2017

Impact of Interactive Homework on Reading Achievement

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COLLEGE OF EDUCATION

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2017

Abstract

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MS, Walden University, 2009

BS, Macon State College, 2007

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Many elementary students read below grade level, resulting in an inability to meet expectations on state testing. Epstein and other researchers theorized 3 influential factors that work together to help students achieve higher levels of attainment—home, school, and community. Studies have demonstrated the effectiveness of Epstein's Teachers Involve Parents in Schoolwork interactive homework (IH) to promote parent-child communication during learning interactions at home for students in language arts in Grades 6-8; however, there is little information on the effects of IH on reading achievement for elementary students. The purpose of this quasi-experimental study was to examine the effect IH has on reading achievement. Third grade students at a school in Georgia participated in IH (n = 18) and non-IH (n = 27) groups over a 9-week period. Reading achievement was measured by comparing standardized pre- and posttests. An analysis of covariance was used to analyze the interval-level pre- and posttest results while controlling for preexisting differences between the treatment and control group. The adjusted mean difference between the groups was not statistically significant. A white paper that discussed the results of the study and recommended further study of IH with incentives to increase participation was the project deliverable. Although findings were not significant, this study may contribute to social change by encouraging dialogue about using and constructing methods that could promote increased reading achievement in the elementary setting, provided adequate student participation.

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Dedication

My research is dedicated to the students that I teach, have taught, and will teach in the future. It is for you that I have labored so that you can have the best education possible. I hope that the work I do will make a difference in your lives today and always.

Acknowledgments

I owe thanks for the success of this project to my family, professors, and my Lord. My mom has been a great help to me; both in watching the kids, and being a second eye in the editing and revising process. As a strong single mom, she showed me what motherhood should really be like— being tough when she needed to be, sensitive when it was important, and always smart! I hope to be the same kind of parent to my children. Although my grandmother is no longer on this earth, she has inspired me and imparted a sense of accomplishment in me that has pushed me forward throughout my entire college experience. I wouldn't be where I am today without her. Dr. Babb, thank you for your continued support and responses to late night emails! I appreciate your help and support. I could not have gotten as far as I have without you! Lastly, I thank my Lord. There have been several times I have come to you overwhelmed and ready to quit, looking for strength. Somehow, someway you have always been able to give it to me. Thank you.

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The Local Problem

Evidence of the Problem at the Local Level

Reading achievement has been identified as problem areas for elementary students at the study school. The College and Career Readiness Performance Index (CCRPI), which is Georgia's system to regulate school performance, stipulates that 85% of students should exit third grade reading at a Lexile level of 650 score or higher (Georgia Department of Education, 2013). A Lexile level refers to an individual's reading ability or the level of difficulty of a particular text (Georgia Department of Education, 2014a). Accordingly, knowing how difficult a text will be to read in conjunction with how well a student can read should help predict how well a student will comprehend that specific text (Georgia Department of Education, 2015a). Results from the latest CCRPI report for the study school reveal that 30.5% of students exit third grade reading below 650L (Georgia Department of Education, 2014b).

Georgia began a new assessment system in the 2014 school year that categorizes learners into four classes: beginning learner, developing learner, proficient learner, and distinguished learner. Results demonstrate the discrepancy in reading performance at the study school. Forty percent of students scored in the beginning range; 35.6% scored in the development range; while only 21.2% scored in the proficient range; and an even more alarmingly low 2.9% scored in the distinguished range (Georgia Department of Education, 2015d). This indicates that reading scores in third grade at the study school fall below the requirements specified by the CCRPI.

Evidence of the Problem from the Professional Literature

The National Assessment of Educational Progress ranked reading achievement into three categories, including basic, proficient, and advanced (National Center for Education Statistics, 2013). According to the National Center for Education Statistics (2013), 65% of fourth graders and 64% of eighth graders read below the proficient level. In addition, 23% of American adults struggle to meet basic reading levels (Pressley, Graham, & Harris, 2006). Students who speak English secondarily in their home seem to struggle significantly with these skills. Baydik, Ergul, and Bahap Kudret (2012) pointed out that students whose second language is English often spend so much time deciphering pronunciation and word meanings that they develop an average reading voice that is slow and lacks fluency.

When reading English text at home, English language learners (ELL) spend several moments translating the information into their native language, and then switch back to English to make the most sense of what they have read (Baydik et al., 2012). This task can be lengthy and needs time to develop. In addition to the problems presented by ELL students, there is also a gap in achievement in reading among African American students (Arceneaux, 2013; Banerjee, Harrell, & Johnson, 2011; Burchinal et al., 2011; Strayhorn, 2010). Epstein (2013) recognized that educators do not always know how to engage families in the use of research-based practices at home and credited the lack of adequate skill communication to lower achievement in schools. Students come from diverse cultural, economic, and academic backgrounds, so teachers are not always able to effectively communicate ways parents can help their children at home (Epstein, 2013).

Rationale

The initiation of common standards across the United States requires that students read and comprehend more complex text in the elementary grades (Bunch, Walqui, & Pearson, 2014). Currently, students in the United States underperform compared to students in other countries on international educational assessments in the areas of reading and comprehension (Merry, 2013). Parental involvement has been found to increase student motivation, effort, and achievement in school (Epstein, 2013; Xu, Benson, Mudrey-Camino, & Steiner, 2010). It is important that educators uncover ways to effectually include parents in improving their children's reading progression. In an effort to establish and maintain effective parental involvement, Epstein, Salinas, and Van Voorhis (2001) designed homework tasks that encourage parent interaction and include a guided approach for parents to take part in homework efforts. The scripted tasks serve as a review of skills and strategies learned in class (Epstein et al., 2001).

Teachers Involve Parents in Schoolwork (TIPS) was originally developed to increase parental involvement in the middle grades. Each TIPS assignment includes a letter to parents or guardians explaining the concepts covered and instructions on how to complete prescribed assignments (Epstein et al., 2001). Mathematics, language arts, and science TIPS assignments for middle grades are used throughout the country (Epstein, Simon, & Salinas, 1997; Van Voorhis, 2003). Interactive homework (IH) that guides parents on how best to help their student understand concepts and skills practiced in the school setting could be beneficial in addressing the heightened demands that the Common Core Standards (National Governors Association Center for Best Practices,

2010) places on elementary students in the United States. There is a lack of literature concerning the use of TIPS assignments for elementary students in the area of reading.

Purpose

The purpose of this quasi-experimental study was to assess the efficacy of IH on improving reading achievement in third grade students at the study school. This study compared the scores of students who completed IH to the scores of students who completed non-interactive homework over a 9-week grading period. This comparison was achieved using Epstein, Salinas, and Jackson's (1995) TIPS with a treatment group and non-IH homework with a comparison group in a quasi-experimental study. Reading achievement was measured using a standardized test before and after the treatment period. Past studies have shown TIPS assignments to be effective in improving scores among students in the middle grades in mathematics, reading, and science (Epstein, Simon, et al., 1997; Van Voorhis, 2003). Terms used in this investigation are listed and defined.

Definition of Terms

The current study examines the use of involving parents in homework completion to enhance reading attainment. The following terms will be used throughout the study.

College and Career Readiness Performance Index (CCRPI): This term refers to the newest school improvement platform in the state of Georgia. It measures a school's effectiveness by taking into account several factors such as scores on end-of-the-year tests and the CRCT (Georgia Department of Education, 2014c).

Criterion Referenced Competency Test (CRCT): CRCT is Georgia's standardized test for Grades 3-8 and is administered to all students attending public schools in the state of Georgia (Georgia Department of Education, 2014a).

Home-based parental involvement: This type of involvement refers to behaviors that show evidence of an active learning environment within the home for children. Home-based involvement activities include things parents do at home to promote their children's development (Fantuzzo, McWayne, Perry, & Childs, 2004).

Interactive homework (IH): Interactive homework assignments are those that promote and enhance parent-child interaction while practicing skills learned in school (Battle-Bailey, 2003). Interactive reading and writing homework will be used in this study for the treatment group.

Literacy: Literacy is "the ability to read and write" with accuracy and fluency (Blake & Hanley, 1995, p. 8).

Non-interactive homework (non-IH): Non-interactive homework assignments are those that can be managed and completed by the student with no support from parents (Battle-Bailey, 2003). In the proposed study, this homework has the same tasks as interactive homework but without invitations, prompts, and explanations for parents.

Normal Curve Equivalent (NCE): A score provided by the STAR assessment (Renaissance Learning, 2014c) that is an interval-level rating of student performance on the assessment from 0-100.

STAR reading assessment: A computer-based, in-depth assessment for reading attainment (Renaissance Learning, 2014a). Scores are given as grade equivalents (GE),

student growth percentiles (SGP), and Normal Curve Equivalents (NCE). STAR reading (Renaissance Learning, 2014a) is a stem of the Renaissance Learning assessment series.

Significance of the Study

Homework is a tool teachers use to encourage their students to review and refine skills learned at school. However, it can be a source of struggle for parents, who may not understand how to assist their child in homework completion (Bang, 2011; Good, Masewicz, & Vogel, 2010; Martinez, 2011; Park, Byun, & Kim, 2011). Scripted homework assignments that provide explanation for parents may be valuable because students who have multiple sources of support are more likely to succeed academically (Epstein, 2013). Several studies have highlighted the belief that parental support can be extremely beneficial to student achievement (Cucchiara & Horvat, 2009; Epstein, 2013; Fantuzzo, Tighe, & Childs, 2000; Griffin, 2010; Radzi, Razak, & Sukor, 2010).

The most recent CCRPI indicators demand the highest reading achievement the state has seen yet (Georgia Department of Education, 2013). Improving reading achievement is a serious issue for the school and system (Georgia Department of Education, 2014a). This study investigated the effects IH had on reading achievement for third grade students. Examining the outcomes of assigning IH may benefit teachers in the school by exploring different types of homework assignments that may promote more effective assistance at home (Bailey, Silvern, Brabham, & Ross, 2004).

While several studies have examined the use of TIPS for language arts in Grades 6-8 (e.g., Epstein, Simon, et al., 1997; Epstein et al., 2000; Hill & Tyson, 2009; Van Voorhis, 2003, 2011a, 2011b), this study is significant because it assessed the impact of

TIPS IH on third grade students in the area of reading achievement. Homework that is designed with a goal of including parent support may result in improved reading achievement for students in all subpopulations. Findings from the study could also have an impact on the way teachers, schools, and educational systems design homework and encourage parental involvement at home. Improved homework delivery methods, such as the use of IH, may increase parents' ability to provide assistance when guiding their children to employ strategies learned at school to the experiences they face at home during and outside of homework completion. The research question that guided this study sought a greater knowledge about the impact of IH on achievement.

