MIDDLE SCHOOL TIER 2 VOCABULARY INTERVENTIONS

by

APRIL LYNN HARRISON

A DISSERTATION

Presented to the Department of Educational Methodology, Policy, and Leadership
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Doctor of Education

June 2015

DISSERTATION APPROVAL PAGE

Student: April Lynn Harrison

Title: Middle School Tier 2 Vocabulary Interventions

This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Education degree in the Department of Educational Methodology, Policy, and Leadership by:

Charles Martinez	Chairperson
Keith Hollenbeck	Core Member
Gina Biancarosa	Core Member
K Brigid Flannery	Institutional Representative

and

Scott L. Pratt	Dean of the Graduate School

Original approval signatures are on file with the University of Oregon Graduate School.

Degree awarded June 2015

© 2015 April Lynn Harrison

DISSERTATION ABSTRACT

April Lynn Harrison

Doctor of Education

Department of Educational Methodology, Policy, and Leadership

June 2015

Title: Middle School Tier 2 Vocabulary Interventions

This study investigated a Response to Intervention (RtI) practice at the middle school level using a randomly assigned Tier 2 vocabulary intervention. Although RtI research has documented improvement in the academic performance of elementary-aged students, RtI research in support of improved student performance in secondary schools is not prevalent. This study randomly assigned 86 sixth, seventh, and eighth graders into either the treatment or control condition. The purpose was to investigate whether middle school vocabulary instruction impacted vocabulary and/or comprehension growth for identified at-risk students. The experimental condition showed significant results for vocabulary (p=.011) but not comprehension (p=.657) on easyCBM outcome measures. Results are discussed in relation to teaching vocabulary independent of teaching comprehension directly.

CURRICULUM VITAE

NAME OF AUTHOR: April Lynn Harrison

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon, Eugene
Southern Oregon University, Ashland
University of Nevada, Reno

DEGREES AWARDED:

Doctor of Education, 2006, University of Oregon
Masters, Education, 2006, Southern Oregon University
Bachelors, Journalism, 1992, University of Nevada, Reno

AREAS OF SPECIAL INTEREST:

Special Education

PROFESSIONAL EXPERIENCE:

Instructor, Southern Oregon University, 2006 – current

Director of Special Education, Rogue River School District, 2014 – current

Special Education Teacher, Eagle Point School District, 2008 – 2011

Special Education Teacher, Astoria School District, 2006 – 2008

GRANTS, AWARDS, AND HONORS:

Guanajuato graduate student of the year, Southern Oregon University, 2006

American Association of University of Women Outstanding Woman Graduate, Southern Oregon University, 2006

ACKNOWLEDGMENTS

I would like to express the deepest appreciation to my advisor, Dr. Keith Hollenbeck. Without his guidance, patience, and persistent help this dissertation would not have been possible. Thank you for I would also like to thank the rest of my committee members; Dr. Charles Martinez, Dr. Brigid Flannery, and Dr. Gina Biancarosa. Their excellent advice and feedback allowed me the opportunity to successfully complete my dissertation.

I would like to thank Dr. Gregory Gassman for being a fabulous mentor and friend to me over the past eight years. His assistance and guidance in getting my doctoral program started is the main reason I am able to write this acknowledgement at all.

I would also like to express my sincere gratitude to all of the EMPL faculty members for their help and support. Specifically, I would like to thank Angela Perrin for her positive energy and encouraging emails, in addition to keeping me on-track with requirements and deadlines. In addition, Dr. Nancy Heapes and Dr. Jo Smith were fabulous cohort advisors and provided all of us much needed supports along the way.

Finally, I would like to thank my cohort members for their support and positive energy. I would like to specifically thank Dr. Jaclyn Brody and Dr. Brock Rowley. I appreciated their support and unwavering understanding through my moments of doubt. Thanks to both of you for sticking with me. Clam gun forever.

DEDICATION

I am dedicating this dissertation to my husband, Blair. His unwavering support, patience, and love throughout this three year journey gave me the motivation and strength to keep going. When I felt like giving up, his encouragement and personal belief in my abilities gave me the strength I needed to persevere. I am forever grateful for having him in my life.

TABLE OF CONTENTS

Chapter Page

Chapter Page

Chapter Page

LIST OF TABLES

Table Page

CHAPTER I

MIDDLE SCHOOL TIER 2 VOCABULARY INTERVENTIONS

Fletcher and Vaughn (2009) defined the purpose of a Response to Intervention (RtI) model as improving academic and behavioral outcomes for students. The traditional RtI model, found primarily at the elementary level, is designed to assist students before they fail. Stahl, Keane, and Simic (2012) identified RtI as a tool that allows students immediate access to support. Restori, Gresham, and Cook (2008) explained RtI as an opportunity for educators to provide academic support proactively, decreasing the likelihood of academic problems and preventing patterns of academic failure. Johnson and Smith (2008) agreed, stating an RtI framework provided educators the opportunity to align instruction, assessment, and interventions based on students' progress.

Instruction, assessment, and intervention alignment are frequently found at the elementary level and would be vitally important in middle school and high school settings. However, supporting research has been limited due to barriers in secondary educational settings. Vaughn and Fletcher (2012) indicated secondary RtI research be implemented with a slightly different focus than that of elementary RtI models, looking at content comprehension and adjusting the duration and frequency of interventions. In contrast, elementary levels offer a set timeframe for interventions, focusing primarily on the first three pillars of reading: (a) phonemic awareness, (b) phonics, and (c) fluency.

Three Tiers of RtI

RtI is a preventative model predominantly designed with three tiers of instruction, however, four and five tier models are beginning to surface. Students systematically

move through the tiers of instruction based on performance. In a preventative model, the assumption is that 80% of students respond to Tier 1 instruction, 15% of students respond to Tier 2 interventions, and 5% need Tier 3 interventions (Fletcher & Vaughn, 2009; Hoover & Love, 2011; Murakami-Ramalho & Wilcox, 2012).

Tier 1 instruction. The classroom teacher conducts Tier 1 instruction in the general education classroom. Instruction takes place throughout the school year using evidence-based curriculum. The National Center on Response to Intervention (NCRTI; 2010) identified Tier 1 instruction (also referred to as primary prevention) as the core curriculum and standardized instructional practices used for all students. Universal screenings take place three to four times throughout the school year during Tier 1 instruction (Hoover & Love, 2011). D. Fuchs, L. Fuchs, and Compton (2012) described universal screenings as a brief test administered to all students with established cut scores. Cut scores, or a cut point, are defined as a score on the screening assessment that determines if a student is in need of additional intervention supports (NCRTI, 2010). Fletcher and Vaughn (2009) identified universal screening tools as a key component in an RtI model for identifying students with academic difficulties. As Murakami-Ramalho and Wilcox (2012) discovered, a universal screening tool must go hand-in-hand with instructional and curricular supports for teacher and staff. Universal screenings in Tier 1 play a critical role in identifying students who are nonresponders to the general education curriculum and instruction, allowing timely implementation of secondary interventions (Fuchs, D. et al, 2012). If a student is a nonresponder to Tier 1 instruction, based on the universal screening measures and/or procedures, implementation of Tier 2 interventions will take place to assist students' ability to meet grade level academic expectations.

Tier 2 interventions. Classroom teachers or instructional assistants conduct Tier 2 interventions. Stahl, Keane, and Simic (2012) pointed out the design of Tier 2 interventions do not supplant Tier 1 instruction, but supplement it. Supplemental instruction supports specific student needs uncovered during Tier 1 instruction and assessment (Hoover & Love 2011). NCRTI (2010) identified Tier 2 interventions (also referred to as secondary prevention) as small-group instruction using evidenced-based interventions for a specific duration or frequency. With Tier 2 interventions, D. Fuchs, L. Fuchs, and Stecker (2010) emphasized the importance of properly training school personnel because Tier 2 is where the promotion of new skill acquisition takes place that will aid the student to return to Tier 1 instruction. Universal screenings and progress monitoring take place in Tier 2. Progress monitoring measures changes in targeted academic or behavioral skills (Mellard, McKnight, & Woods, 2009). Hoover and Love (2011) discussed the importance of familiarizing staff with properly implementing universal screenings and progress monitoring tools. Progress monitoring begins with a baseline assessment. Ideally, classroom teachers or instructional assistants monitor student progress on a weekly basis. If a student does not respond positively to Tier 2 interventions, based on universal screenings and progress monitoring assessments, implementation of Tier 3 interventions take place to assist students' ability to meet grade level academic expectations.

Tier 3 interventions. In many RtI models, Tier 3 interventions are analogous to special education services (Fuchs, L. & Fuchs, D., 2007). L. Fuchs, and D. Fuchs (2007) recommended Tier 3 be used for special education services to assist in implementation of RtI because it keeps the line between general education services and special education

services clearly defined, with only one tier between general education and special education supports. NCRTI (2010) defined Tier 3 interventions (also referred to as tertiary preventions) as the most intense level of interventions, individualized for each student's area of academic or behavioral need. Special education teachers or highly trained school staff should conduct Tier 3 interventions. A study conducted by NCRTI (2011) identified the importance of having the most qualified instructors conducting Tier 3 interventions. At this level of intervention, universal screenings and weekly progress monitoring continue and individualized progress monitoring begins. If a student does not respond positively to Tier 3 interventions, based on universal screenings, progress monitoring assessments, and individualized program assessments, the student support team will meet to shift the current academic plan and discuss implementing new or additional interventions. Examples of additional interventions could be one-to-one instruction, increased intensity and time of interventions, and the possibility of special education services if Tier 3 is not special education.

RtI Research at Elementary Schools

Beach and O'Connor (2013) identified RtI as an early intervention framework. Consistent with this view, the National Research Center on Learning Disabilities, commissioned by the U.S. Department of Education and the Office of Special Education Programs, evaluated the implementation of RtI in elementary schools (Mellard, Frey, & Woods, 2012). Elementary RtI research closely examines optimal measurement tools and intervention strategies. Beach and Connor (2013) conducted a longitudinal study to determine the most effective measurement and criteria combination to predict reading difficulties. They found the combination of oral reading fluency measures, word

identification fluency measures, and the Woodcock Reading Mastery Test identified reading difficulties with 88.9% accuracy. Conversely, Ritchey, Silverman, Montanaro, Speece, and Schatschneider (2012) did not find significant effects ($F = 1,586$, $p = .242$) with the utilization of fluency measures to identify short-term growth and discussed a need for future research to examine fluency and accuracy measures using instructional text in the interventions.

