 |
| Teatment | 32.6842 | 4.32117 | 19 |
| Total | 32.0000 | 4.91750 | 34 |



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| Levene's Test of Equality of |
| :--- |
| Error Variances |
| Dependent Variable: PostACA |
| F |
| F df1 |
| .318 |
| df2 |

## Tests of Between-Subjects Effects

Dependent Variable: PostACA

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. | Partial Eta <br> Squared |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $504.246^{\text {a }}$ | 2 | 252.123 | 26.607 | .000 | .632 |
| Intercept | 27.742 | 1 | 27.742 | 2.928 | .097 | .086 |
| ERASpreAcaTotal | 484.085 | 1 | 484.085 | 51.086 | .000 | .622 |
| Group | 29.561 | 1 | 29.561 | 3.120 | .087 | .091 |
| Error | 293.754 | 31 | 9.476 |  |  |  |
| Total | 35614.000 | 34 |  |  |  |  |
| Corrected Total | 798.000 | 33 |  |  |  |  |

a. $R$ Squared $=.632$ (Adjusted $R$ Squared $=.608$ )

GRAPH
/SCATTERPLOT (BIVAR) =ERASpreAcaTotal WITH PostACA /MISSING=LISTWISE.

## Graph


/HISTOGRAM(NORMAL)=ERASpreAcaTotal.

## Graph

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## GRAPH

/HISTOGRAM(NORMAL)=PostACA.
Graph

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```
UNIANOVA NWEAWinter BY Group
    /METHOD=SSTYPE (3)
    /INTERCEPT=INCLUDE
    /CRITERIA=ALPHA(0.05)
    /DESIGN=Group.
```

Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :--- | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

Tests of Between-Subjects Effects
Dependent Variable: Winter

|  | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |  |
| :--- | ---: | ---: | ---: | ---: | ---: | :---: |
| Source | $95.275^{\mathrm{a}}$ | 1 | 95.275 | .388 | .537 |  |
| Corrected Model | 1411594.95 | 1 | 1411594.95 | 5752.115 | .000 |  |
| Intercept | 95.275 | 1 | 95.275 | .388 | .537 |  |
| Group | 8589.158 | 35 | 245.405 |  |  |  |
| Error | 1420684.00 | 37 |  |  |  |  |
| Total | 8684.432 | 36 |  |  |  |  |
| Corrected Total |  |  |  |  |  |  |

a. R Squared $=.011$ (Adjusted R Squared $=-.017$ )

UNIANOVA NWEASpring BY Group WITH NWEAWinter /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Group NWEAWinter Group*NWEAWinter.

## Univariate Analysis of Variance

## Between-Subjects Factors

|  |  | Value Label |
| :--- | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

Tests of Between-Subjects Effects
Dependent Variable: Spring

| Source | Type III Sum of <br> Squares | df | Mean Square | F | Sig. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Corrected Model | $5799.979^{\mathrm{a}}$ | 3 | 1933.326 | 29.844 | .000 |
| Intercept | 348.457 | 1 | 348.457 | 5.379 | .027 |
| Group | 9.442 | 1 | 9.442 | .146 | .705 |
| NWEAWinter | 4740.425 | 1 | 4740.425 | 73.177 | .000 |
| Group * NWEAWinter | 5.391 | 1 | 5.391 | .083 | .775 |
| Error | 2008.192 | 31 | 64.780 |  |  |
| Total | 1418629.00 | 35 |  |  |  |
| Corrected Total | 7808.171 | 34 |  |  |  |

a. R Squared $=.743$ (Adjusted R Squared $=.718$ )

UNIANOVA NWEASpring BY Group WITH NWEAWinter /METHOD=SSTYPE (3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Group) WITH(NWEAWinter=MEAN)
/EMMEANS=TABLES(OVERALL) WITH(NWEAWinter=MEAN)
/PRINT=ETASQ DESCRIPTIVE HOMOGENEITY
/CRITERIA=ALPHA(.05)
/DESIGN=NWEAWinter Group.

## Univariate Analysis of Variance

Between-Subjects Factors

|  |  | Value Label |
| :--- | :--- | :--- |
| Group | 1 | Control |
|  | 2 | Teatment |

Descriptive Statistics
Dependent Variable: Spring

| Group | Mean | Std. Deviation | N |
| :--- | :---: | :---: | :---: |
| Control | 204.38 | 17.542 | 16 |
| Teatment | 197.74 | 12.494 | 19 |
| Total | 200.77 | 15.154 | 35 |

Levene's Test of Equality of Error Variances

| Dependent <br> F Variable: |  | df1 | Spring <br> df2 |
| :---: | ---: | ---: | ---: |
| .038 | 1 | 33 | Sig. |

Tests the null hypothesis that the error
variance of the dependent variable is equal across groups.
a. Design: Intercept + NWEAWinter + Group

Tests of Between-Subjects Effects
Dependent Variable: Spring

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | $5794.589^{\text {a }}$ | 2 | 2897.294 | 46.044 | . 000 | . 742 |
| Intercept | 443.246 | 1 | 443.246 | 7.044 | . 012 | . 180 |
| NWEAWinter | 5411.852 | 1 | 5411.852 | 86.006 | . 000 | . 729 |
| Group | 103.408 | 1 | 103.408 | 1.643 | . 209 | . 049 |
| Error | 2013.583 | 32 | 62.924 |  |  |  |
| Total | 1418629.00 | 35 |  |  |  |  |
| Corrected Total | 7808.171 | 34 |  |  |  |  |

## Estimated Marginal Means

## 1. Group

Dependent Variable: Spring

|  |  |  | $95 \%$ Confidence Interval |  |
| :--- | :---: | ---: | ---: | ---: |
| Group | Mean | Std. Error | Lower Bound | Upper Bound |
| Control | $202.659^{\mathrm{a}}$ | 1.992 | 198.602 | 206.716 |
| Teatment | $199.181^{\mathrm{a}}$ | 1.826 | 195.461 | 202.902 |

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## 2. Grand Mean

Dependent Variable: Spring

| Mean | Std. Error | $95 \%$ Confidence Interval |  |
| :---: | :---: | :---: | :---: |
| Lower Bound | Upper Bound |  |  |
| $200.920^{\mathrm{a}}$ | 1.346 | 198.179 | 203.662 |

a. Covariates appearing in the model are evaluated at the following values: Winter $=195.60$.

GRAPH
/SCATTERPLOT (BIVAR) =NWEAWinter WITH NWEASpring /MISSING=LISTWISE
/TITLE='NWEA '.
Graph


GRAPH
Page 4
/HISTOGRAM(NORMAL) =NWEAWinter.
Graph


GRAPH /HISTOGRAM (NORMAL) =NWEASpring.

Graph

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[^0]:    a. Covariates appearing in the model are evaluated at the following values: Winter $=195.60$.