Research Question and Hypothesis

Reading achievement has been identified as a problem in the local area (Georgia Department of Education, 2014b). The following research question guided this study:

How do students completing IH compare in reading achievement, as measured by a standardized test, to students completing non-IH?

H_0: There is no statistically significant difference in reading achievement as measured by a standardized test for students who participated in IH as compared to students who participate in non-IH over a 9-week period.

H_1: There is a statistically significant difference in reading achievement as measured by a standardized test for students who participated in IH as compared to students who participated in non-IH over a 9-week period.

Review of the Literature

The literature review is composed of literature intended to deepen the reader's understanding of improving reading achievement including instructional elements, the history of homework, the impact of parental involvement in homework completion, and cultural influences related to homework and academic success. Current literature focuses on interactive homework's influence on raising student achievement in the middle and high school grades (Bennett-Conroy, 2012; Van Voorhis, 2011a). A number of researchers have explored the assignment of interactive homework in middle grades and the results on students' achievement in the areas of language arts, science, and math (e.g., Epstein, Simon, et al., 1997; Epstein et al., 2000; Hill & Tyson, 2009; Van Voorhis, 2003, 2011a, 2011b), but few have focused on the influence of interactive homework on reading achievement in the elementary grades. There is a need for a clearer understanding about achievement changes when interactive homework is used in the elementary setting.

Literature Search Strategy

Current literature addressing the problem of the study follows. Search terms included *homework help*, *reading achievement*, *improving reading ability*, *ESOL students* AND *reading achievement, parental support during homework, home-based involvement, homework* AND *home-based involvement, parent teacher communication, parents as teachers, interactive homework, homework completed independently* and *non-interactive homework*. The literature is divided into categories that include instructional elements of reading achievement, homework, parental involvement and impact, fostering partnerships between school and home, and the impact of cultural differences.

Theoretical Foundation

Epstein's theory of overlapping spheres of influence is the theory guiding this research. The theory asserts that there are three main influential factors in a child's development: home, school, and community. Children have daily interactions with teachers and parents (Epstein, 1986). For students, influences at home and within the school are very prominent in their minds. This can be evidenced when a student accidently called their teacher "mom" or "dad" (Epstein, 2011).

Sometimes, schools and families do not consider themselves to be a team with a similar goal of raising educated children. When this happens, teachers tend to blame parents on low student performance (Lynn, Bacon, Totten, & Bridges, 2010), and parents might argue that the responsibility of teaching their children academically falls on the teacher alone (Torres & Hurtado-Vivas, 2011). When this pattern of thinking is present, school and home environments are not working together for the optimum support of the students they are trying to nurture. When those environments work together with a goal of supporting academic development, students achieve higher levels of attainment (Epstein, 2011).

Epstein's theory of overlapping spheres relates to the research question because interactive homework is a method to connect the overlapping spheres of influence students are affected by each day. Interactive homework, which provides a letter to parents explaining tasks and concepts being practiced, communicates the best practices for helping students with their homework (Epstein et al., 2001). Epstein (2011) maintained that when teachers and parents work together in the combined effort of

educating students, students are more successful. Educators need to collaborate to develop school and family partnerships to improve current practice (Epstein 2011). Using interactive homework is a way that teachers can provide support for parents in working consistently on the same skills and concepts students are learning at school. In this way, teachers and parents are working together, with teachers providing support at school and parents providing the same type of support at home.

Review of the Broader Problem

Instructional elements of reading achievement. The instructional elements of reading achievement discussed here explore how students learn best and what methods have been developed for use in the classroom and at home to further students' reading development. Durkin (1978) identified a common theme of successful strategies has been identified for improving reading comprehension and achievement that several researchers have since endorsed. Strategies such as phonemic awareness, phonics, fluency, repeated reading, comprehension monitoring, completing graphic organizers, questioning, story structure, and summarizing should be explicitly taught and modeled to students (Chang & Millett, 2013; Mudzielwana, 2013; Ortlieb, 2013; Otaiba, Lake, Greulich, Folsom, & Guidry, 2013; Van Keer & Vanderlinde, 2013).

The effectiveness of two preservice teacher programs, Tutor Assisted Intensive Learning Strategies (TAILS) and Book Buddies were examined to determine their helpfulness in teaching primary students to read (Otaiba et al., 2013). Both focused on shared reading as a means for teaching reading strategies. However, one program, Tutor Assisted Intensive Learning Strategies (TAILS), had teachers use scripted lessons to

explicitly teach strategies before shared reading, while the other, Book Buddies, encoded the strategies into the shared reading. Using the *Teacher Knowledge Assessment: Structure of Language* (Mather, Bos, & Babur, 2001), a multiple-choice examination that measures awareness of language structure, it was determined that the program using scripted lessons, TAILS, was more effective in raising reading achievement. An ANOVA was used to compare pretest and posttest differences for the participating teachers' using the *Teacher Knowledge Assessment: Structure of Language* scores (Mather et al., 2001). Findings revealed that the median difference was 15.5 for the teacher using Book Buddies test of preparedness to teach reading and a median difference of 26.3 for the teacher using TAILS (Otaiba et al., 2013).

Mudzielwana (2013) examined focus groups, individual interviews, and observations with reading teachers of third-graders to find the most effective methods and strategies taught for the acquisition of comprehension. Results indicated that third grade students should use strategies such as comprehension monitoring, completing graphic organizers, questioning, story structure, and summarizing. Further, it was found that before comprehension strategies can be learned, the learner should be taught to set a purpose for reading; teachers should model text read aloud and thinking while reading; and students must be provided with many chances to read and interact with text (Mudzielwana, 2013). Peer tutoring among third and sixth grade groups indicated that strategies such as discussing prior knowledge, making predictions before and during reading, identifying the main idea, self-monitoring for understanding, classifying genre, and recognizing story structure were effective (Van Keer & Vanderlinde, 2010). These

findings are relevant because it evidences modeling and scripted methods of reviewing material as the most effective. Interactive homework includes a scripted plan for parents to model and practice skills and strategies.

Reading aloud is a technique to improve student interest and achievement in reading. Interactive read-alouds employed by children and adults can increase students' engagement in reading (LaCour, McDonald, Tissington, &Thomason, 2013). Parents were asked to fill out a two-question survey about their children's interest in reading before and then again 2 weeks after completing a workshop on how to interactively read aloud to children using storybooks. The workshop used Cutspec's (2006) notion of dialogic reading techniques, which is an early childhood intervention strategy. This strategy is grounded in the theory that language matures when adults provide scaffolding opportunities for students during shared reading. The dialogic reading technique is a social interaction allowing children to have a voice as a story-teller when prompted by an adult who uses questioning and positive reinforcement (Cutspec, 2006).

Themes from the survey were analyzed using the constant comparative method and according to the post survey, children's attitudes towards reading improved after the workshop (LaCour et al., 2013). Pretest surveys indicated the following themes: "child liked to look at pictures", "child liked to pretend to read", "child looked at books on occasion", "child played with books, to include coloring on them and acting them out" while posttest surveys indicated the following themes: "We read one of the storybooks everyday", "child loves for us to read the storybooks together", "child told caregiver about the story", "child was beginning to sound out words" (LaCour et al., 2013, p. 6).

Reading aloud, especially in the presence of a parent or other influential adult to enhance reading achievement, may be a helpful addition to general homework assignments.

Chang and Millett (2013) investigated 26 English language learners to assess the impact of repeated reading (Samuels, 1979) on improving reading fluency and comprehension. Thirteen students read passages and followed up with repeated reading four additional times before answering questions about the passage while the other 13 students read the passage just one time before answering questions. Repeated readers improved their ability to correctly answer comprehension questions by 19% over their counterparts, indicating that repeated reading was a successful strategy for increasing fluency and comprehension among ELL students (Chang & Millett, 2013).

Placing the focus on fluency when reading aloud is important. Fluency and speed of reading are concepts that have been viewed as having an influence on reading achievement (Basaran, 2013; Denton & Otaiba, 2011). Basaran (2013) investigated the strategy of improved reading fluency in relation to comprehension. Students were asked to read aloud and answer fill-in-the-blank, multiple-choice, and open-ended questions about what they read. While reading, students were recorded to assess speed and accuracy. The goal for the study was to explore speed, accuracy, prosody, and fluency as an influence on reading comprehension. For this study, speed of reading did not positively relate to in-depth meaning, with a correlation of $r(88) = .383$, $p > .05$. Prosody, or the pattern and sound of reading, was positively associated with comprehension and in-depth meaning linkage with a correlation of $r(88) = .847$, $p < .05$. As fluency is made up of more than just speed, it is assumed from the results of the study

that if students are directly instructed on building elements of fluency, they will also cultivate skills for reading comprehension (Basaran, 2013). However, Denton and Otaiba (2011) studied 1,421 sixth, seventh, and eighth grade students to better understand the connection among oral and silent reading fluency and comprehension for students at risk of failure. Results suggested that oral reading fluency is not as closely associated to reading comprehension in middle grades than previously found in elementary grades, with a correlation of $r(1,419) = .50 - .51$, $p = .05$ (Denton et al., 2011). Researchers seem to have differing opinions regarding fluency to increase reading proficiency.

Writing assignments have been viewed as a method for improving reading proficiency. Studies have discussed the effects that reading and writing have on each other (Graham, B., Berninger, & Abbott, 2012; Graham, S. & Herbert, 2011). In a meta-analysis, S. Graham and Herbert (2011) recommended teaching students how to improve their writing to improve their reading ability. An examination of nine studies evidenced writing about reading, direct writing instruction, and more time spent on writing as factors that increased reading achievement (Graham, S. & Herbert, 2011). With this in mind, B. Graham and colleagues (2012) sought to determine if feelings towards reading and writing were separable constructs among elementary students using a 24-item survey with students in first and third grade. A number of the questions on the survey were geared towards feelings about reading while the others were geared towards feelings about writing. It was found that participating students' feelings towards one task were not closely related towards the other; hence, the two are separable constructs for elementary learners (Graham, B. et al., 2012).

Homework. Homework offers an opportunity for students to use the most effective instructional elements of reading achievement at home; however, homework has many other purposes as well. Some purposes for homework include reviewing material learned at school and a way to communicate with parents about what is being learned in class (Carr, 2013; Epstein et al., 1997; Van Voorhis, 2003). Homework is sometimes assigned to meet the demands of school administrators or systems (Hoover-Dempsey, Bassler, & Burrow, 1995). Homework may also be assigned as a form of punishment (Epstein & Van Voorhis, 2011). The purposes for assigning homework need to be considered when looking to use it as a means for improving reading achievement.