A search for RtI elementary school research conducted since 2010 found over 17,000 publications. Even in such a well-researched field as elementary RtI, findings can be difficult to replicate. Pool, Carter, and Johnson (2012) recognized each RtI model will be different due to specific strengths and challenges found within individual schools. Spear-Swerling and Cheesman (2011) discovered that once a school identified an RtI model to best fit their resources additional challenges were uncovered. They found schools with intact RtI models faced threats to validity due to inconsistent implementation of interventions. In support of these findings, Pool, Carter, and Johnson (2012) discovered that as schools adopted RtI models, simply implementing the interventions are not proving to be enough. To facilitate effective implementation of RtI, Stahl, Keane, and Simic (2012) suggested completing a school-wide readiness survey as a first step to determine any gaps in school supports or understanding of the RtI process and expectations. Spear-Swerling and Cheesman (2011) questioned the ability of general education and special education teachers to actually implement RtI interventions. Their study uncovered that many teachers lacked pedagogical content knowledge necessary to teach reading, in addition to being naïve in regards to research-based programs and interventions available to assist with implementing supports within an RtI model.

RtI Research at Middle Schools

Despite advances in understanding RtI processes and design at the elementary school level, research findings are not as prevalent in support of RtI at the secondary level (middle schools and high schools). While the elementary school model is the basis for most research implemented at a secondary school level, King, Lemons, and Hill (2012) questioned the efficacy of attempting to implement an elementary school RtI model in a secondary school setting due to lack of research support. Prewett et al. (2012) agreed, stating the efficacy of RtI in secondary schools lacks research.

Faggella-Luby and Wardwell (2011) identified RtI as being grounded at the elementary level, causing challenges when such models are applied to middle school settings. Vaughn et al. (2010) agreed with this last point, stating "although much is known about effective instruction to assist young students' transition from nonreaders to readers, less is known about how to effectively remediate struggling readers at the secondary level" (p. 13).

Middle school practitioners interested in applying tiered reading interventions utilizing an RtI approach often rely primarily on research conducted at elementary levels to guide their way. Prewett et al. (2012) conducted an exploratory, multi-phased study designed to understand the conceptualization and implementation of RtI in middle schools. They identified six key areas that were found to be in place when implementing an effective RtI model in secondary settings: (a) screening practices (n=40), (b) progress monitoring practices (n=40), (c) multilevel instructional system (n=40), (d) fidelity checks (n=20), (e) data-based decision-making (n=20), and (f) cultural and contextual factors (n=12). Prewett et al. (2012) found the effectiveness of an RtI model in middle

schools to be uncertain at best. Sansosti, Goss, and Noltemeyer (2011) supported this theory and added that more research is needed to provide information on what RtI may look like at the secondary level. The lack of guidance has left secondary educators in a state of confusion when attempting to implement RtI.

Some RtI studies conducted at secondary school settings have reported positive results. Graves, Duesbery, Pyle, Brandon, and McIntosh (2011) reported RtI Tier 2 and Tier 3 reading interventions in an urban classroom improved fluency and comprehension outcomes for sixth graders struggling with reading skills (oral reading fluency mean increase from 88.5 to 108.3 for treatment group). An empirical study conducted by Faggella-Luby and Wardwell (2011) used multiple reading measures and found interventions implemented for students in middle school can be effective, as students who received interventions showed an increase in mean scores in proportion to students not receiving interventions. Vaughn et al.'s (2010) study found students who received Tier 2 interventions in reading skills (word attack, spelling, comprehension, and phonemic decoding) outperformed students in the comparison group who received Tier 1 instruction only (word attack d=+0.15, spelling d=+0.22, reading comprehension d=+0.06).

Even though there have been indicators of RtI success at the middle school level, there is a need for more research. Middle school students who have struggled in elementary grades enter secondary school with well-established academic deficits (Fuchs, L., Fuchs, D., & Compton, 2012). King, et al. (2012) summarized research conducted in an RtI model at the secondary level and found modest improvements with student success, however, they also recognized RtI has not had near the impact found at the

elementary level. King, et al. (2012) also suggested interventions would need to use innovative ideas to assist these struggling secondary students. In fact, initial work is beginning to indicate a need for an adjusted RtI model at the secondary level due to challenges not found to elementary settings. The adjusted model and middle school challenges are described later in this paper. The success of RtI in secondary schools relies on advocacy within schools, training and professional development for staff, and technical assistance for teachers (Sansosti, Goss, & Noltemeyer, 2011).

In elementary settings, students receiving RtI tiered interventions are focusing on the first two big ideas of reading, phonemic awareness and alphabetic principle, while upper elementary students pursue fluency, vocabulary, and comprehension at a basic level (Scammacca, Roberts, Vaughn, Edmonds, Wexler, Reutebuch, & Torgensen, 2007). In middle school, students are expected to have phonemic awareness and alphabetic principle mastered to a level in which reading focuses on comprehension and content knowledge (Feuerborn, Sarin, & Tyre, 2011). However, if students struggle with foundational reading skills, interventions are provided to develop phonemic awareness, alphabetic principle, and fluency. If students have not mastered the mechanics of reading, and as content vocabulary increases, comprehension may be blocked. This forces middle school interventions to look different from elementary interventions. Providing students the skills and strategies to determine vocabulary meaning in a variety of contexts supports reading comprehension. Therefore, it is in the best interest of middle school students to build vocabulary skills that will in turn increase comprehension in a variety of content.

A needed shift in intervention design for middle school students appears

necessary. L. Fuchs, D. Fuchs, and Compton (2012) reported empirical and clinical evidence indicated a multi-tiered instructional approach should be different for older students. They described a flipped version model of the elementary school RtI model, with severely discrepant students placed immediately in Tier 3 interventions instead of moving through interventions developed in Tier 1 and Tier 2. Vaughn et al. (2010) conducted a study that implemented a framework for school-wide reading practices linked across content area that is inconsistent with the current elementary RtI model. Using a school-wide framework may prove to be a more effective practice for middle school students. Fuchs et al. (2012) supported Vaughn's framework, stating a modified RtI model is best for enhancing comprehension and vocabulary skills for secondary students.

Middle School Vocabulary and Comprehension Research

As students advance from elementary school settings to middle school settings an increased focus on vocabulary becomes critical to aide in comprehension of content area materials (Feuerborn et al., 2011). Results from randomized studies focused on the question of improving reading achievement for older students who struggle with reading have been discouraging (Roberts, Vaughn, Fletcher, Stuebing, & Barth, 2013). Prewett et al. (2012) found limited evidence in support of RtI implementation in a preventive framework for students at risk learning course content, such as mathematics and science.

RtI Purpose in Middle School Settings

At the elementary level, RtI provides early intervening and assistance with special education eligibility. At the secondary level, the focus of RtI is remediation and supplemental support for specific content. King, et al. (2012) stated secondary RtI

models have exhibited variability due to a need for experimentation with various approaches to targeted instruction and data gathering in the content areas. Explicit vocabulary and comprehension strategies are necessary interventions (Pyle & Vaughn, 2012). As students at the elementary level receive interventions to catch up, students at the middle school level must receive interventions targeting acquisition and maintenance of skills in a complex learning environment. For example, D. Fuchs et al. (2010) identified the implementation of Tier 2 interventions take place for a specific amount of time over a short period of time.

As research delved into secondary RtI, findings indicate this model may only be effective at an elementary school level, which L. Fuchs et al. (2012) acknowledged, stating that a different approach to strategies and instruction may be required for older students. Roberts et al. (2013) also recognized a shift in the current RtI model may benefit older students, theorizing one student may require a year-long intervention and another student may require longer, and more intense and sustained interventions. Middle school RtI models need to allow for this type of differentiation. As this shift of thinking expands, the foundation of RtI will need to shift, allowing middle school students the same academic support opportunities given to elementary students. Researchers have recognized additional studies, specifically looking at a revised RtI model, is necessary and will be the next advancement in the development of RtI for students in upper grades (Vaughn & Fletcher, 2012).

Barriers in RtI Middle School Research

As there have been some indicators of success with RtI models at the middle school level, there have also been challenges unique to middle school education

environments. Research addressing specific needs for middle school students found difficulty defining their results due to natural barriers in the research process. One of these natural barriers is how middle school class schedules are designed, generally in specified periods or blocks of time. Prewett et al. (2012) found fitting a layered reading intervention system, such as an RtI model, into middle school schedules to be an initial barrier to conducting research. Additional challenges exist when applying the RtI model to the secondary school level, including challenges related to staffing and training. Faggella-Luby and Wardwell (2011) also identified secondary RtI studies are impacted by attrition, a major concern for middle school studies, and more deeply weakened by the use of quasi-experimental and/or posttest only designs. Roberts, et al. (2013) conducted a reading study and reported studies implemented on a smaller scale are better able to reliably measure the conditions and fidelity of the study, areas where large-scale studies often struggle. These barriers are discussed in detail in the next section. To complicate things further, Stanovick (1986) explained that reading development at the middle school level has various causal relationships that shift and need to be understood when determining how to provide supports to struggling students.

Implementation Barriers in RtI Secondary School Research

Those implementing RtI at the secondary school level need to consider the length of the interventions as well as the design of the intervention. Smaller group size, additional length of intervention instruction, and intensified instruction may all be effective tools; however, it is not clear which interventions or combination of interventions are most effective, and under what circumstances. Roberts et al. (2013) identified a need for additional studies to determine the benefits of instructional intensity

(length of the intervention) versus instructional programming (design of the intervention). Pyle and Vaughn (2012) recognized a need for RtI studies to identify appropriate design and implementation of reading interventions for secondary students. Multiple factors, discussed next, must be considerations in the development of secondary intervention development.

Content comprehension. Content reading instruction of students in middle school require in-depth knowledge and therefore require strategies not readily found in current RtI models. Feuerborn, Sarin, and Tyre (2011) supported this idea and stated the primary goal in elementary school interventions is the mastery of basic skills where the primary goal of secondary interventions is the mastery of content area knowledge. Vaughn and Fletcher (2012) indicated reading interventions for secondary students should continue throughout schooling using text that supports content learning. Vaughn and Wexler (2011) reported that middle school students struggle with word meaning and background knowledge necessary to connect fluency with comprehension of content. The need for connecting with content in meaningful ways indicates struggling readers may face reading challenges in all coursework. Edmonds et al. (2009) recognized the need for secondary teachers to identify the difference between the ability to read a passage versus comprehending the passage in order to assist students in overcoming this challenge.

Content teachers. Elementary school teachers are responsible for teaching all subjects: reading, mathematics, social studies, science, writing, art, and increasingly more often physical education and music. In contrast, middle school teachers are content teachers teaching one specific specialized topic and do not generally teach outside their

discipline. Because of their specialization in content, middle school teachers have not had the training required to provide specific literacy support. Feuerborn, Sarin, and Tyre (2011) stated content teachers lack the training and expertise needed to provide instruction to students with specific skill deficits in reading. Shifting the mindset of teachers may offset this gap in knowledge. One approach is to teach middle school teachers to view their task as reducing and eliminating academic challenges (Fuchs, L., Fuchs, D., & Compton, 2012).

Scheduling. L. Fuchs et al. (2012) found researchers avoid conducting studies in secondary schools due to scheduling barriers. Prewett et al. (2012) supported this finding. Their study found the design of secondary school schedules to be an initial barrier to implementing a multilevel intervention system and reported that middle schools face logistical challenges when trying to incorporate individualized small group instruction into the existing scheduling system. Goss and Noltemeyer (2011) found special education directors identified time as the largest hindrance to providing RtI interventions due to the inflexibility of student schedules. The common approach in middle schools is the use of elective periods or an added class period to provide RtI interventions (Prewett et al., 2012); however, these options often create new barriers, such as preventing students receiving interventions from participating in elective classes. NCRTI (2011) reported some schools are beginning to provide extended learning outside of the scheduled school day. A barrier created from this option is the inability to hold students accountable for attendance outside of regular school hours.

Fletcher and Vaughn (2009) also recognized that implementing RtI at the secondary level is a daunting task and pinpoint current limitation in research studies and

effective progress-monitoring tools as two elements causing barriers. In their qualitative study, where interviews were conducted to gain special education directors' perspective on the effectiveness of RtI in a secondary setting, they identified the largest barriers to RtI practices were inflexible teachers and school schedules.

Progress monitoring and instructional fidelity. Another barrier is the difficulty with continuous progress monitoring. Most secondary students visit a minimum of four teachers throughout the day. Access to students for progress monitoring is challenging and often unstable. Progress monitoring, occurring in Tier 2 and Tier 3 of RtI models, is a vital component of the system. D. Fuchs, L. Fuchs, and Compton, (2012) stated progress monitoring assessments in Tier 2 determines if students have responded to the applied interventions and then schools use these data to determine if students are ready to return to Tier 1 instruction, need continued Tier 2 support, or need intensified supports in Tier 3. Without consistent progress, monitoring these decisions cannot be determined.

Lack of consistency with instructional implementation has also been challenging. Roberts et al. (2013) identified the need to provide instructional interventionists ongoing professional development for a sustained RtI model at the secondary level. Implementation of training and frequent fidelity checks on RtI interventions may overcome these challenges with proper amounts of dedicated time and allocated funds. A study conducted by Prewett et al. (2012) found schools with standardized RtI models ensured all staff members received professional development specific to instructional strategies.

Monetary concerns. Stahl, Keane, and Simic (2012) pointed out the challenge with implementing an RtI model in a time of budget constraints and indicated future

research needs to investigate opportunities to overcome this challenge. Denton (2012) agreed adding that implementation may be difficult and expensive; however, these interventions may improve students reading ability and in turn reduce the risk of negative life consequences. With the potential for improvement, secondary schools are experimenting with creative solutions to the monetary barrier. NCRTI (2011) discovered some schools are choosing to redesign staff responsibilities, such as creating interventionist positions or requiring content teachers to teach an intervention period.

Word Generation

Word Generation was developed in 2005 through a partnership with the Strategic Education Research Partnership (SERP) and Boston Public Schools (BPS) due to an urgent need in the district for research in relation to middle school literacy (Snow & Lawrence, 2011). SERP researchers conducted interviews with teachers and administrators, observed classroom instruction, and analyzed BPS assessment data. After all information was compiled, student understanding of vocabulary across content areas was determined to be the needed area of focus. From this information, *Word Generation* was developed. Snow and Lawrence (2011) identified three areas of focus for the *Word Generation* program: (a) building knowledge of high frequency academic vocabulary at the student level, (b) building regular effective strategies in vocabulary instruction at the teacher level, and (c) developing collaboration amongst content areas at the school level. *Word Generation* was designed as a school-wide Tier 1 support, not as a Tier 2 or Tier 3 intervention.

In 2007 BPS launched the *Word Generation* program in six self-selected schools. Four schools were middle schools and two schools were K-8th grade schools. Word

Generation was only used in the 6th, 7th, and 8th grade classes in each school. There were 287 students in the treatment group and 151 students in the comparison group. The majority of students in both groups were from low income homes. From this initial launch, the program was refined in the areas of intensity of implementation and length of intervention.

A quasi-experimental study utilizing a pre-test post-test design was conducted in 2008 with 6th, 7th, and 8th grade students. Seven self-selected BPS participated in the study with 1183 students in the treatment group and 388 students in the comparison group. This study resulted in an average effect size of 0.11. During this study, BPS underwent multiple district challenges, potentially impacting the results of the *Word Generation* study (high absenteeism due to H1N1 flu, school closings, and school restructuring). The results from implementation occurring during the 2008-2009 school year showed a strong correlation between effect size (0.49) and the level of implementation (Snow & Lawrence, 2011).

Summary of Literature

Based on the literature reviewed, a research gap in middle school RtI was uncovered. The research gap surrounding middle school intervention appears critical to address, as nationwide there is a need for developing interventions based on the specific needs of middle school readers. Faggella-Luby and Wardwell (2011) reported 70% of eighth grade students in public schools perform below grade level in reading based on data collected by the National Assessment of Educational Progress (NAEP). Identifying this need is the first step, but working with students at the secondary level offers challenges distinct from those found in the elementary grades.

Studies relying on outside sources, such as grant support or one-time funding supports, make replication difficult. Stahl, Keane, and Simic (2012) identified a need for future RtI research to rely on naturalistic settings, allowing for a realistic picture of RtI models in a secondary setting. An example of this setting would be to implement an RtI model utilizing current available resources rather than rely on limited grant funding or research supports.

A review of the literature found research findings to be sporadic, with both positive and negative outcomes present. Positive findings in urban settings were present and yet still noted hesitations for long-term outcomes due to the limited number of Tier 2 interventions available to meet the demands of secondary reading expectations (Graves et al., 2011). The literature routinely called for additional research to be conducted in secondary settings, specifically addressing the need for content instruction supports rather than focusing on basic reading skills.

With limited researched evaluation data available, it was decided to use a different lens in identifying potential Tier 2 interventions. *Word Generation* was designed as a school-wide Tier 1 intervention, however, developers support using the intervention to fit the needs of the school. Therefore, *Word Generation* became a viable option for a Tier 2 intervention. Limited research for *Word Generation* is available, however, the results show promise for future research and practice. *Word Generation* has been implemented in Boston Public Schools since 2007, designed to assist English Language Learners with content vocabulary development in middle school. Five factors made *Word Generation* a viable option for a Tier 2 intervention: (a) the program is available at no cost to school districts, (b) all teacher materials and student materials are

available for download, (c) *Word Generation* requires minimal set-up or training, (d) the program can be implemented without the addition of staff, and (e) the program design is flexible to meet varying middle school schedules.

It is evident from this review additional research regarding RtI Tier 2 vocabulary interventions in middle school settings is needed. This study was undertaken to measure middle school students' content comprehension growth within the context of an RtI model using a vocabulary intervention that links content areas. To achieve this purpose, three research questions were proposed: *Is there a significant difference in vocabulary development in assessment given to the experimental group? Is there a significant difference in comprehension performance between students receiving RtI Tier 2 vocabulary interventions and students receiving traditional school supports? Is there a significant different in vocabulary performance between students receiving RtI Tier 2 vocabulary interventions and students receiving traditional school supports?*

CHAPTER II

METHOD

I reviewed extant data from an experimental study focused on middle school students (6^{th}, 7^{th}, 8^{th}) growth in reading comprehension and vocabulary development utilizing a Response to Intervention (RtI) framework specifically designed to meet the needs of middle school students. Three specific middle school needs were addressed: (a) allowing students to receive interventions without interruption to core classes, (b) allowing students to receive intervention without interruption to chosen electives, and (c) providing interventions during school hours instead of before or after school. The original study utilized a random assignment to treatment design based on student test scores on easyCBM reading assessments. May 2014 easyCBM Multiple-choice Reading Comprehension (MCRC) reading assessment scores were used to identify the subjects of the study. Students scoring in the strategic range were randomly assigned to either the Experimental group or the Control group. A pretest, posttest experimental/control group design was implemented at Scenic Middle School (SMS) located in Southern Oregon. The assessment tools for this pretest, posttest study were the easyCBM MCRC and easyCBM Vocabulary (Vocab) scores. The May 2014 easyCBM MCRC reading assessment served as the pretest and identified participants. Language arts teachers administered the easyCBM reading assessment and trained through easyCBM online tutorials. Students scoring in the strategic range were chosen to participate in the study. The easyCBM reading assessment data from January 2015 was given as the posttest to see if differences existed between scores once interventions were completed. An analysis of covariance (ANCOVA) was conducted to determine if a significant difference existed

on their January mean scores, using their May scores as the covariate.

The SMS vice-principal randomly assigned students scoring in the strategic range on the easyCBM assessment from spring 2014 into academic lab classes, with students divided by grade level. Students were assigned numbers and the numbers were randomly assigned to the experimental group or the control group. The vice-principal was new to SMS and was chosen as the person to assign students due to her lack of potential student-specific bias. After assignment, student's easyCBM MCRC scores were analyzed to make sure the Experimental and Control groups were not significantly different. The Experimental group had a mean score of 13.439, with a standard deviation of 3.091. The Control group had a mean score of 13.267, with a standard deviation of 3.201. No significant differences existed between the Experimental and Control group's mean scores on their easyCBM MCRC scores [$t(84) = (.254)$, $p = .800$].

The vice-principal selected the teachers to participate in the study by asking for their participation. The original three teachers asked were the three that conducted the interventions with the experimental group.

Interventions took place for 12 weeks. The Experimental group received instruction using the program *Word Generation* focusing on English language arts, mathematics, social studies, science, and writing instruction through weekly themes. The Control group received support using the traditional model in place at SMS, consisting of assignment and homework support. No direct instruction was provided to the Control group. Both interventions are described later in this chapter.

Importantly, students receiving special education services (Tier 3 interventions), using Language! as the core program, did not participate in this study. In addition,

students identified as English Language Learners who scored in the strategic range on the easyCBM reading assessment did not participate in the study. Special education and ELL were removed because these subgroups were already participating in academic interventions.