A brief summary of the history of homework in the United States follows. The use and purposes of assigning homework has evolved (Cooper, Robinson, & Patall, 2006; Gill & Schlossman, 2004; Winerip, 1999). Before the 20th century, rote memorization was the normal practice for homework assignments (Gill & Schlossman, 2004). By the 1920s, homework was viewed as an intrusion on the home structure (Patri, 1925; Wallace, 2006). Many people argued that homework was harmful to children's health but during the late 1950s, when the Soviet Union launched Sputnik, homework was valued and welcomed (Gill & Schlossman, 2004). Alternatively, the civil movement in the 1960s caused people to view homework as oppressive (Canadian Council on Learning, 2009). In the 1980s, with the United States' focus on global position and with standardized test scores low, homework was again embraced with fervor (Cooper, 1989). By the late 1990s, parents were concerned about the excessive pressure homework put on students (Winerip, 1999). Homework is supported when the country is concerned with competing

against other nations educationally because it is a familiarized form of advancing educationally, among all areas of learning, however, parents often find fault with excessive and time-consuming assignments that take away from family time, making homework a controversial issue in education for many years (Gill & Schlossman, 2004).

The disagreement about homework's effectiveness in raising academic achievement has been long-lasting (Fehrmann, Keith, & Reimers, 1987; Gill & Schlossman, 2004). Even still, homework is an element used by the vast majority of teachers to reinforce concepts learned in the classroom. Several studies have reported on the effect homework has on academic achievement (Battle-Bailey, 2006; Kitsantas, Cheena, & Ware, 2011; Maltese, Tai, & Fan, 2012). The 2003 Program for International Student Assessment (PISA) student questionnaire was used to investigate students' performance as related to homework completion (Kitsantas et al., 2011). When support resources, such as a quiet area for homework completion, necessary books, an Internet connection, a dictionary, and a calculator were provided, there was a "moderate correlation" among homework and achievement, $r(5, 198) = .32$, $p < .001$ (Kitsantas et al., 2011, p. 321). This suggested that support resources are an important element when it comes to homework's effectiveness in improving achievement. Teachers should ensure students have necessary resources for homework completion. Time spent on homework completion can make a meaningful difference on standardized test scores, provided students are equipped with necessary materials (Kitsantas et al., 2011). Maltese and colleagues (2012) used data from the National Center for Education Statistics collected in 1980 and 2002, and the Education Longitudinal Study of 2002 to investigate the

usefulness of homework on improving students' scores. Elements of the data such as final course grades, time spent on homework, standardized test scores, and demographic information such as race, gender, and parent education level were examined. Unlike Kitsantas and colleagues (2011), the researchers found no consistent relationship between time spent on homework and grades, leading them to argue that the large amount of time students spend on homework may actually be the problem with it (Maltese et al., 2012). The information yielded leaves more questions about the effectiveness of time spent completing homework.

Homework is only effective in increasing academic achievement if students are motivated to complete it. Bempechat, Li, Neier, Gillis, and Holloway (2011) examined students' feelings toward homework by interviewing 92 ninth graders with low socio-economic backgrounds. Some students were categorized as high achieving while others were classified as low achieving based on grades and performance. High-achieving students typically had self-regulatory skills, which enabled them to complete homework with a sense of commitment while low-achieving students were found to be noncompliant towards homework unless it was deemed enjoyable and easy to perform (Bempechat et al., 2011). This is important because any interactive homework, designed to improve reading achievement must engage even low achieving students to be successful. Teachers should construct homework assignments that meet the needs of the students for whom they assign the tasks.

Types of homework should be considered when teachers decide to assign it to their students. Homework assignments can be viewed as a burden or a motivator to

students based on the type, frequency, and perceived worth of the task (Bempechat et al., 2011; Martinez, 2011; Rudman, 2014; Sénéchal, 2006). Homework that actively engages students is more beneficial than that assigned for completion based on rote memory (Canadian Council on Learning, 2009). In an assessment of matters regarding the use of homework at the elementary level, it was found that students' motivation for homework completion seemed to be directly related to teachers' homework practices including quality of assignments, frequency, the amount of guidance supplied, and links between the content and student interests (Rudman, 2014). Homework assignments that were given appropriate time to complete and were followed by substantial feedback seemed to be the most advantageous form. Students who felt they had more control over the homework structure and environment were more likely to complete it with a positive attitude. However, Rudman (2014) also found that parental help seemed to have an important impact on the quality of learning.

Parental assistance with homework. Until the 1990s, only parents who took the initiative to get involved supported their children in their homework endeavors. TIPS interactive homework was created to get parents involved and make them aware of what their child is learning at school (Epstein, Simon, et al., 1997). Before that time, virtually all homework was considered non-interactive. There are tasks parents can do with their child during homework completion that are effective in increasing reading achievement.

Parental involvement in the area of homework help has been one of the most contentious aspects of parental involvement. Researchers have asserted that homework help can improve academic achievement (Jeynes, 2012; Kotaman, 2013). On the other

hand, opposing researchers have publicized that homework help by parents may not always positively affect student achievement (Bang, 2011; Cooper, Lindsay, & Nye, 2000; Hill & Tyson, 2009; Xu et al., 2010). With differing opinions on the effectiveness of parental support during homework completion, teachers should identify the types of homework that best support parents in helping students achieve academic gains.

In a meta-analysis of 51 studies on parental involvement, Jeynes (2012) looked at components of the school-based initiatives for parental involvement to see which, if any, would be most effective in increasing student achievement and found that both mother- and father-initiated parental involvement and school-initiated programs had an impact on student performance. The researcher conceded that parents who initiated high levels of support without incentives, such as parental involvement programs hosted by the school, seem to be the most effective; however, programs designed to promote parental involvement seemed to have positive associations with student achievement (Jeynes, 2012). Shared reading endeavors at home, especially when guided by teachers, were highly effective in raising students' reading achievement and, contrary to past studies, the effect sizes for parents checking their child's homework were larger for school-based programs, showing that when parents and teachers work together they are more successful than working in isolation to improve academic achievement (Jeynes, 2012).

To determine if dialogical storybook reading with parents increased students' receptivity towards vocabulary and interest in reading, a parent workshop was conducted to educate parents on how to use dialogical storybook reading (Kotaman, 2013). Twenty of the 40 participating parents attended the workshop while the other parents did not. A

Turkish version of the Peabody Picture Vocabulary Test (PPVT) served as a pretest and posttest to measure vocabulary acquisition (Katz, Onen, Demir, Uzlukaya, & Uludag, 1974). Posttests of vocabulary acquisition were administered to all students 7 weeks after the workshop. It was found that students whose parents participated in the workshop and conducted dialogical storybook reading at home with their children increased their vocabulary a mean difference of 6.9 on the PPVT, while students of parents who did not use dialogical storybook reading had a mean increase of 2.15. Results for the PPVT posttest scores were analyzed using analysis of covariance (ANCOVA) to adjust for differences in pretest scores. The pretest was used as the covariate and results showed significant differences between the control and treatment group ($F(1) = 6.91$, $p < 0.05$). PPVT scores increased significantly for children whose parents used the dialogical storybook reading (Kotaman, 2013).

Parental involvement in homework completion is not always viewed as positive (Bang, 2011; Cooper et al., 2000; Hill & Tyson, 2009; Xu et al., 2010). Some research indicates that homework can be detrimental to students' scores in class because parents of low socioeconomic background or cultural differences are incapable of providing their child with necessary help during homework completion (Bang, 2011). Bang (2011) studied the effects of homework on 192 immigrant students. Trained bilingual moderators led focus groups while a non-participant observer took detailed notes on meetings. Data collected provided student and teacher viewpoints about homework impediments and obstacles regarding completion, and surveys were also completed on homework experiences for all 192 students (Bang, 2011). Results indicated that homework

assignments can hinder immigrant students because of decreased working academic proficiency in English among students and parents, meaning that the parents would be unable to accurately help their children with homework completion (Bang, 2011).

A survey of over 700 parents of children in all grade levels focused on four levels of parental involvement including direct involvement, eliminating distractions while the child does homework, autonomy support, and parental interference, but the finding was that positive parental involvement was associated with lower class grades and test scores (Cooper et al., 2000). While many forms of parental involvement are effective in promoting student achievement, homework help, defined as parents helping their children with homework assignments in the home, was found to potentially elicit poor school performance in a meta-analysis across 50 studies regarding parental involvement (Hill & Tyson, 2009). This could be due to parental pressure or dissimilar ways parents and teachers use strategies and problem solving methods. Similar findings were reported by Xu and colleagues (2010), who found that high expectations regarding education and school involvement positively affected reading achievement among students, but homework help was found to have the greatest negative effect on reading achievement when they explored the connection between parental involvement and self-regulated learning, including reading achievement, among fifth grade students. One possible explanation is that higher achieving students require less assistance from parents on homework (Hill & Tyson, 2009; Xu et al., 2010). Given that homework help from parents doesn't always result in increased academic achievement, educators must consider enlisting parents as homework helpers under the most appropriate conditions.

The type of help parents offer can mean the difference between successful and unsuccessful homework sessions. Sénéchal (2006) looked at different types of parental involvement techniques and how they seemed to affect standardized test scores and found that parents who taught explicit literacy skills such as phonemic awareness and letter correspondence had children with more advanced reading achievement than parents who only read aloud to and listened to their children read. On the other hand, students' academic functioning or ability may be the influence that generates more parental support during homework (Dumont, Trautwein, Nagy, & Nagengast, 2014). Dumont and colleagues (2014) measured and analyzed student performance and parental supports in one group of students when they were in the fifth grade and then when they were in the seventh grade. Results indicated that students who scored poorly on reading achievement in fifth grade had parents who exhibited controlling behaviors during homework in seventh grade; while students who performed higher on reading achievement in fifth grade had parents who were more responsive and supportive by the time they were in seventh grade. Findings from Dumont and colleagues' (2014) study suggest that third graders who participate in the current proposed enquiry may have parents whose behaviors during homework have been affected by past academic performance and may be further affected contingent upon reading achievement in the current school year. According to Katz, Kaplan, and Buzakashvily (2011), parents who actively participated in homework help and showed value towards the completion of the work had students who were more motivated to complete assignments. The research conducted by Sénéchal (2006), Dumont and colleagues (2014), and Katz and colleagues (2011) suggest that

homework help, when provided with interest and knowledge about the content can be beneficial to a student's academic success. Homework help can be most beneficial when parents' helping style is supportive rather than controlling.