Design

As noted above, the original study used a pretest, posttest control group design. I analyzed easyCBM MCRC reading assessment gains and easyCBM Vocab gains by grade level for a more accurate determination of progress for the district. The design is shown in Table 1.

Table 1

Pretest-posttest Design

Groups	6^{th}, 7^{th}, 8^{th} grade (Pretest)	Tx	6^{th}, 7^{th}, 8^{th} grade (Posttest)
Experimental Group (R)	easyCBM reading	X	easyCBM reading
Control Group (R)	easyCBM reading	O	easyCBM reading

Setting and Participants

School description. SMS is a public middle school with 763 students located in a rapidly growing community in Southern Oregon with a population of 16,500. Student population consists of: White, non-Hispanic (79%); Hispanic (13%); Multi-Ethnic (7%); American Indian/Alaskan Native (1%); Asian/Pacific Islander (1%); Black (.3%). According to the Oregon Department of Education, average populations in the state of Oregon consist of: White, non-Hispanic (64%); Hispanic (22%); Multi-Ethnic (5%); American Indian/Alaskan Native (2%); Asian/Pacific Islander (5%); Black (2%). As of

fall 2015, all students at SMS are provided a free and reduced lunch. Thus, no free-and-reduced data was available for the Experimental and Control participants.

Study description. Of the 87 total study participants, 29 were 6th graders, 30 were 7th graders, and 28 were 8th graders. All 87 scored in the strategic range on the easyCBM MCRC reading assessment given in May 2014. The school district provided basic participant demographic data for the students who participated in the study. Participants were predominantly White (92%) and more males than females had at-risk scores. Table 2 provides the complete demographic breakdown for both the Control and Experimental groups.

Table 3 provides the days present, enrolled, and absent for both the Experimental and Control group. The Experimental and Control groups did not significantly differ on (a) days present [$F(1, 85) = 1.403$, $p = .239$], (b) days enrolled [$F(1, 85) = 1.072$, $p = .303$], (c) days absent [$F(1, 85) = 0.286$, $p = .594$], and overall attendance percentage [$F(1, 85) = 0.390$, $p = .534$].

Students receiving special education services (Tier 3 interventions), using Language! as the core program, did not participate in this study. Students identified as English Language Learners who scored in the strategic range on easyCBM MCRC did not participate in the study. Special education and ELL were removed because these subgroups were already participating in academic interventions.

Variables

Independent variable. Intervention classes were the independent variable. The Experimental group consisted of one intervention class at each grade level, for three intervention classes and 42 students. Students in the Control group were placed in

traditional academic lab classes, for 45 students, with one class at each grade level. The Experimental group and the Control group received Tier 1 instruction (general curriculum). The Experimental group received Tier 2 vocabulary interventions in reading, mathematics, social studies, science, and writing. The Control group received traditional supports through academic lab, consisting of support on assignments and homework. No direct intervention was applied to the Control group.

Table 2

Demographics

		Group		Total
		Control	Experimental	
Grade	6th	14	15	29
	7th	16	14	30
	8th	15	13	28
Sex	Female	18	21	39
	Male	27	21	48
Ethnicity	Hispanic/Latino	5	2	7
	Non Hispanic	40	40	80
Race	Other	5	1	6
	Native Hawaiian/Pacific Islander	0	1	1
	Two or more	4	0	4
	White	36	39	75
	American Indian/Alaskan	0	1	1

Table 3

Attendance

		N	Mean	Std. Dev	Min	Max
Days Present	Experimental	42	159.476	15.105	76.000	169.000
	Control	45	162.378	6.261	144.000	169.000
Days Enrolled	Experimental	42	167.881	13.733	81.000	170.000
	Control	45	170.000	0.000	170.000	170.000
Days Absent	Experimental	42	8.405	7.372	1.000	38.000
	Control	45	7.622	6.261	1.000	26.000
Attend%	Experimental	42	94.979	4.329	77.647	99.412
	Control	45	95.516	3.683	84.706	99.412

Intervention instruction took place for 12-weeks, beginning Monday, 9/8/14 and ending Thursday, 12/4/14. No interventions occurred during the week of Thanksgiving (9/24/14 – 9/28/14). The district conducted intervention training during the last week of August, provided to the three teachers in the experimental group.

Experimental intervention. Strategic Education Research Partnership (SERP) and Boston Public Schools co-developed *Word Generation*. The *Word Generation* instructional series assists middle school students in accessing content knowledge through teaching of academic vocabulary. Vocabulary development is the primary focus, however, the curriculum also addresses reading accuracy, fluency, syntax, background knowledge, and comprehension issues. Lawrence, White, and Snow (2010) conducted a quasi-experimental study in 2007. Results showed students participating in the Word

Generation program for 20-22 weeks gained two years of vocabulary. Lawrence et al. (2010) conducted a follow-up longitudinal study one year after the initial study. Results from the follow-up study showed students maintained gains made during the *Word Generation* intervention.

Twenty minutes of *Word Generation* instruction four days per week was the independent variable, consisting of vocabulary development in reading, mathematics, science, social studies, and writing for the Experimental group. Appendix A shows an example of the *Word Generation* curriculum. *Word Generation* consists of three instructional series. Series 1 topics were designed students in sixth grade. Series 2 topics were designed for students in seventh grade. Series 3 topics were designed for students in eighth grade. Each series consists of 24 weekly topics. The suggested schedule was designed for lessons to take place five days per week, covering four academic areas: English language arts take up two class sessions with science, mathematics, and social studies each having one class session. Word Generation provided a sample intervention design consisting of five days per week. However, developers encouraged shifts in intervention scheduling to accommodate the variety of middle school settings, varying student population needs, and varying scheduling opportunities.

For the SMS study, interventions were 20 minutes per day, four days per week (Mondays, Tuesdays, Thursdays, and Fridays), focusing on English language arts, mathematics, social studies, science, and writing. The class block was scheduled for 30 minutes. The additional 10 minutes during the class was given to students to check assignment progress and gain clarification on homework assignments. For the 20 minutes of intervention, specific content areas were addressed each day. Monday's class

focused on reading; Tuesday's class focused on mathematics or social studies; Thursday's class focused on science, and Friday's class focused on writing. During week three of the study, the teachers of the Experimental group noticed two of the three mathematical concepts were not functional for the students to address. They found it was not aligning with concepts being taught in the math curriculum at that time. Due to the misalignment with the mathematical concepts, social studies instructional materials were provided during week 4 and the teachers were given the choice of implementing mathematics or social studies during Tuesday instructional periods. The decision to use math or social studies was determined by the mathematical activity being presented in *Word Generation* each week and determining if it aligned with previous or current classroom instruction. If no alignment existed, social studies instruction was provided.

Control intervention. The Control group received 30 minutes of traditional supports, four days per week. Traditional support took place during the last period of the school day, referred to as academic lab. The traditional model divides student by grade level and places them into these academic lab classes. Students are not assigned based on academic ability or academic need for support. Students scoring in the Oregon Assessment of Knowledge and Skills (OAKS) strategic range, grade level range, and exceeding grade level range are placed together in academic labs. There is no prescribed curriculum or goals set for academic lab classes. Students are required to bring course assignments and homework to class. Essentially, academic lab is an opportunity for students to complete homework and get clarification on assignments as needed.

For all three grades, academic lab begins with students checking their grades and checking on assignments due. This may mean students talk to their content area teachers

or check their grades on-line. Each teacher was assigned to oversee an academic lab class. This time was designed for allow students to complete homework and/or receive clarification on assignment expectations. There was no set curriculum. The expectation for academic lab class was for students to work on upcoming assignments due in core content classes. Academic lab was designed to be a more passive homework support environment, opposed to an active intervention environment. Teachers were not expected to engage in active teaching, nor was it a practice, during academic lab time.

Sixth grade students are provided support with content course assignment expectations on an as needed basis. If students are not in need of support on their classroom assignments, they are expected to use this time for silent reading. Seventh and eighth grade students are provided support with content course assignments as needed and are permitted to conduct research in the library, on classroom computers, or through small group support guided by the teacher. If students are not in need of support, they are given a choice of silent reading or participating in computer-based educational activities. In all three grades, the academic lab teacher may implement a supplemental support activity for a content topic if a need is discovered within the group of students in that class, however, was not utilized during this study.

Teacher Training

Teacher training for both the Experimental group and the Control group were conducted during the first week of school (8/26, 8/27). Training for teachers in the Experimental group consisted of reviewing the implementation schedule, exploring *Word Generation* theory and topics, reviewing and discussing student materials (see Appendix A) and teacher materials (see Appendix B), and discussing implementation strategies.

Teachers in the Experimental group were instructed to utilize the prescribed program as presented and were asked to not alter from the prescribed task. Training for teachers in the Control group consisted of a discussion regarding fidelity of implementation. Teachers in the Control group were informed of the study and were instructed to continue their academic lab class as history had dictated. Additional training was not necessary since the expectation was to provide the same instruction that had been used for several years.

Fidelity Checks

Fidelity of treatment implementation was monitored through four fidelity checks distributed throughout the 12-week study. For the Experimental group, two of the fidelity checks were conducted face-to-face with the other two checks conducted via email correspondence between the vice-principal and the Experimental group teachers. For the Control group, the vice-principal monitored student interaction over these four fidelity checks, reporting if instructional strategies had shifted.

To monitor treatment implementation fidelity, a school administrator from the district conducted four fidelity checks occurring in the Experimental group and four fidelity checks occurring in the Control group (see Table 4). A fidelity checklist (see Appendix C) was used during 20-minute observations with the goal of checking to see if the scheduled lesson took place, the teacher followed the prescribed script, and that data was being collected.

Experimental group implementation fidelity checks. There were five criteria levels for the Experimental group implementation fidelity checks: (a) scheduled lesson being presented, (b) script is followed, (c) materials are prepared, (d) data is being

collected, and (e) teacher is prepared. Another set of data was collected regarding student behavior. Observational data was collected based on student engagement of lesson being presented. Student engagement was observed and documented as being (a) highly actively engaged, (b) moderately actively engaged, and (c) not actively engaged. Active engagement was identified as participation in class discussion and activities. Highly active engagement was identified as most students authentically and actively participating (raising hands, offering responses when called on, having current activity materials on desk). Moderately active engagement was identified as most students being engaged or willingly compliant (answering when called on, having current activity materials on desk). Not actively engaged was identified as most students not participating in discussion or being off-task (providing off-topic responses, not having current activity materials on desk).

Control group implementation fidelity checks. For the Control group, implementation fidelity was just the expectation that students were engaged in completing homework with one-to-one teacher support upon student request. There were three criteria levels for the Control group implementation fidelity checks: (a) support on class assignments, (b) students checking grades, and (c) evidence that no Word Generation instruction was taking place. Another set of data was collected regarding student behavior. Observational data was collected based on student engagement of lesson being presented. Student engagement was observed and documented as being (a) highly actively engaged, (b) moderately actively engaged, and (c) not actively engaged. Highly active engagement was identified as most students authentically and actively participating in homework completion activities (completing assignments, asking for

clarification/support). Moderately active engagement was identified as most students being engaged or willingly compliant (accepting teacher assistance on assignments, silently reading, silently participating in on-line academic activity). Not actively engaged was identified as most students not participating or were off-task (off-topic conversations, participating in non-academic computer activities, refusing to complete assignments, refusing to accept teacher support).

The vice-principal completed informal walk-through observations weekly, however, she paid specific attention to the Experimental and Control groups on the dates listed in Table 4. Phone conversations and email updates were the methods used to gather the observational information.

Evaluating implementation fidelity. Implementation fidelity observational and anecdotal data was analyzed to determine if fidelity differences occurred over the course of the study. The vice-principal reported that all teachers were implementing the prescribed activity/intervention, either *Word Generation* or traditional, as intended and defined. Criteria levels were assigned to each category on the fidelity checklist.

Table 4
Fidelity Observation/Communication Schedule

Month	Experimental Group	Control Group
September	Thursday, 9/25	Tuesday, 9/23
October	Monday, 10/13	Tuesday, 10/14
November	Tuesday, 11/11	Thursday, 11/13
December	Monday, 12/1	Tuesday, 12/2

Maximum value for the teacher behavior was a 5. Implementation fidelity

performance for both the Experimental group and the Control group remained constant. During the third implementation fidelity check, the Experimental group did not conduct the scheduled lesson, resulting in a reduced fidelity rating for that week. Student responsiveness was reported with a maximum value of 3. The students in the Control group were consistent in their responsiveness to academic lab expectations. The Experimental group varied in their responsiveness to the intervention. The first responsiveness fidelity check was conducted at the beginning of the intervention period. During this time students were questioning the intervention and were anticipating time to work on homework assignments. During the final fidelity check, students were participating in assessments. Several students had completed the assessments and were therefore not engaged in the intervention. All results are reported in Table 5 and Table 6.

Table 5

Teacher Behavior

	9/23	9/25	10/13	10/14	11/11	11/13	12/1	12/2
Experimental		5	5		4		5	
Control	5			5		5		5

Table 6

Student Responsiveness

	9/23	9/25	10/13	10/14	11/11	11/13	12/1	12/2
Experimental		2	3		3		2	
Control	2			2		2		2

Dependent Variables

easyCBM. Students' progress is the dependent variable, measured by progress on easyCBM MCRC and easyCBM Vocab. easyCBM is an intact instrument designed by Behavioral Research and Teaching (BRT) at the University of Oregon. easyCBM provides educators with a measurement of students' ability to understand and interpret a variety of text. The norming sample was 22,900 students in two school districts located in Oregon. easyCBM is administered by computer and can be conducted whole group in the general classroom.

***Word Generation* pretest and posttest.** Students in the Experimental group took the *Word Generation* pre- posttest. The *Word Generation* assessment consists of 50 multiple choice questions, with four response choices for each question. There are three different *Word Generation* assessments, one for each of the three series of interventions. Students in sixth grade were given the series one assessment. Students in seventh grade were given the series two assessment. Students in the eighth grade were given the series three assessment.

Cronbach's Split-half reliability for easyCBM Vocab performance has a coefficient range of .61 - .75 for grades 2 – 8 (n range 17,328 to 30,598). Cronbach's Split-half reliability for easyCBM MCRC has a coefficient range of .39-.75 for grade 6 and .12-.63 for grade 7 (n = 1,032). Saez et al. stated that this coefficient range was within the acceptable range for curriculum-based measures.

CHAPTER III

RESULTS

In my Results section, I provide statistical analysis of my three research questions. Those questions separate the mean outcome for the Experimental Group versus the Control Group. However, prior to those analyses I disaggregated the Experimental and Control group's mean scores by grade level. Notably, the research questions were not analyzed by grade because the cell size was too small for parametric statistics. I also looked at the correlations of the various variables to see if they should be used as covariates / fixed factors in the analysis of my three research questions.

Analysis by Grade

Visual inspection of Table 7 shows that for the WG test, all grades grew from pretest to posttest on their mean scores for the Experimental Group. The Control Group did not take the WG test. While mean scores grew by grade level for the WG, this was not the case for the MCRC test. On the MCRC, the mean scores for both the Experimental and Control group dropped from pretest to posttest except for the 7^{th} grade Experimental group. Oppositely, the Vocab mean scores for both the Experimental and Control group grew from pretest to posttest except for the 8^{th} grade Control group.

Correlational Analysis

Inspection of Table 8 shows that for the various mean assessments used in Question 2 and Question 3 were weakly correlated to student attendance. Those attendance correlations ranged from a low of -.058 to high of .109. That means that, at best, attendance accounted for 1.19% of the variance for Vocabulary-Pre and at worst 0.16% of the variance for MCRC-Post. Thus, attendance was not used as a covariate /

fixed factor in Question 2's or 3's analysis because of its lack of ability to account for at least a moderate amount of variance.

Table 7

Means Table by Grade by Group

Grade			N	Pretest Mean	Pretest Std. Dev	Posttest Mean	Posttest Std. Dev
6th	WG	Experimental	14	31.600	5.166	35.867	3.204
	MCRC	Experimental	14	14.286	3.221	12.571	2.441
		Control	14	14.286	2.758	13.929	1.639
	VOCAB	Experimental	14	16.857	1.460	17.214	1.968
		Control	14	16.643	2.061	16.643	2.468
7th	WG	Experimental	14	23.000	7.060	26.071	6.427
	MCRC	Experimental	14	12.143	2.770	13.500	3.481
		Control	16	12.000	3.540	11.938	3.473
	VOCAB	Experimental	14	16.286	2.234	17.143	2.143
		Control	16	16.125	2.062	15.875	1.258
8th	WG	Experimental	13	28.620	8.704	32.462	7.207
	MCRC	Experimental	13	13.923	3.040	12.846	3.023
		Control	15	13.667	2.944	12.267	1.907
	VOCAB	Experimental	13	17.154	2.154	17.462	1.266
		Control	15	17.400	2.384	16.267	2.219

Grade level was the second factor analyzed. Inspection of Table 8 shows that for the various mean assessments used in Question 2 and Question 3 were weakly correlated to student grade level. Those grade level correlations ranged from a low of .085 to high of

.294. At best, attendance accounted for 8.64% of the variance for MCRC-Pre and at worst 0.73% of the variance for MCRC-Post. Thus, grade level was not used as a covariate / fixed factor in Question 2's or 3's analysis because of its lack of ability to account for at least a moderate amount of variance.

Table 8
Correlations

	Attend	WG pre	WG post	MCRC pre	MCRC post	VOCAB pre	VOCAB post
WGpre	.083						
WGpost	.141	.785					
MCRCpre	-.058	.452	.474				
MCRCpost	.040	.276	.247	.418			
VOCABpre	.109	.238	.377	.308	.083		
VOCABpost	.089	.120	.185	.382	.362	.343	
Grd Level	.040	.463	.585	.294	.085	.113	.098

Statistical Analysis

I analyzed three research questions to determine if vocabulary interventions implemented across content areas impacted vocabulary acquisition and reading comprehension. The three assessments used to measure the results were: (a) *Word Generation* pretest/posttest given to the experimental group only, (b) easyCBM MCRC given to both the Experimental and Control groups, and (c) easyCBM Vocab given to both the Experimental and Control groups.

Question One Results

Question one analyzed whether there was a significant difference between the *Word Generation* (WG) assessment pretest and posttest scores for the Experimental group. A *t*-test was conducted to analyze the difference between the pretest and the posttest. The pretest mean was 27.81, with a standard deviation of 7.775. The posttest mean was 31.55, with a standard deviation of 7.009. Significant differences were found between the pretest and the posttest, $p < .000$. The Cohen's *d* was 0.51, which is considered a medium effect for the 13 percent change noted. See Table 9 for complete statistics.

Table 9

Word Generation Analysis of Descriptive Statistics

	Mean	N	Std. Dev	Std. Error Mean
WGpre	27.810	42	7.775	1.200
WGpost	31.548	42	7.009	1.082

	Paired Differences							
	Mean Std. Dev	Std. Error Mean	95% CI Lower Upper		T	*df*	Sig (2-tailed)
WGpre vs WGpost	-3.738	4.904	.757	-5.266	-2.210	-4.940	41	.000

Question One Summary

When the pretest was compared to posttest, there was a significant mean

difference, $p < .000$. Importantly, the posttest mean score was higher than the mean pretest score. These results indicate students gained in their knowledge of the vocabulary (a medium effect) introduced during the 12-week intervention as measured by the WG Assessment.

Question Two Results

Question two examined whether there was a statistically significant difference in mean scores between the Control group and Experimental group on the easyCBM MCRC assessment. An analysis of covariance (ANCOVA) was calculated for the easyCBM MCRC Posttest. The ANCOVA was used to control for any beginning score differences on the easyCBM MCRC Pretest. The posttest descriptive statistics shows the Experimental group scored higher (mean = 12.976) than the Control group (mean = 12.667). The power for the MCRC (power = .073) reflected my non-significant findings. Power is the probability of correctly rejecting the null hypothesis. If my study were to be duplicated 100 times I could correctly reject the null hypothesis only 7.3% of those replications. Table 10 provides the complete descriptive statistics for the MCRC analysis.

The Levene's Test calculates the homogeneity of variance. I can assume the variances between the two groups (Experimental versus Control) were homogenous or the same because the Levene's failed to reject the null hypothesis, $p = .822$. Table 11 shows the complete Levene's statistic.

The between-subjects effects shows no significant differences between the Experimental and Control group, $p = .657$, on the MCRC Posttest when controlling for the student's MCRC Pretest scores. The Eta Squared statistic, which showed that only

0.2 percent of the variability between groups could be accounted for by the mean group differences further supported this lack of significant difference. See Table 12 for complete between-subjects statistics for the MCRC analysis. The Cohen's *d* was 0.11, which is considered a negligible effect on the posttest means.