Teachers can help their students gain a better understanding of academic concepts learned at school by developing homework experiences that interactively enlist parental support (Battle-Bailey, 2006). Homework methods have been developed to enhance parental support with academic achievement. Studies have shown that when parents participate in training courses that teach them how to assist their child with IH, student learning can improve (Battle-Bailey, 2006; Van Voorhis, 2003). Battle-Bailey (2006) examined the effectiveness of IH among students whose parents had been trained on how to assist with the assignments, students whose parents were asked to participate but not trained, and students whose parents were not asked to assist in the completion of the homework activities. Using parent survey data and pre- and posttest student achievement scores, it was determined that parents who attended the workshop had students whose reading scores improved the most. TIPS was developed as a means of enhancing parental support because including parents in homework activities increases students' impetus to complete assignments to the best of their ability (Epstein, 1994). Studies have found interactive homework to be effective in various stages of academic development (Battle-Bailey, 2006; Bennett-Conroy, 2012; Van Voorhis, 2003, 2011b).

Using Epstein's TIPS homework approach, Van Voorhis (2003) collected data with sixth and eighth grade science students in a comparison study among students assigned IH and students assigned non-IH. Surveys of students and parents as well as

student grades were used in the study. Eighty percent of students who had TIPS homework reported that their parents were "sometimes, frequently, or always involved in science homework assignments" while over 80% of students assigned to non-TIPS homework reported that their parents were "never, rarely, or sometimes involved in their science homework assignments" over an 18-week study period (Van Voorhis, 2003, p. 329). Additionally, 13% more students who completed TIPS homework versus non-TIPS reported being able to talk to a family partner about science work. Van Voorhis (2011b) conducted a 2-year longitudinal study of mathematics achievement to explore the effects of including family members in homework completion among more than 150 families from urban elementary schools. When asked their feelings about assisting their child in completing mathematics homework, 62% of families that utilized TIPS homework assignments reported positive feelings, while only 30% of parents reported positive feelings among the group that did not participate in TIPS. Findings led the researcher to conclude that regardless of the familial income or education level, purposeful inclusion of parents in completing homework assignments can be a beneficial and useful help for students (Van Voorhis, 2011b). Similar studies have shown that the more parents assist with interactive homework, the higher students with special needs and those at risk for failure perform (Bryan, Burstein, & Bryan, 2001; Hoover-Dempsey et al., 2001).

Involving parents in educational efforts in the home. Family involvement in schools and towards academic achievement is widely valued as an important influence on school success rates and in fact, for schools to make improvements, various interest groups must collaborate together—community members, educators, and families (Epstein

2013; Epstein, Coates, et al., 1997; Epstein & Van Voorhis, 2010). Teams of families and educators who "plan, conduct, evaluate, and continually improve goal-linked activities" are the most effective partnerships (Epstein, 2013, p. 116). Studies have shown that there is variability in the way students of diverse backgrounds learn and are taught; furthermore, there is evidence to show that subpopulations such as African American, Native American, and Hispanic children usually fall behind peers (Schellenberg & Grothaus, 2011; Vang, 2006). It has been suggested that schools offer different educational opportunities to students based on their gender, race, social class, and ethnicity (LaRocque, Kleiman, & Darling, 2011). With schools becoming more and more diverse, there is a challenge to meet the needs of all students. In an effort to unite Epstein's (2011) overlapping spheres of influence it is essential that teachers communicate effective methods for supporting students in academic efforts within the home. To convince all parents to actively participate in homework activities, it is necessary that teachers establish a relationship of communication and trust. Teachers and school leaders must learn to communicate effectively with family members about homework completion (Epstein, 2013).

Outreach programs designed to educate and engage parents in their student's academic achievement have had success. READY4K! is a program for enhancing early literacy using text messaging communication with parents (Wong, 2014). The Phonological Awareness Literacy Screening (PALS) test served as a pretest and posttest to measure the influence of READY4K! on children's literacy growth. The program's effect on parent behavior and actions such as participating in literacy activities at home,

helping children with writing, reading to their children, and reciting familiar nursery rhymes was measured using a parent survey. After participating in READY4K!, reported parental engagement in literacy activities at home increased and vocabulary acquisition increased (York & Loeb, 2014). Parental involvement programs hosted by schools seemed to be the most effective and encouraged a larger number of homework checks conducted by parents (Jeynes, 2012). The school and individual teachers should take on the responsibility of actively engaging parents in the education of their children. Regardless of cultural differences, it is evident that parents want to get involved and will rise to the occasion of supporting their children at home (Bennett-Conroy, 2012; Jeynes, 2012; York & Loeb, 2014).

Impact of cultural differences on homework help. Cultural differences can impact parental involvement and school achievement. Different cultures educate children differently. For instance, European regions rely heavily on parental support in educating students, while Hispanic cultures prefer teachers take on the responsibility of educating youth (Torres & Hurtado-Vivas, 2011). Latino families may suffer because of language, financial, and cultural barriers as homework requiring parental help can cause problems due to language barriers and lack of education about the content area; further, they may view homework an intrusion on family time (Good et al., 2010; Martinez, 2011; Park et al., 2011). However, read alouds between parents and children in a home where English is the second language can help parents. Varied transactions and dialogues take place when a parent and child read together and parents and children can negotiate the meaning of text together (Larrotta & Ramirez, 2009). Parental support for homework completion

can also be helpful to students who speak English as a second language (Chang & Millett, 2013). When parents are given the tools necessary to be successful, such as explanations of the assignments including goals and targets upon completion, parents helping their child with homework can be mutually beneficial to parents with cultural differences.

Parents, especially those of ethnic diversity or low socioeconomic status, often feel that they are not welcome to participate in school-related activities and perceive that teachers do not do enough to involve them in the happenings at school or provide them with resources necessary to assist their children at home with homework while teachers feel that these parents do not want to be engaged (Bennett-Conroy, 2012). Parents who feel welcome, respected, trusted, and are given the proper knowledge may be better able to help their children with specific assignments. To reap the benefits of parents helping their children with homework, teachers must first overcome barriers between students and achievement such as communication gaps, lack of an appropriate and well-articulated ELL plan, culture clashes, language acquisition, insufficient multiculturalism exposure among teachers, and a shortage of support for families coming to the country (Good et al., 2010).

The literature reviewed has given insight into the current uses and perceptions of homework while examining actions that may affect homework's efficacy in improving academic achievement. Forms of interactive homework have proven successful in improving academic achievement in middle grades among different subject areas. Little is known about the effects of interactive homework in the elementary setting. The current study seeks to close the gap in literature regarding interactive homework by examining its

effects on reading achievement among third grade students at the study school. Following are implications for the project.

Implications

A program policy white paper is the project deliverable. Results may clarify ways to effectively involve parents in homework assignments that increase reading achievement. Anticipated outcomes may yield higher growth of students' reading achievement. If the null hypothesis can be rejected, evidence from the research literature in conjunction with results from this study may be used to outline policy recommendations for including parents in the process of improving reading achievement in elementary education.

Summary

Literacy, or the ability to read and write, is vital because reading is a major building block for all avenues of academia including science, mathematics, social studies and more (Larwin, 2010). Low reading achievement has been identified as a problem for the central Georgia school in this study. Some reasons for the problem could be a high proportion of English language learners in combination with a low incidence of effective parental involvement. A review of literature has shown that parental homework assistance can be effective in raising student achievement in various circumstances. Homework assignments that incorporate the involvement of parents and attempt to communicate the objectives of the tasks have been effective in increasing academic achievement. This project study examined the effect interactive homework has on reading

achievement in third grade at the study school. The next section will describe the methodology that will be used to conduct the project study.

Section 2: The Methodology

Research Design and Approach

During the study, a treatment phase of research was conducted such that one group participated in specified activities while another group did not; therefore, it was preferred to conduct experimental research (Cohen, L., Manion, & Morrison, 2007). Results allowed for comparison to determine the statistical significance of differences in reading achievement for students who participated in IH as compared to students who participated in non-IH over a 9-week period. A standardized pre- and posttest of reading achievement was administered to both groups to determine effectiveness of the treatment. Due to the nature of this educational research and data collection, it would have been impractical to assign participants randomly to groups, so a quasi-experimental design was selected wherein two teachers assigned IH to their classes, while the remaining two assigned non-IH.

Setting and Sample

The population from which the sample was drawn includes third grade students at an elementary school in central Georgia. The most current enrollment is 672 students, and the racial profile is approximately 39% African American, 35% Caucasian, 17% Hispanic, 6% multiracial, 2% Asian, .5% American Indian, and .5% Pacific Islander (Georgia Department of Education, 2015b). The study school is a cluster site for the English Speakers of Other Languages (ESOL) and services students in surrounding school zones whose native languages include Spanish, French, Karenni, Turkish, Chinese, and Mandigo (Hall, 2013). Socio-economic status is a significant factor as 97% of students at the

elementary school receive free or reduced lunch (Georgia Department of Education, 2015c). Permission to conduct research was granted by the principal of the study school and district leaders. Convenience sampling was employed because of the available research location and population (Cohen, L. et al., 2007). Two of the four classes participated in the treatment, while the other two classes served as the comparison group. Teachers were randomly assigned to assign IH or non-IH, and assigned to the treatment or comparison group. The teachers were directed to assign students numerical identifiers and refer to students only in those terms when relaying information to protect anonymity. A priori power analysis (Cohen, J., 1988) was conducted using G Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007) to determine an appropriate sample size. With a level of significance set at p= .05, power criterion at .80, and effect size of .5, as suggested by Murphy and Myors (1998) for educational research, the total sample size for each group should be at least 22 to make generalizations about the population. This study plan, including approximately 40 students in each group, was more than sufficient for making generalizations. Table 1 illustrates student demographics in each classroom. Class A made up the English as a second language (ESOL) class and Class D made up the early intervention program (EIP) class. Students in Class A receive services from an ESOL teacher for one segment per day in the classroom. Students in Class D receive extra support from an EIP teacher for one segment per day.

Table 1

Demographic Profiles of Classrooms

Class	Homework type	Female	Male	African American	Hispanic	White	Asian
A	Non-IH	55%	45%	25%	10%	35%	25%
B	Non-IH	45%	55%	60%	5%	35%	0%
C	IH	55%	45%	30%	25%	45%	0%
D	IH	35%	65%	40%	15%	25%	5%

Instrumentation and Materials

Instruments and materials used were Epstein, Salinas, Jackson, and Van Voorhis's (2000) TIPS language arts IH assignments, adapted for third grade and Renaissance Learning's (2014a) STAR reading assessment. TIPS IH were used with the treatment group. Permission to use TIPS assignments was obtained from the primary author (Appendix B). A sample assignment, including reading and language tasks, has been included in Appendix C. These tasks were used for students completing IH and non-IH. Each IH task included a letter to parents explaining what the student is learning, procedures for completing the task, and a parent signature line (Appendix D).

The STAR assessment is a computerized test of reading achievement that provides teachers with an interval-level measure of student performance (Renaissance Learning, 2014a). The name of the test, STAR, was formerly an acronym for the Standardized Test for the Attainment of Reading but the acronym is no longer used because the company has since made STAR assessments for other academic areas (Samuels & Wu, 2005). The study school officially administers the STAR assessment

three times a year to monitor student growth, at the beginning, middle, and end of the year (MetaMetrics, 2013). Teachers are free to use the STAR (Renaissance Learning, 2014a) assessment throughout the year as often as needed to adapt skill groups and track levels of achievement. The test computes reading achievement by adjusting the difficulty of each question based on the performance on the last question—with 25 total questions for each testing period (Renaissance Learning, 2014a). Software calculates scores through a process Renaissance Learning (2014a) calls calibration, for which they administered questions to nationally representative collections of learners and have performed statistical analysis of the difficulty of each item based on performance of students within that age and grade range. The STAR (Renaissance Learning, 2014c) reading assessment provides Normal Curve Equivalent (NCE) scores, which convert raw scores to interval-level scores ranging from 0-100. Tests of internal consistency and test-retest reliability were completed on the STAR (Renaissance Learning, 2014c) reading test between 2012 and 2013 with a combined grade reliability of .97. Several hundred predictive validity studies demonstrate strong validity (Renaissance Learning, 2014c).

Data Collection and Analysis

Prior to assigning IH or non-IH, teachers sent home letters to parents of students in the comparison (Appendix E) and treatment (Appendix F) group explaining the *purple papers*, which is a term that will describe both IH and non-IH tasks because they were printed on purple paper. The letter explained that each purple sheet contains two activities, which are a practice of what students are learning at school; they were assigned each Friday and collected the following Friday. On the letter to parents of students who

received IH, stress was placed on students using a family partner to complete assignments (Appendix D). All students took the initial STAR (Renaissance Learning, 2014a) test to determine their baseline reading achievement. Classroom teachers provided a NCE score result summary for their class after removing names and replacing them with the number identifiers. During the 9-week period, each group completed two homework tasks, or purple papers, per week geared towards improving reading and comprehension (Appendix C). The group completing IH had a parent letter and signature page attached to the purple paper that gave additional instructions for parental participation. The page has been included as Appendix D. Students were directed by the teacher to write their number identifier on homework tasks, purple papers, rather than their name. Only students completing IH had a detachable parent instruction and signature page, which was removed by the classroom teacher before being delivered to the researcher. Teachers in each respective class, treatment and comparison, distributed homework assignments to the students at the beginning of each week and collect completed tasks the following week. The teachers who assigned IH removed the stapled parent signature page from the purple papers to assure that the work was completed with an adult. Finished homework tasks from both groups were placed in a box in a locked office where a spreadsheet was used to record completed student tasks. Incomplete tasks, or IH tasks that did not include a parent signature, were not submitted to the researcher. The number of tasks returned by students in both groups was taken into consideration and discussed in the findings. After the 9-week period, all students took the STAR (Renaissance Learning, 2014a) test for a second time to determine reading achievement. Once identifiers were removed by the

teachers and replaced by student numbers, data from the comparison and treatment groups on the STAR (Renaissance Learning, 2014a) test were analyzed to test the hypothesis.

Students' STAR (Renaissance Learning, 2014a) scores were analyzed to assess growth over time for each student using the STAR Normal curve equivalent (NCE) scores (Renaissance Learning, 2014c). The NCE is a method for standardizing scores received on the assessment from 0 to 100 with equal-interval properties (Renaissance Learning, 2014b). SPSS was used to conduct statistical analyses. An analysis of covariance (ANCOVA) was used with NCE scores to determine whether IH completed with a parent increased reading achievement when compared to non-IH. There was one within-subjects factor, test type (pre/post); and one between-groups factor, homework type (IH or non-IH). This inferential statistical test was chosen because there was a pre- and posttest of an independent variable (students participating in IH or non-IH) and a dependent variable (reading achievement) which is interval-level data (Cohen, L. et al., 2007).

The significance level holds that the p-value must be less than .05 to reject the null hypothesis, which states that there will be no statistically significant difference in reading achievement as measured by a standardized test for students who participated in IH as compared to students who participated in non-IH over a 9-week period. Because both IH and non-IH assignments were voluntary, it was necessary to evaluate whether one type of homework was more likely to be completed over the other. Reported completion of assignments was evaluated using a t test. Participants were given scores 0-

9 based on the number of tasks completed. The type of homework is a categorical variable with two categories while the number of tasks was continuous. A t test can be used to determine if categorical and interval variables have a significant association by comparing means (Cohen, L. et al., 2007).

Assumptions, Limitations, and Delimitations

Parent fidelity of implementation was assumed—that parents would engage in the tasks associated with IH, following directions and participating in homework endeavors. It was also assumed that students would understand instructions for taking the STAR test and commit to accuracy. Last, it was assumed that parents would not discuss or share assignments with parents of students in the other classes, thereby potentially causing cross-contamination. One protection in place for this is that students within the same class are all assigned the same homework assignment and homework assignments are routinely assigned based on teacher preference. Another consideration is that all homework tasks from IH and non-IH groups were printed on and referred to as purple papers. A delimitation of the study is time. Because students participated for a 9-week period, achievement data may not show substantial improvement. A possible limitation is undesirable student experiences within that 9-week period—for example, a divorce in the family, the loss of a pet, etcetera.

Protection of Participant Rights

The school system granted permission to access STAR (Renaissance Learning, 2014a) test data and conduct the study. I obtained Walden University IRB approval, number 11-20-15-0067074, before data was collected. Anonymity was protected because

teachers removed parent and student names from all data and replaced them with numerical identifiers (Bogdan & Biklen, 2007). Additionally, the report did not reveal the actual location of the study school. Data and homework tasks were stored in a securely locked location for 5 years. After that time, homework tasks and data will be securely shredded and disposed.

Data Analysis Results

This study examined the effectiveness of the using interactive homework tasks to improve reading achievement. Results were gathered using pre- and posttest data from the standardized equal-interval scores from the STAR test (Renaissance Learning, 2014a). Given that homework tasks were voluntary, completion of tasks was analyzed as well by gender, race, and type of task.

Gender

An independent-samples *t* test was conducted to evaluate whether the mean number of tasks completed differed among females and males. The number of tasks completed was the dependent variable and the grouping variable was gender. The test was not significant, $t(78) = 1.40$, $p = .165$. The η^2 index was .02, which indicated a small effect size. Students who were males ($M = 1.93$, $SD = 2.36$) tended to complete about as many tasks as females ($M = 2.76$, $SD = 2.95$). The 95% confidence interval for the difference in means was -2.02 to 0.35. Based on this result, there is no significant difference between the number of tasks males and females are likely to complete.

Ethnicity

A one-way analysis of variance was conducted to evaluate the relationship between different ethnic groups and completion of homework tasks. The independent variable, ethnicity, included four levels: Caucasian, African American, Hispanic, and Asian. The dependent variable was the number of homework tasks completed over the 9-week period. The ANOVA was not significant, $F(3,76) = 1.22$, $p = .307$. The strength of the relationship between the ethnicity and the number of completed tasks, as assessed by η^2, was small (.05). The results indicated that the number of tasks completed was not significantly affected by the ethnicity of the student. The means and standard deviations for the ethnic groups are in Table 2.

Table 2

Means and Standard Deviations for the Number of Tasks Completed by Ethnic Groups

Ethnicity	*N*	*M*	*SD*
Caucasian	28	1.96	2.63
African American	34	2.24	2.51
Hispanic	15	2.54	2.99
Asian	5	4.40	3.05

Type of Homework Task

An independent-samples *t* test was conducted to evaluate whether the mean number of tasks completed differed under the type of homework task it was, IH or non-IH. The number of tasks completed was the dependent variable and the grouping variable

was type of homework, interactive or non-interactive. Because the Levene's Test for Equality of Variances showed equal variances could not be assumed, $F(1, 78) = 11.84$, $p = .001$, a t test that does not assume equal variances was used. The test was significant, $t(66) = 3.48$, $p = .001$. There was a significant difference between students in the interactive homework group and students in the non-interactive homework group on the number of tasks completed. The effect size, as measured by η^2 was large (.14). That is, 14% of the variance in the number of tasks completed was accounted for by the type of homework. The mean number of tasks completed for students in the non-interactive homework ($M = 3.30$, $SD = 3.00$) was higher than the mean for students in the interactive homework group. This shows students in non-interactive homework group completed about two tasks more, on average, than students in the interactive homework group.

Analysis of Pre-Post Test Scores on Reading Achievement for Both Groups

Eighty participants at the study school were assigned IH or non-IH tasks. Groups were evenly divided by classes so that 40 students were in the control group (non-IH) and 40 students in the treatment group (IH). Forty-five participants completed tasks during the 9-week period, 18 students in the treatment group, and 27 students in the control group. This does not support the efficacy of IH. Students who chose not to participate in any of the voluntary homework tasks were excluded from the original analysis because the analysis was conducted to test the null hypothesis, which stated that there would be no statistically significant difference in reading achievement as measured by the STAR test (Renaissance Learning, 2014a) for students who participated in IH as compared to students who participated in non-IH over a 9-week period.

Using only students who completed tasks, a t test for independent samples showed that there was a statistically significant difference between IH and non-IH groups on the reading achievement pretest, $t(43) = 2.23$, $p = .031$. The effect size, as measured by η^2 was medium (.10). Mean scores were higher among the 18 students who completed IH ($M = 46.36$, $SD = 12.39$). Among students in the non-IH group, results were lower ($M = 36.39$, $SD = 15.98$). However, the students in the IH group had a pretest mean almost 10 points higher than the non-IH group. Because of the difference between the treatment and control groups on the pretest, it was necessary to adjust the posttest for the difference between the two groups on the pretest. Therefore, an analysis of covariance (ANCOVA) model was used to assess the difference in the groups' posttest means after adjusting for the pretest.