Table 10

Descriptive Statistics for MCRC

Group		Mean	Std. Deviation	N
MCRCpre	Control	13.267	3.201	45
	Experimental	13.439	3.091	41
	Total	13.349	3.132	86
MCRCpost	Control	12.667	2.611	45
	Experimental	12.976	2.962	41
	Total	12.814	2.772	86

Table 11

Levene's Test of Equality of Error Variances for MCRC Posttest

F	*df1*	*df2*	Sig.
.051	1	84	.822

Finally, Table 13 shows the ANCOVA's re-estimates of the easyCBM MCRC Posttest means, accounting for the effects of the covariate (easyCBM MCRC Pretest). The estimated marginal means provide an unbiased hypothetical mean that accounts for the effects of the easyCBM MCRC Pretest covariate.

Question Two Summary

An ANCOVA showed that there was no significant difference on the easyCBM

MCRC Posttest, $p = .657$, when using the easyCBM MCRC Pretest scores as a covariate. Thus, students in the Control group and Experimental group were similar in their performance on multiple-choice reading comprehension at the end of the intervention.

Table 12

Tests of Between Subjects Effects for MCRC Posttest

Source	Type III Sum of Squares	*df*	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	115.529[a]	2	57.765	8.920	.000	.177
Intercept	275.953	1	275.953	42.613	.000	.339
MCRCpre	113.482	1	113.482	17.524	.000	.174
Group (C vs E)	1.290	1	1.290	.199	.657	.002
Error	537.494	83	6.476			
Total	14774.000	86				
Corrected Total	653.023	85				

a. R Squared = .177 (Adjusted R Squared = .157)

Question Three Results

An ANCOVA was calculated for the Vocabulary (Vocab) posttest. The ANCOVA was used to control for beginning score differences on the Vocab pretest. The posttest descriptive statistics shows the Experimental group scored higher (mean = 17.268) than the Control group (mean = 16.244). Power for Question Three was .7291, which showed that Question Three had sufficient power for me to accept my *p*-value with confidence that I had not made a Type II error. As stated earlier, if my study were

Table 13

Estimated Marginal Means for MCRC Posttest

Group	Mean	Std. Error	95% Confidence Interval	Group
			Lower Bound	Upper Bound
C	12.697[a]	.379	11.942	13.452
E	12.942[a]	.398	12.152	13.733

a. Covariates appearing in the model are evaluated at the following values: MCRCpre = 13.349.

conducted 100 times I would correctly reject the null hypothesis on 72.91% of those replications. Table 14 provides the complete descriptive statistics for the Vocab analysis.

The Levene's Test calculates the homogeneity of variance. I can assume the variances between the two groups (Experimental versus Control) were homogenous or the same because the Levene's failed to reject the null hypothesis, $p = .234$. Table 15 shows the complete Levene's statistic for the Vocab analysis.

Table 14

Descriptive Statistics for Vocab

Group		Mean	Std. Deviation	N
VOCABpre	Control	16.711	2.1911	45
	Experimental	16.756	1.9593	41
	Total	16.733	2.0718	86
VOCABpost	Control	16.244	2.0018	45
	Experimental	17.268	1.8031	41
	Total	16.733	1.9559	86

Table 15

Levene's Test of Equality of Error Variance for Vocab Posttest

F	*df1*	*df2*	Sig.
1.440	1	84	.234

The between-subjects effects shows significant differences between the Experimental and Control group, $p = .011$, on the Vocab Posttest when controlling for the student's Vocab Pretest scores. Moreover, that difference favored the Experimental group. Finally, the Eta Squared statistic shows that 7.5 percent of the variability between groups can be accounted for by the mean group differences. See Table 16 for complete between-subjects statistics for the Vocab analysis.

Table 16

Tests of Between-Subjects Effects for Vocab Posttest

Source	Type III Sum of Squares	*df*	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	60.567[a]	2	30.284	9.369	.000	.184
Intercept	165.325	1	165.325	51.148	.000	.381
VOCABpre	38.078	1	38.078	11.781	.001	.124
Group	21.852	1	21.852	6.761	.011	.075
Error	268.282	83	3.232			
Total	24407.000	86				
Corrected Total	328.849	85				

a. R Squared = .184 (Adjusted R Squared = .165)

Finally, Table 17 shows the ANCOVA's re-estimates of the Vocab Posttest means, accounting for the effects of the covariate (Vocab Pretest). The estimated marginal means provide an unbiased hypothetical mean that accounts for the effects of the covariate for the Vocab analysis. The Cohen's *d* was 0.54, which is considered a medium effect on the posttest means.

Table 17

Estimated Marginal Means for Vocab Posttest

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
C	16.251[a]	.268	15.718	16.784
E	17.261[a]	.281	16.702	17.819

a. Covariates appearing in the model are evaluated at the following values: VOCABpre = 16.733.

Question Three Summary

An ANCOVA determined that significant main effects existed for the Vocab Posttests, $p = .011$, when using the Vocab Pretest scores as a covariate and those differences favored the Experimental group. Thus, students in the Experimental group's performance on vocabulary posttest at the end of the intervention showed they had learned more vocabulary than those students in the Control group had learned.

CHAPTER IV

DISCUSSION

My 12-week study attempted to answer three questions. Question 1 focused on the Experimental group's vocabulary development from pretest to posttest. Question 2 examined performance between RtI Tier 2 vocabulary interventions (*Word Generation*) versus traditional supports. Finally, Question 3 evaluated the vocabulary score differences between the two groups.

My results indicate students gained knowledge of the vocabulary introduced during the 12-week intervention. I make this claim for two reasons. First, the Experimental group's WG posttest was significantly higher than their pretest. Secondly, the results of an ANCOVA determined there were also significant effects in vocabulary acquisition as measured by the easyCBM Vocab assessment. These vocabulary results indicate promise in utilizing a structured vocabulary development program for middle school students.

Limitations

Before interpreting my results, I want to cover limitations of my extant data research. My research had both internal and external validity issues that I cover.

Implementation fidelity. Internal validity may be a limitation in regards to implementation. *Word Generation* was designed for implementation over five days per week for 15 minutes per day, addressing English Language Arts, mathematics, social studies, and science. It was designed for the content teacher to provide instruction during the first 15 minutes of core content classes. This study provided 20 minutes of instruction, four days per week, with instruction provided at the end of the day by an

academic lab teacher and were not content-area specific. Also, as noted earlier, the vice-principal conducted fidelity checks, the school reported no numeric data.

Sampling. The SMS vice-principal randomly assigned students to the study, resulting in a possible limitation to internal validity due to an uneven representation of the student population in the study since no demographic controls were used during placement. To replicate this study, the researcher would have to match the student population to the student population used in this study, resulting in a possible limitation to external validity. Replicating the student population may not be an option based on school demographics.

Generalizability. Generalizability across time is a considerable limitation. Although there was a significant statistical mean difference between the pretest and posttest results favoring the Experimental group, this 12-week study does not provide data to indicate if students will retain the information acquired during the intervention. The school should conduct a follow-up study to determine if students retain the vocabulary knowledge presented.

Statistical conclusion. With 42 students in the experimental group and 45 students in the control group, small sample size is a limitation, reducing the ability to compare results with large-scale studies. Again, additional replication studies would add credibility to my findings.

Mono-operational bias. Construct validity is limited due to the use of one measure, easyCBM. Even though there were two independent easyCBM subtests given, easyCBM MCRC and easyCBM Vocab, this will not provide the ability to triangulate the results.

Practice effect. Student growth in the Experimental group, when looking at pretest, posttest results, was potentially due to the *Word Generation* assessment was the same for the pretest and the posttest. In addition, the words assessed were part of the Word Generation curriculum. The Word Generation assessment is a 24-week study, addressing 120 words per series. The intervention took place for 12 weeks, therefore, it can be assumed students had been exposed to instruction on half of the words on the assessment (barring any absences from the intervention).

Maturation. Students' in the Experimental group outperformed students in the control group when looking at performance on easyCBM Vocab during the 12-week study, however, it is unknown if these gains were due to the intervention curriculum or learning taking place in content courses. Words introduced during the 12-week intervention may have been addressed in core content courses, instruction given to all students. An analysis of performance by grade level on the easyCBM Vocab assessment yielded results supporting a possible impact from the intervention. Sixth grade students in the Experimental group increased 0.356 from their pretest mean to posttest mean. Sixth grade students in the Control group had no increase from pretest to posttest mean (16.643 on both pretest and posttest). Seventh grade students in the Experimental group increased 0.857. Seventh grade students in the Control group decreased 0.25. Eighth grade students in the Experimental group increased 0.308 from pretest to posttest, while students in the Control group decreased 1.133. It must be mentioned that students in the Experimental group may have been exposed to vocabulary twice as often as those in the Control group, possibly contributing to their gains.

Interpretation of Results

Student assessment scores, from September 2014 and January 2015, were entered into IBM SPSS statistics. A paired sample *t*-test was used to determine if there was a statistically significant difference in mean scores from the *Word Generation* pretest to the posttest. Second, an analysis of covariance (ANCOVA) was used to determine if a statistically significant difference existed between students in the Experimental group (*Word Generation* intervention) versus students in the Control group (traditional instruction), for easyCBM MCRC scores and easyCBM Vocab scores. An alpha level of .05 was used. The results for each question are interpreted in the following paragraphs.

Question 1. Question 1 asked if the Experimental group's vocabulary development was significantly different from pretest to posttest. While my findings showed a significant difference in vocabulary development between the pretest and the posttest, these results must be interpreted cautiously. Because there was no control group for Question 1, I cannot attribute the significant difference to the WG curriculum with 100-percent certainty. While WG vocabulary instruction appears to have had an effect on the Experimental group, without scores from the Control group my findings are much more of a hypothesis rather than a causal inference.

Another piece of evidence that validates my studies findings was growth in mean vocabulary learned by students. Students' mean vocabulary growth in my study was similar to Snow and colleagues. Students in my study showed a mean growth of 3.738 vocabulary, while Snow and colleagues mean growth was 4.43 words. Studies conducted by Snow and Lawrence in 2007 and 2008 utilized the *Word Generation* assessment for the pretest/posttest design of their study. This assessment was used with the treatment

group and the comparison group. The treatment group average growth was 4.43 when comparing the pretest posttest scores. The comparison group average growth was 2.22 when comparing the pretest posttest scores. Another factor is that growth shown in my study was over a 12-week intervention while Snow and Lawrence conducted a 24-week intervention. In addition, *Word Generation* was designed as a school-wide support to be taught by content teachers, not as a Tier 2 intervention. Therefore, the positive growth for the at-risk students in my study shows promise for the use of *Word Generation* as an intervention.