Prior to using ANCOVA, it was necessary to determine whether or not an assumption of ANCOVA was met. The assumption was homogeneity of the slopes. Specifically, ANCOVA assumes that the slopes of the regression lines for each group are similar. When the assumption is met, ANCOVA can be used to evaluate the difference between groups' posttest means after adjusting for differences in the covariate, the pretest means. The test of the homogeneity of the slopes was not significant, $F(1, 41) = 1.04$, $p = .314$, meaning the slopes were homogenous and ANCOVA could be used to evaluate the difference between the two group means on the posttest after adjusting for the pretest, the covariate.

After adjusting for pretest, the ANCOVA for the effect of the type of homework on the posttest scores was not statistically significant, $F(1, 42) = 2.81$, $p = .101$.

Therefore, the null hypothesis was retained. The treatment group (M = 49.32, SD = 1.45) had a 95% confidence interval for the difference in means of 47.40 to 52.25. The control group (M = 46.12, SD = 1.17) had a 95% confidence interval of 43.76 to 48.48. Although not statistically significant, the difference in means may have practical significance. The adjusted posttest mean for the interactive homework group was over three points higher than the adjusted posttest mean for the non-interactive homework group. However, this does not account for fewer students participating and fewer assignments completed in the IH group.

A second ANCOVA was conducted using a grouping variable with three categories: students who completed IH, students who completed non-IH, and student who did not do any of either tasks. The covariate was the pretest and the criterion variable was the posttest. The test of the homogeneity of slopes was not significant, $F(2, 74) = 2.64$, $p = .078$, meaning the slopes were homogenous and ANCOVA could be used to evaluate the difference between the two group means on the posttest after adjusting for the pretest, the covariate. After adjusting for pretest, the ANCOVA showed there was no significant difference in the adjusted posttest means of the three groups, $F(2, 76) = 0.85$, $p = .432$. The effect size was small (.02). Therefore, the homework tasks, IH or non-IH, had little effect on reading achievement.

Summary

The guiding question for this study was "How do students completing IH compare in reading achievement, as measured by a standardized test, to students completing non-IH?" Results indicated that students completing IH compare similarly to those

completing non-IH, and similar to students who did not participate in either of the homework assignment groups. Completion of tasks, whether IH or non-IH was lacking in this study and likely hindered the results. A recommendation for future queries about the effectiveness of IH over non-IH tasks would be to assign required homework and hold participants accountable for completion of assignments. Because the data collected were strictly quantitative, I am unable to make any reliable presumptions about those factors. The next section describes the project used to address the research question and discusses findings.

Section 3: The Project

Introduction

The project for this study is a program policy white paper for delivery to school district stakeholders. Low reading achievement in the third grade was identified as a problem at the study school. In an effort to address the issue of low reading achievement, it was postulated that eliciting parental support could be effective. Homework assignments allow for communication of academically sound strategies and practices between school and home. Interactive homework invites parents to take part in their children's academic endeavors by giving them directions and prompts to participate in the learning strategies and activities students are practicing in school. This study compared the efficacy of homework that was designed for parental participation to homework designed for students to complete independently on reading achievement growth over a 9-week period. A modified version of the Epstein et al.'s (1995) TIPS homework was used to assign IH and non-IH tasks for students in a third grade at the study school.

After data were collected and analyzed, results were used to formulate the campus level program policy white paper, which will be presented to the district and other community stakeholders (Appendix A). A recommendation to continue using IH in elementary schools was included in the white paper although results from this study did not validate the hypothesis that there would be significant improvement in reading achievement among students who completed IH over those who completed non-IH. Suggestions for future research were also included in the paper. This chapter offers a

rationale for the program policy white paper and presentation, a review of the literature, a project description and evaluation, as well as project implications.

Description and Goals

The study yielded the results of using interactive homework as a means to improve reading achievement. The white paper itself is the product. The white paper described the problem, research question, and details of the study. A discussion of the study findings, describing the data analysis is also included in the project.

Spaulding (2014) identified a program as a "temporary set of activities brought together as a possible solution to an existing issue or problem" (p. 3). In this study, IH was a program that attempted to address the issue of reading achievement. After reviewing the data, I determined that a program policy white paper would be most beneficial. A research white paper that is problem/solution structured is an authoritative report that provides readers with information about an issue or problem and offers a solution (Kantor, 2009). The goal of the white paper is to include background of the existing policy and problem, summarize the analysis of the study findings, present evidence of the problem using literature and research, and outline recommendations for the intended audience. The white paper will provide educators with an understanding about an instructional method that could be found to be effective. The paper includes an introduction, followed by a description of the problem, and a suggested solution to the problem.

Rationale

A program policy white paper was selected as the project (Appendix A) because it allowed me to describe data collected and discuss the analysis of data collection in order to answer questions (Wholey, Harry, & Newcomer, 2010). G. Graham (2013) described white papers as helpful tools to describe a problem in detail then offering judgment about a solution. After consideration of the data analysis, I felt the problem would be best addressed through the content of a white paper. The problem and solution in the white paper parallel the local issue of low reading achievement among third grade students at the elementary school in central Georgia that served as the research site. The white paper provides research-based ideas for how to implement techniques that may improve reading achievement at the study school in third grade. The paper was written to engage district administrators, teachers, and stakeholders in the effort to seek out a solution for reading achievement deficits. I did not choose to do a professional development plan or program evaluation for this project because my goal was to offer information on the problem and solution to a larger group of community stakeholders in an effort to allow them to make decisions for themselves as to whether they felt interactive homework was beneficial and worthwhile to use or endorse in their situations.

The district and study school desired to raise the number of students meeting or exceeding reading expectations set forth by the state. The report was written to engage district administrators, teachers, and stakeholders in the effort to seek out a solution for reading achievement deficits. The paper explained my project while encouraging

stakeholders to engage in data-based decision-making for future efforts to improve reading achievement.

Review of the Literature

An additional review of literature regarding the genre of the selected project follows. A position paper was selected for the project. The white paper includes the background of the problem, summary of study findings, review of literature and research, and outlined recommendations for addressing the problem. The search was conducted in the library browsing historical white papers and using key terms in databases for scholarly articles. Key terms included *history of white paper, problem/solution white paper,* and *white papers* and *education.* Topics addressing recommendations in the white paper were found using key terms *homework* and *improving reading achievement, alternatives to homework, and strategies to increase reading level.*

White Paper

The white paper originated around 1922 when Winston Churchill wrote a white paper to address the Jaffa Riots between Arab and Jewish people in Palestine (Boys, 2014). White papers have remained popular outlets for governmental use. During the World War II era, white papers were often used to disseminate information about medicine and science (Graham, G., 2016). With the rise of technology and computers in the 1980s, white papers gained popularity in the information technology industry (Origin of the White Paper, N.D.). From the 1990s, the World Wide Web has made white papers relatively more accessible, thereby encouraging the use of white papers in many areas of technology, sales, medicine, executive briefings, and education (Graham, G., 2016).

Presently, white papers are used to provide in-depth information about an issue, offer points, questions, or tips about a concern, or highlight a problem and persuade readers with a specific set of solutions (Graham G., 2013). There is a limited amount of research about the use of white papers in education. G. Graham (2013) loosely coined terms for three types of white papers most commonly used. The types are the backgrounder, numbered list, and problem/solution. The backgrounder white paper provides explanation of a certain product, including the benefits that the product or service can provide. This type of white paper can be used by companies to support actions or products. A numbered list white paper, on the other hand, provides a set of questions and answers or tips about an issue and this format is typically used in sales white papers. The third type of white paper described by G. Graham (2013) is a problem/solution format. The problem/solution white paper is a persuasive essay that presents a problem or problems and details solutions to the problem. The white paper format selected for this project is the problem/solution format in which I will present the problem identified and discuss possible solutions. This format was chosen because the goal for the project was to communicate results of the research conducted to investigate the identified problem.

Recently, white papers in education have increased in popularity. Hiebert (2014) published a white paper in which he detailed the importance of encouraging stamina among young readers in the digital age. Other types of white papers published in education today focus on organization of schools. Yellow Folder (2016) recently published a white paper about how to manage record keeping in schools. They offered the solution of digital record management.

Theory and Research to Support the White Paper

In white papers, problems are addressed by discussing findings and data from a study (Graham, G., 2013). Problem/solution formatted white papers often offer solutions, or recommendations for change (Steizner, 2010). This white paper outlines the problem of low reading achievement among elementary students and discusses the use of interactive homework as a means to increase achievement. Results of the current study regarding the use of IH are discussed in detail. The intended audience includes teachers, school and district administrators, and other community stakeholders. The recommendation included in the project is that interactive homework tasks be constructed and used to bridge Epstein's (2001) spheres of influence within children's lives: teachers, parents, and community.

White papers are used for a number of reasons but one thing most have in common is that they offer insight into a study and give recommendations based on the results (Hoffman, 2013). This white paper outlines the problem in the local area and larger community by discussing data from state mandated tests, introduces the research questions for the study and provides a brief description of key terms and concepts within the study such the uses of homework, reading achievement, and definitions and descriptions of IH. Also, included in the white paper is an explanation of data collection procedures for the study, results of the study with an explanation of those results, and recommendations for improving reading achievement based on the findings and justification for those recommendations. The white paper addressed the research question and provided findings from this and other researchers' investigations on the issue

(Steizner, 2010). White papers illustrate how information on theory and research can yield optimum practice in the field of education (Gordon & Gordon, 2003; Graham, G., 2013). This white paper used theory and research to address the issue of low reading achievement and to offer recommendations for improvement. What follows is a brief review of relevant issues addressed in the analysis of theory and research, including the use of homework as a means for improving reading achievement and other research-based strategies for improving reading achievement.

Homework used to improve achievement. Several studies have investigated homework as it relates to academic achievement (Gustafsson, 2013; Maltese et al., 2012; Valle et al., 2015). Using two data sets, Trends in International Mathematics and Science Study (TIMSS) 2003 and TIMSS 2008, Gustafsson (2013) used a two-level regression, instrumental variables regression, and difference-in-difference analysis on samples of students in Grade 8. Findings indicated mixed results about the effect of time spent on homework on academic achievement. The two-level regression suggested that there was not a positive association between time spent on homework and academic achievement while the instrumental variables regression and difference-in-differences analysis on samples indicated that "there may be a causal effect of homework time on achievement" (Gustafsson, 2013, p. 289).

Maltese et al. (2012) were unable to find a significant relationship between time spent on homework and grades; however, investigation uncovered a significant positive relationship between homework and performance on standardized tests. Using the Education Longitudinal Study of 2002 and a selection of science data from 10,910 high

school students and a math sample from 7,120 high school students, it was found that the daily amount of time spent on homework was approximately 60 minutes. Interestingly, high school students who reported spending up to 60 minutes on homework scored 1.8-2.2 points higher on standardized assessments than those who reported doing no homework, while students who reported spending more than 60 minutes on homework scored 2.9-3.0 points higher than the students who did no homework (Maltese et al., 2012). Other researchers have examined homework's effect on academic achievement in lower grades.

Homework behavior and academic achievement were investigated in a Spanish study among students in primary grades over 3 years (Valle et al., 2015). Homework behavior was viewed using three indicators—time spent on homework, amount of homework completed, and how students optimized time spent on homework—while academic achievement was measured using class grades for math and foreign language. The authors found that the amount of homework positively predicted academic performance in both subjects. The amount of actual time spent on homework had no effect on academic performance (Valle et al., 2015).

Time spent on homework did not have an impact on achievement in the study (Valle et al., 2015); however, Flunger, Trautwein, Nagengast, and Schnyder (2015) also investigated time spent on homework as a method to predict academic achievement among 1,915 French students from 112 classes in 27 schools. Researchers used 4-point Likert scales to measure students' perceptions of time spent on homework and various forms of engagement. Based on student surveys, five learning types emerged: "fast

learners, high-effort learners, average students, struggling learners, and minimalists" (Flunger et al., 2015, p. 101). Findings suggest that depending on the type of learner, more time spent on homework can have a positive (high-effort learners) or negative (struggling learners) effect on achievement. Students who were identified as high-effort learners enjoyed spending more time exposed to the practice of skills learned in French class, while struggling learners became more agitated and less likely to succeed when spending large amounts of time on homework (Flunger et al., 2015). Other researchers have linked time spent on homework to anxiety and lower class scores as well.

The data collected by PISA (2012) were used by Cheema and Sheridan (2015) to investigate relationships among mathematics achievement, mathematic stress, and time spent on mathematics homework among 4,978 15-year-old students in different countries around the world. Multiple-choice and constructed response questions related to standards of mathematics were used to measure achievement and a 5-item scaled survey completed by students depicted their stress level. Least squares multiple linear regression models were used to find correlations among variables. Gender, grade, and race all had a significant effect on mathematics achievement (Cheema & Sheridan, 2015). Further, math anxiety and time spent on homework had a significant effect on achievement. A one standard deviation increase in math anxiety was associated with a one third decrease on math achievement. Reported increase of time spent on homework was positively associated with higher math achievement scores. Researchers noted that more time spent on homework was associated with less anxiety and concluded that teachers who notice

students with higher anxiety towards math may want to increase math homework in order to decrease anxiety (Cheema & Sheridan, 2015).

When studied, time spent on homework has had varied effects on academic achievement. Reports on the relationship between time spent on homework and achievement have been both positive (Keith, 1982) and negative (Cooper et al., 2006; Nunez, Rosario, Vellejo, & Gonzalez-Pienda, 2013). One the other hand, frequency of homework has regularly held a positive association with high academic achievement (Dettmers, Trautwein, Ludtke, Kunter, & Baumert, 2010; Fernandez-Alonso, Suarez-Alvarez, & Muniz, 2015). Rosario and colleagues (2015) studied the connection between a number of instructional purposes, such as homework for practice, homework for preparation, and homework for extension, among students in Grade 6. In this study, pretest-posttest cluster design was used to measure achievement before and after the homework was implemented. The authors controlled for gender, prior knowledge of mathematics, mathematics self-efficacy, amount of time spent studying, and parents' educational level. In this quasi-experimental study, the relationship between instructional purposes including practice, preparation, and extension, number of homework assignments, and achievement in mathematics was examined (Rosario et al., 2015). Twenty-seven classes were randomly given three different homework purpose conditions over a 6-week period.

Results revealed that although participation was voluntary, most students did complete the work. After using two-level analyses of data, findings suggested that homework intended to provide extension, or extending beyond the learning done during

class time, was the most effective in aiding mathematics achievement. While the usual focus on homework is practice, meaning students practice exactly what they learned in class, this study revealed that teachers should be assigning tasks for homework that extend what is taught in class rather than the predictable drills of skills that were fully taught in class (Rosario et al., 2015). Such tasks have proven to be more beneficial for learning and mastering mathematics content (Rosario et al., 2015).

Other researchers have looked at homework assignment design in terms of its effectiveness in increasing achievement. Ozcan and Erktin (2015) examined the effectiveness of homework that had been embedded with metacognitive enrichment to improve mathematics performance as well as student homework behaviors. Achievement was gauged using a pretest to posttest comparison with first and second semester mathematics report card scores among 44 students. For the study, Ozcan and Erktin (2015) cited Flavell's (1976) description of metacognition, the understanding of one's own cognitive process. The quasi-experimental design assigned two classes at an elementary school to the treatment and control group. Treatment participants were assigned mathematics homework that had been enriched with metacognitive questions while the control group participants were assigned the same tasks without the metacognitive questions (Ozcan & Erktin, 2015). A Likert-type Mathematics Homework Behaviors Scale (Ozcan & Erktin, 2013) was used to evaluate homework behaviors for this study. Parents and students filled out these forms to measure students' feelings about homework, need for extra support, parents' feelings about the homework tasks, and students' willingness to complete the tasks. The student form contained 16 items with

three subscales and the parent form had 15 items with two subscales (Ozcan & Erktin, 2015).

ANCOVA was used to determine differences in means among the groups' pretest and post test scores, first and second semester grades, and to determine the effect of homework on mathematics performance. The intervention was the assignment of homework embedded with metacognitive enrichment activities (IH). The intervention had a significant effect on mathematics performance, $F(1, 3) = 4.41$, $p < 0.05$ (Ozcan & Erktin, 2015). ANCOVA was also used to evaluate the effects of the intervention, metacognitive enrichment homework activities, on homework behavior. Findings suggest that embedding metacognitive questions in mathematics homework does not have a significant effect on students' homework behavior, $F(1, 30) = 2.05$, $p > 0.05$. Designing meaningful homework tasks that extend what is learned in school and encourage students to think about their own cognitive processes along the way can be effective in raising student performance and achievement (Rosario et al., 2015; Ozcan & Erktin, 2015).

In order to determine the effectiveness of using the Homework Performance Questionnaire (HPQ) for parents and teachers to make judgments and predictions about the performance of students with attention deficit hyperactivity disorder (ADHD) on homework assignments, Mauton, Marshall, Costigan, Clarke, and Power (2012) examined HPQ and homework samples of 91 students who had been diagnosed with ADHD. The HPQ measures the competence of students, student task engagement, and responsibility and commitment to completing tasks as judged by parents and teachers. Participants were in Grades 2-6, and rated at or above the 85th percentile on the

inattention or hyperactivity impulsivity subscale of the school version of the ADHD rating scale. Comparing HPQ teacher and parent survey scores with scored homework samples suggested that HPQ scores were a good indicator of homework performance among students with ADHD (Mauton et al., 2012). Practical uses of findings for this study include the use of HPQ to monitor homework difficulties and differentiate assignments based on the needs of students with ADHD. This study suggests that students with ADHD may need differentiation in order to gain the full effectiveness of homework as a means to review skills learned in school (Mauton et al., 2012).

Other research-based strategies for improving reading achievement. Besides using interactive homework to increase reading achievement, there are several research-based strategies for improving achievement in the classroom that should be considered. Puccioni (2015) found that time on reading instruction was positively associated with children's reading achievement regardless of the children's approaches to learning. Children's approaches to learning have been found to influence academic achievement (Li-Grining, 2010). Aspects included in children's approaches to learning include a student's attention span, persistence, flexibility, motivation, and organization (Fantuzzo, Bulotsky-Shearer, McDermott, McWayne, & Frye, 2007). Puccioni (2015) hypothesized that students with positive approaches to learning would increase more in reading achievement than those with negative approaches among students who received a substantial amount of instructional time on reading. However, findings showed that regardless of students' approaches to learning, academic achievement increased when time spent on specific reading instruction was increased (Puccioni, 2015).

Marzano (2010) emphasized the importance of summarizing to improve reading comprehension. Students should be taught to summarize as they read in a way that records text structure, adds layers of meaning within the text, includes a description of graphic representations, and includes an interpretation of what was read (Marzano, 2010). The U.S. Department of Education, Institute of Education Sciences (2014) recommended the use of repeated reading, which is defined as an academic practice where students read a passage aloud several times.

Literature has been provided that details the history of white papers and current uses for that form of position paper (Gordon & Gordon, 2003; Graham, G., 2013; Kantor, 2009; Steizner, 2010). The literature review provides justification for using a white paper as the project in this educational study. Although there is limited information in the literature about the use of white papers in the education sector, a number of resources highlight their purpose, use, and growing popularity in a variety of fields (Gordon & Gordon, 2003; Graham, G., 2013; Kantor, 2009; Steizner, 2010).

Project Description

In an effort to make the findings of the study available for educators to access and review, a program policy white paper with recommendations is presented. Because differences between pretest and posttest for students who completed interactive homework were not significantly greater than those for students who completed non-interactive homework, results should be made available to teachers and administrators who make use of interactive homework tasks. Understanding the outcomes of the study

will allow teachers to carefully consider the use or restructuring of IH and potentially inspire future research possibilities.

The study included student scores before and after the implementation of IH over a 9-week period. The paper includes an executive summary, introduction, and methods for the investigation, and a discussion of the findings. The white paper will be distributed to teachers and administrators at the study school district at a time appointed by the district.

Needed Resources, Existing Supports, and Potential Barriers

The production and distribution of the white paper to the district and surrounding schools will require resources unless the district approves a mass email. The expense to print and bind copies of the report for presentation will likely be covered by the superintendent's office. The board of education and school district are both very supportive of research that helps teachers further the practice of raising student achievement. The project will be presented to the board members and district officials at a local board meeting but ideally, copies of the white paper should be delivered to each of the elementary principals in the district for reference. I will request that a digital copy of the white paper be placed on the local board of education website for stakeholder access.

The distribution and presentation of the white paper may invite questions and dialogue about the issues addressed in the paper. I will make myself available to discuss the investigation, data collection and analysis, and outcomes with teachers, principals, and other stakeholders individually or in groups as requested.