Results of the *t*-test showed significantly higher gains in mean scores from pretest to posttest, indicating there was a positive effect on student vocabulary development. Similar to my findings, Townsend and Collins (2008) found a statistical significance in their study of vocabulary interventions with English Language Learners ($p<.05$). These results of this study are encouraging since vocabulary development is a known precursor to comprehension (Bromley, 2002).

The Experimental groups significant gains might be attributed to the explicit vocabulary instruction received during the 12-week *Word Generation* intervention. When vocabulary is practiced, it is learned. Each grade level in the Experimental group produced gains in their easyCBM Vocab assessment results from pretest to posttest. Grade levels in the Control group either exhibited a decrease in their easyCBM Vocab assessment results (7^{th} and 8^{th} grade) or remained constant (6^{th} grade).

It is important to remember that the *Word Generation* program was designed with 24 instructional weeks. However, for my study only 12 out of 24 instructional weeks were provided during this intervention. In this condensed intervention series, students

retained the instruction provided and applied it to the posttest. In addition, vocabulary instruction is a new process for SMS. Traditional academic lab classes, designed to support students with homework and academic concepts when required, do no explicitly teach vocabulary. Thus, the results of this study show that direct vocabulary instruction may work. Vocabulary to vocabulary is much more proximal, supporting why Question 1 yielded the results it did.

Question 2. Question 2 probed the difference in comprehension performance between students receiving RtI Tier 2 vocabulary (WG) interventions versus students receiving traditional school supports. My findings indicate there was not a significant difference in comprehension performance between the Experimental group and the Control group. Graves, et al. (2011) had similar results when using a Maze Comprehension probe to measure the difference between the control group and treatment group. Both groups improved on the MAZE assessments, however, they ran an ANOVA and found no difference between the two groups ($p = 0.78$). Vaughn et al., (2010) found a main effect of on the Woodcock-Johnson Test of Academic Achievement III Passages comprehension pretest data ($p<.0001$) but found no main effect for the treatment ($p <.072$).

The insignificant findings may be attributed to several factors. Unlike the results of question one, where vocabulary was explicitly taught and measured, comprehension skills and strategies were not, possibly contributing to insignificant findings. Vocabulary supports comprehension growth, however, 12-weeks was not a large enough window of time to see significant effects. It could be hypothesized that completing the entire 24-weeks of instruction with *Word Generation* may have yielded significant findings.

However, Word Generation was not a comprehension intervention. Studies conducted in 2007 and 2008 using the Word Generation curriculum did not address comprehension measures nor was that the focus of the program. Moreover, vocabulary to comprehension would be considered a distal outcome. As my results indicate, vocabulary instruction without comprehension instruction has minimal impact on comprehension outcomes. Comprehension development takes time. It would be rare to see concurrent movement in comprehension and vocabulary development (G. Biancarosa, personal communication, May 12, 2015).

Another contributing factor may be the use of easyCBM MCRC as the only comprehension measure. easyCBM MCRC questions address literal, inferential and evaluative comprehension. Utilizing a second comprehension measure requiring vocabulary knowledge, in addition to easyCBM MCRC, may produce different results.

Question 3. Question 3 asked whether there was a significant difference in vocabulary performance between students receiving RtI Tier 2 vocabulary interventions (WG) and students receiving traditional school supports. My findings indicate there was a significant difference in vocabulary performance between the Experimental group and the Control group that favored the Experimental group. Vaughn and Fletcher (2012) found similar results in their study implementing Tier 2 vocabulary and comprehension interventions ($d = 0.16$). In contrast, Graves et al. (2011) found no difference between treatment and control group performance ($F(1, 55) = 0.17$, $p = .68$, partial $n2 = .03$) when conducting a mixed-model, repeated-measure ANOVA on the Test of Vocabulary measures.

The significant gains of the Experimental group may be attributed to the explicit

vocabulary instruction received during the 12-week *Word Generation* intervention. My results may have yielded significant gains due to increased student interest in the topics being discussed. *Word Generation* presents weekly topics that focus on specific themes. Gains made between groups may be due to the focus of the curriculum. The Experimental group received explicit vocabulary instruction while the Control group received no prescribed curriculum. Finally as noted earlier, *Word Generation* was not designed as a Tier 2 or Tier 3 intervention. Therefore, the positive vocabulary results for the at-risk students in my study shows promise for the use of *Word Generation* as possible Tier 2 intervention.

Implications for Practice and Future Research

Implications for practice. Based on current literature and research, it is evident some middle school students are in need of academic support in core content areas. In creating middle school supports, research must continue to investigate ways to assist students in accessing a quality education. Focusing on vocabulary development in content areas is one such way to support middle school students' achievement.

Results of my study showed mixed results, with a statistical significance in vocabulary development with no statistical significance in comprehension acquisition. Longer interventions incorporating vocabulary development into comprehension application would be a logical direction to pursue. Explicit vocabulary instruction could be paired with comprehension exercises that incorporate the new vocabulary. Replacing traditional intervention at SMS and developing focused interventions utilizing *Word Generation* may produce more significant results school wide. While the 12-week *Word Generation* did show promise, sustained vocabulary development may be necessary to

ensure students' gain knowledge in content areas.

Future research. WG year-long intervention. Based on results of this study, future research should include a year-long study utilizing *Word Generation*, allowing additional time to monitor sustainability of student growth. As I alluded to earlier, SMS should replicate this study to ensure positive results for continuing sets of students within the school and district. A multi-year study would be a way to determine if students retain skills obtained during the Tier 2 vocabulary interventions once reaching high school.

WG and writing. In addition to analysis of student growth in the areas of vocabulary and comprehension, analyzing student writing would be beneficial in identifying if vocabulary development has an impact on writing ability. In the *Word Generation* intervention, students write a weekly response to civic topic discussed by incorporating the vocabulary words into written text. These weekly essays could be analyzed based on length and the amount of multi-syllabic words used. Another measurement could be the amount of vocabulary words incorporated into the essay. The writing samples from the seventh grade students were gathered over the course of the study, however, not analyzed with any depth. A precursor evaluation of these writing samples might indicate the length of the writing responses, as well as the complexity of vocabulary used in the responses, and if there was an increase over the 12-weeks of *Word Generation* interventions. These results and the possible impact on academic ability should be pursued further.

WG author intended implementation research. Based on the results of the comprehension assessment, future research could more closely aligned to the original design of the *Word Generation* program. Implementing *Word Generation* during the first

15 minutes of core content instruction, for the entire 24-week series, may show significant gains. Significant gains would be expected for three reasons: (a) content teachers would deliver instruction, (b) interventions would take place for 24 weeks opposed to 12 weeks, and (c) all of the instruction within the *Word Generation* would be introduced to students consistently (rather than rotating between math and social studies instruction).

WG social validity research. Finally, based on anecdotal data gathered, social validity should be included in future research. Anecdotal data should be looked at through three lenses: student attitudes, parent perceptions, and teacher perceptions using a qualitative design. Student attitudes towards vocabulary acquisition and their comfort level when using the newly acquired vocabulary may assist researchers in understanding how student perception of their own ability level influences reading progress. A qualitative study analyzing student confidence on the acquisition of academic skills may uncover another avenue in providing support to struggling middle school students.

Social validity regarding parent perceptions needs to be researched. In this study, six eighth grade students were removed per parent request. Parents were used to traditional academic lab support and were unaccustomed to having their children complete all homework after school without teacher support. Parent perceptions may shift if the intervention was taught in content courses and supported in academic lab. In addition, if the intervention were school-wide it would be a shift in instruction for the entire school and may be more tolerable for parents to understand. These concerns could be evaluated through a qualitative study.

Finally, teacher perception should be addressed to determine if the teachers feel a

vocabulary intervention is a good use of time and resources. Content vocabulary taught in content areas and enforced in academic lab may lend itself to school-wide support and collaboration, a key element in *Word Generation* success during initial implementations. Including the entire teaching staff in the implementation of a vocabulary intervention may strengthen the social validity of the program in the minds of the staff.

Conclusion

Test scores measuring vocabulary (*Word Generation* assessment and easyCBM Vocab) showed a statistically significant increase in vocabulary over the 12-week intervention, whereas the test measuring comprehension (easyCBM MCRC) did not. The results appeared to show promise, however, additional studies are needed to determine the long-range effect of vocabulary interventions on middle school students' performance.

Professional Reflection

To move this research into practice, follow-up studies need to be conducted, paying specific attention to address the limitations identified in this study. In thinking towards future studies, I will attempt to increase the sample size and diversify the student population. Increasing sample size could be accomplished by implementing the intervention school wide and using a matched second middle school as the control group.

I feel it is important to add a qualitative aspect to future studies, specifically addressing social validity in relation to students, parents, and school staff. I feel prepared to move forward with future studies, understanding it is an ever-evolving process with each study I research and conduct. I look forward to moving this research forward, with hopes of assisting in the success of middle school students.

APPENDIX A

SAMPLE UNIT *WORD GENERATION* STUDENT MATERIALS

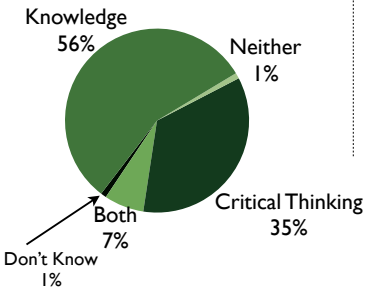
Unit 1.01

What is the purpose of school?

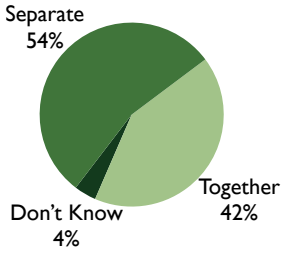
Problem of the Week

How do Americans view their public schools? **Analyze** the three graphs below. The information comes from a telephone survey taken in 1999.

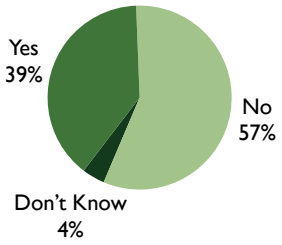
What is the proper **function** of American schools? Should they focus on giving students knowledge, or should they focus on teaching students to think critically?



What is the best class **structure** for elementary schools? Should top students, average students, and struggling students have separate classes, or should different ability levels be taught together?



Should standardized test scores be a **factor** in determining the level of funding a school receives?



Option 1: Which of the following is the best **interpretation** of the data shown in these three graphs?

A) Americans disagree or are divided on major educational issues.
B) Americans agree on major educational issues.
C) Americans want all students to be equally well educated.
D) Americans are disappointed with today's schools.

Option 2: Answer Option 1. Then determine:

What is the probability that a person responded YES to both questions: "Schools should focus on giving students knowledge," AND "Yes" to the question about making standardized test scores a factor in school funding?

Math Discussion Question: Many teachers believe that classrooms **function** more effectively when students are actively involved. In social studies, students might present an **analysis** of U.S. foreign policy and our relationship to other countries. In Spanish class, students might **interpret** and act out a play written by a Colombian author. Students prepare and present, while the teacher acts as a guide. Is this kind of **structure** realistic for a math class? Or, when you're learning how to multiply or **factor** numbers, is having a teacher give knowledge by explaining the facts the best option?

APPENDIX B

SAMPLE UNIT *WORD GENERATION* TEACHER MATERIALS

SERP

Join the national conversation!

Word Generation - Unit 1.01

Focus Words

analyze | factor | function | interpret | structure

Weekly Passage

Why do we go to school? Some people think the primary goal of education is giving knowledge to students. They feel there is specific information that all kids should know. For instance, they want kids to know what happened in the Revolutionary War and how the food chain works. Others interpret the main role of school as one of preparing students to earn a living. They are most concerned about students learning particular skills, such as reading, writing, and arithmetic.

Some argue that schools should introduce a set of shared values, including liberty and justice. They believe this will help students understand the structure of our democratic government. For example, they feel it is important for students to understand that while each of the three branches of government has a different function, the three work together to make sure we all enjoy certain freedoms and live by the same rules.

Some think schools should teach students to critically analyze what they see, hear, and read. They want students to be able to think carefully about different perspectives, to respect and challenge other viewpoints, and to form their own opinions about issues that affect them. Although many people say that they want kids to be able to think for themselves, students do not always have the freedom to do so in the classroom.

What do you think the function of school is? What do you consider the most important factors in providing a good education? Which ingredients are essential in your recipe for a good school?

TEACHER

Reading Comprehension/Discussion Questions:

- What are two different interpretations of the purpose of school?
- Which function of school do you think is the most important? Why?
- What is an example of a learning activity that teaches students to analyze something?
- What are some of the structures that help schools fulfill their function?
- What are some of the factors that teachers should consider when preparing a lesson for their students?

APPENDIX C

FIDELITY/CROSS-CONTAMINATION WALK-THROUGH OBSERVATION

Rater: _____ Week of:

_____

Grade: _____

Experimental Group

Teacher Behavior	Yes	No	N/A	Comments
Scheduled lesson conducted				
Teacher script followed				
Materials prepared				
Data collected				
Teacher prepared to deliver instruction				

Student Responsiveness *	Highly	Moderately	Not Engaged
Students actively engaged			

Control Group

Teacher Behavior	Yes	No	Comments
Support on class assignments			
Students checking grades			
Providing Word Generation instruction			

Student Responsiveness	Highly	Moderately	Not Engaged
Students actively engaged			

Student Responsiveness:

Highly engaged – most students are authentically and actively engaged

Moderately engaged – most students are engaged or willingly compliant

Not engaged – most students are not participating or are off-task

REFERENCES CITED

Anderson, D., Alonzo, J., Tindal, G., Farley, D., Irvin, P., Lai, C., Saven, J., Wray, K. (2014). Technical manual: easyCBM (Technical report # 1408). Eugene, OR: Behavioral Research and Teaching.

Beach, K., & O'Connor, R. (2013). Early response-to-intervention measures and criteria as predictors of reading disability in the beginning of third grade. *Journal of Learning Disabilities 20*(10), 1-28. doi: 10.1177/0022219413495451

Bromley, K. (2007). Nine things every teacher should know about words and vocabulary instruction. *Journal of Adolescent & Adult Literacy*, 50, 528-536.

Creswell, J. W., & Clark, V. L. P. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage publications.

Edmonds, M., Vaughn, S., Wexler, J., Reutebuch, C., Cable, A., Tackett, K., & Schnakenberg, J. (2009). A synthesis of reading interventions and effects on reading comprehension outcomes for older struggling readers. *Review of Educational Research, 79*, 262-300. doi: 10.3102/0034654308325998.

Faggella-Luby, M., & Wardwell, M. (2011). RTI in a middle school: Findings and practical implications of a Tier 2 reading comprehension study. *Learning Disability Quarterly*, *34*(1), 35-49.

Feuerborn, L, Sarin, K., & Tyre, A. (2011). Response to intervention in secondary schools. *Principal Leadership*, 50-54.

Fletcher, J. M., & Vaughn, S. (2009). Response to intervention: Preventing and remediating academic difficulties. *Child Development Perspectives*, *3*(1), 30–37. doi:10.1111/j.1750-8606.2008.00072.x

Fuchs, D., Fuchs, L. S., & Compton, D. L. (2012). Smart RTI: A next-generation approach to multilevel prevention. *Exceptional Children*, *78*, 263–279. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3380278&tool=pmcentrez&rendertype=abstract

Fuchs, D., Fuchs, L., & Stecker, P. (2012). The "blurring" of special education in a new continuum of general education placements and services. *Exceptional Children, 76,* 301-323.

Fuchs, L., & Fuchs, D. (2007). A model for implementing responsiveness to intervention. *Teaching Exception Children, 39*(5) 14-20.

Fuchs, L., Fuchs, D., & Compton, D. (2010). Rethinking response to intervention at middle and high school. *School Psychology Review*, *39*(1), 22-28.

Graves, A., Duesbery, L., Pyle, N., Brandon, R., & McIntosh, A., (2011). Two studies of tier II literacy development: Throwing sixth graders a lifeline. *The Elementary School Journal*, *111*, 641-661.

Hoover, J., & Love, E. (2011). Supporting school-based response to intervention: A practitioner's model. *Teaching Exceptional Children, 43*(3), 40-48.

Johnson, E., & Smith, L. (2008). Implementation of response to intervention at middle school. *Teaching Exceptional Children, 40*(3), 46-52.

King, S., Lemons, C., & Hill, D. (2012). Response to intervention in secondary schools: Considerations for administrators, *National Association of Secondary School Principals Bulletin, 96*(1) 5-22. doi: 10.1177/0192636511430551

Lawrence, J., White, C., Snow, C. (2010). The words students need. *Educational Leadership*, October, 23-26.

Mellard, D., Frey, B., & Woods, K. (2012). School-wide student outcomes of response to intervention frameworks. *Learning Disabilities: A Contemporary Journal, 10*(2), 17-32.

Mellard, D. McKnight, M., & Woods, K. (2009). Response to intervention screening and progress-monitoring practices in 41 local schools. *Learning Disabilities Research and Practice 24*, 186-195.

Murakami-Ramalho, E., & Wilcox, K. A. (2012). Response to intervention implementation: a successful principal's approach. *Journal of Educational Administration*, *50*, 483–500. doi:10.1108/09578231211238602

National Center on Response to Intervention (March 2010). *Essential components of RTI – a closer look at response to intervention*. Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention. Retrieved from http://www.rti4success.org

National Center on Response to Intervention (July 2011). *RTI scheduling processes for middle schools*. Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention. Retrieved from http://www.rti4success.org

Pool, J. L., Carter, D. R., & Johnson, E. S. (2012). Tier 2 team processes and decision-making in a comprehensive three-tiered model. *Intervention in School and Clinic*, *48*, 232–239. doi:10.1177/1053451212463961

Prewett, S., Mellard, D., Deshler, D., Allen, J., Alexander, R., & Stern, A. (2012). Response to intervention in middle schools: Practices and outcomes. *Learning Disabilities Research & Practice, 27*, 136-147.

Pyle, N., & Vaughn, S. (2012). Remediating reading difficulties in a response to intervention model with secondary students. *Psychology in the Schools*, *49*, 273-284. doi: 10.1002/pits.21593

Restori, A. F., Gresham, F. M., & Cook, C. R. (2008). Old habits die hard: Past and current issues pertaining to response-to-intervention, *13*(4), 67–78.

Ritchey, K. D., Silverman, R. D., Montanaro, E. A Speece, D. L., & Schatschneider, C. (2012). Effects of a tier 2 supplemental reading intervention for at-risk fourth grade students. *Exceptional Children*, *78*, 318–334.

Roberts, G., Vaughn, S., Fletcher, J., Stuebing, K., & Barth, A. (2013). Effects of a response-based, tiered framework for intervening with struggling readers in middle school. *Reading Research Quarterly*, *48*, 237–254. doi:10.1002/rrq.47

Saez, L., Park, B., Nese, J., Jamgochian, E., Lai, C., Anderson, D., Kamata, A., Alonzo, J., Tindal, G. (2010). Technical adequacy of the easyCBM reading measures (grades 3-7), 2009-2010 version (Technical report # 1005). Eugene, OR: Behavioral Research and Teaching.

Scammacca, N., Roberts, G., Vaughn, S., Edmonds, M., Wexler, J., Reutebuch, C.K., & Torgensen, J.K. (2007). Interventions for adolescent struggling readers: A meta-analysis with implications for practice. Portsmouth, HH: RMC Research Corporation, Center on Instruction.

Snow, C., Lawrence, J. (2011). Word generation in Boston public schools: Natural history of a literacy intervention. *The Council of the Great City Schools*, *3*.

Spear-Swerling, L., & Cheesman, E. (2011). Teachers' knowledge base for implementing response-to-intervention models in reading. *Reading and Writing*, *25*, 1691–1723. doi:10.1007/s11145-011-9338-3

Stahl, K., Keane, A., & Simic, O. (2012). Translating policy to practice: Initiating RTI in urban schools. *Urban Education 48*, 350-379. doi: 10.1177/0042085912451755

Stanovich, K., (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 4, 360-407.

Townsend, D., & Collins, P. (2008). Academic vocabulary and middle school English learners: an intervention study. *Reading and Writing*, 22, 993-1019. doi 10.1007/s11145-008-9141-y

Vaughn, S., Cirino, P., Wanzek, J., Wexler, J., Fletcher, J., Denton, C., … Francis, D. (2010). Response to intervention for middle school students with reading difficulties: Effects of a primary and secondary intervention. *School Psychology Review*, *39*(1), 3-21.

Vaughn, S., & Fletcher, J. (2012). Response to intervention with secondary school students with reading difficulties. *Journal of Learning Disabilities 45*, 244-256. doi: 10.1177/0022219412442157