Resources may include funding for a review of teachers' professional development needs, teachers' development and planning in an effort to improve on current homework practices, and the purchase of homework curriculum guides. Funding is a potential barrier to offering the support teachers may need. Lack of adequate funding may cause delays in making necessary changes to current practice based on the results of the study. Additionally, the superintendent will likely determine what, if any, changes will be made district wide based on the results of the study and contents of the white paper. The potential barrier associated with the project is the lack of significant growth among students who participated in IH tasks when compared to those who completed non-IH tasks.

Proposal for Implementation and Timetable

After the university approves my doctoral study, I plan to schedule a meeting with the superintendent and relevant assistant superintendents of the school district to discuss my white paper with them. After presenting and explaining the paper, I will discuss distribution to all schools within the district.

The superintendent may discuss plans for training on IH or implementation of some elements of the approach during this time. He may want me to meet with specific school principals within the district, particularly those with low parental support, and discuss my white paper and proposal with them to develop specific plans for the schools. The school board may also want to see the paper or a presentation about my findings, including clarifications as needed.

Roles and Responsibilities of Student and Others

Writing the white paper and disseminating it to the district superintendent will be my responsibility. I will be responsible for explaining my findings to the board and other leaders within the district. I may be asked to make additional presentations for board members and/or principals. The superintendent will be responsible for deciding with whom I need to share the report and information. He may ask that I work with specific schools using my recommendations and findings. If the superintendent distributes the white paper to principals in the district, then it will be the principals' responsibility to distribute it to teachers at their schools. The teachers will then be responsible for reading the paper and acting upon it as they see fit. Implementation of interactive homework tasks may result in a call for me to help teachers design tasks and help them set up the policy within their classes. The teachers will be allowed to decide for themselves whether to implement the strategies I suggest in the white paper or not.

Project Evaluation Plan

The purpose of the white paper was to present evidence from literature and research about the use of IH and reading achievement and outline recommendations connected to the evidence. The problem/solution format of the white paper structured information so that the problem of low reading achievement was reviewed and a possible solution to the problem, restructuring the current practice of assigning IH, homework tasks that engage parents in standards-based tasks outside of the school day, was presented. Stakeholders such as administrators, principals, teachers, parents, and students may benefit from the white paper.

To evaluate the effectiveness of the white paper, I will provide a survey communication form (Appendix G) after supplying the white paper to get responses on the project. The communication form will be used to evaluate whether or not the recommendations were understood and whether or not they might be implemented. The purpose of the formative evaluation is to measure readers' understanding of the document. I will then be able to provide additional support if it is needed. Ideally, teachers will want additional support to implement or improve implementation of IH or at least in designing homework tasks that are better suited to meet the needs of their learners after reading the white paper. If IH is implemented correctly and with true parental support over a long period of time among teachers who support and believe in the value of assigning it, I believe that reading achievement will improve. I would be willing to help design and implement IH programs at the surrounding schools in the district if asked to do so.

Project Implications

Local Community

The presentation of the white paper to the teachers and administrators in the district may bring about further dialogue concerning the importance of using interactive strategies to get parents involved in co-teaching their children outside of the classroom. The assignment of IH has been shown to be effective in several studies (Battle-Bailey, 2006; Epstein, 2013; Kitsantas et al., 2011; Maltese et al., 2012; Xu et al., 2010), even if this particular study did not yield significant benefits for those students with whom IH was completed. Given that IH is being assigned by teachers in the local community, this

white paper, describing the results of the current study, will help teachers make decisions about whether to continue assigning IH tasks in the future or restructuring assignments so they better meet the demands of our local students and parents.

Far-Reaching

In a larger context, the white paper will be published on the county web page along with this project study so that the education community can see the results of the study. Voluntary homework tasks that involve parental support do not increase reading achievement over regular homework tasks that do not elicit parental support. The paper, with a discussion of findings and suggestions, could help teachers design more engaging homework tasks and support systems that communicate strategies and needs of students to parents on a more effective level. Results presented in the white paper can help teachers in the future to design homework tasks and communication systems that better engage the most effective parental support. The next chapter includes a discussion of strengths and weaknesses as well as a different approach to the research problem based on results of this project.

Section 4: Reflections and Conclusions

Project Strengths and Limitations

This section contains reflections on the process of developing the project and conclusions drawn from the process. The strengths and weaknesses of the project will be discussed. An analysis of myself as scholar, leader, practitioner, and project developer follow. Finally, recommendations for future research and applications of the results of this research are discussed.

Strengths

The white paper explored the assignment of homework and interactive homework in relation to academic achievement and described the current comparison study of assigning IH versus non-IH to third grade students. The structure of the paper was problem/solution focused. The paper introduced a problem and detailed evidence of the problem in the broad as well as local setting. A discussion of the current study including the research question, data collection, and data analysis methods is included in the paper. Explanations of the analyses and recommendations for future action follow. Results can help teachers and district level administration determine the best approaches for assigning the most effective types of homework, when the goal is improving reading achievement. The explanation of the results of the current study will encourage open dialogue about the current practice of assigning IH and encourage teachers and curriculum leaders to begin thinking of ways to improve upon current practice.

Weaknesses

The white paper format of the project could be limited by lack of interest to the stakeholders it is intended to address. Teachers may lack interest in the topic and therefore not take the time to read it. Only educators and school officials who take the time to read it and initiate further collaborative discussion about the issue will receive the full benefits of the paper. Changes in education can only occur when teachers are receptive to new data and open to the making changes based on new information. Another weakness of the project is distribution. The white paper will be presented only at a school board meeting where there will likely be only a few representatives from each of the 23 elementary schools in the county, there will be limited exposure unless principals make a point of ensuring that teachers get access to a copy of it.

Recommendations for Alternative Approaches

Low reading achievement was the identified problem for the current study and project. The selected method for addressing the problem was to quantitatively investigate the effects on reading achievement of assigning interactive homework that involves parent participation in the practice of reading comprehension skills learned at school. Alternative definitions of the problem may have examined reading achievement in relation to writing performance as new state mandated testing requires students to provide written responses to demonstrate comprehension. Because reading comprehension is assessed based partially on written responses, perhaps the fault of low reading achievement could be underdeveloped writing ability resulting in students' inability to

express their understanding of the readings. Another approach to the suggested problem may have included examining writing curriculum offered in third grade.

An alternative qualitative approach to addressing the problem of low reading achievement among elementary students would be to investigate current classroom practices within the school district by conducting interviews, focus groups, and observations with teachers and administrators (Creswell, 2014). Data could have been transcribed and coded to examine themes indicative of trends in current teaching practice that seem most effective to teachers and administrators. Notable themes and interpretations could have been distributed through a research report.

Scholarship and Project Development

During this process, I became more knowledgeable about the research process and the development of the project. The project study process guided proper collection of data and scholarly writing. Learning how to properly use APA format was a valuable lesson that I have begun extending to my advanced content students. Scholarly writing was very new to me at the beginning of my coursework for the program. It was different from anything I had learned before in postsecondary school. As I read more articles, I began to acquire the method and scholarly writing became easier. Thankfully, my doctoral chair and others at Walden have been very supportive of me as I learned and continue to learn. Scholarly writing is very thought provoking and requires synthesis of information, rather than simply copying quotes with no explanation of their value. Worthwhile lessons included working with the institutional review board, protecting the rights of participants, securely gathering data, and analyzing data accurately.

Scholarship requires that learners stay informed about the latest research related to the field of expertise. Because of this, I am a member of two education organizations that focus on teaching reading, the International Literacy Association and the National Education Association. *Reading Teacher*, *Reading Research Quarterly*, and the *Journal of Adolescent and Adult Literacy* are a few of the journals that I study, published by the International Literacy Association. Scholars are lifelong learners. It is not only important to stay abreast of new research and teaching practices, but also to share what has been learned with colleagues. Collaboration with contemporaries is an essential element to scholarship.

Deciding on the most effective method of delivery for the findings of the study took time, energy, and thought. I determined that the best way to organize and present the data and recommendations to the school board and stakeholders was by using a white paper format. The white paper summarized the problem, approach to data collection, findings, and a data analysis section as well as recommendations for future practice. Elements of the paper came together to develop a clear understanding of the problem.

Distinguishing the white paper project from the study itself was a task. There were several elements required for the study that needed to be condensed for the white paper. Determining and highlighting the important elements from the study to add to the project was a challenge. Finally, after evaluating each piece of information that seemed important initially, I was able to retain information that I felt would best meet the needs of the stakeholders, the intended audience for the white paper.

Leadership and Change

Leaders in education must remain in the student role for their entire career because as educators, we are always growing and learning new things about effective ways to reach learners. Educational research is a valuable tool in advancing practices of educators and enhancing the educational experiences for students. I identified a problem in my local area, reviewed literature about the problem, decided on a purpose for my research, designed a quasi-experimental study, collected data, and interpreted the data in an effort to address the problem.

As an elementary school teacher for the past 8 years, I am a leader to some of the most important followers. Some leadership strengths include organization, communication, a passion for education, respect for my students, confidence, persuasive abilities, and compassion. The process of completing this project study has cultivated my organization, passion, and communication skills. One day in the near future, I hope to gain leadership roles beyond the classroom which will allow me to use and develop these strengths in new ways.

Project Development and Evaluation

Development of the project took time and consideration. Initially, it was difficult deciding what the project deliverable would be to address the problem. A professional development activity was considered, but ultimately, a white paper was chosen because the goal was to inform the readers of the effects IH had on reading achievement without making teachers feel like they were forced into one more professional development day.

Designing the project helped me to appreciate the work that goes into educational research and to value the use of assessment tools as feedback for my efforts.

Analysis of Self as Scholar

Scholars must have a desire to continue learning and challenging what they already know. I learned that it is appropriate to question the accepted truth and stretch beyond what is known to be effective and resourceful. My evolution into a scholar during this process has required me to read and analyze peer-reviewed literature, cite resources appropriately, write descriptively and succinctly, and collect and analyze data. As a scholar, I am now aware of my surroundings including the successes as well as failures in my career field and strive to identify problems so that potential solutions can be found.

During the literature review process, I learned how to use search engines and databases to find literature, using databases tools to include or exclude elements and limit or narrow results, and how to discriminate the most pertinent research based on my research problem. After finding articles, it was necessary to read them deeply to find connections among articles, notice themes, and synthesize the information that could be included in the review. Correct citation for APA format, including direct quotation, paraphrasing, and in-text citation was learned, as well as the correct way to build a works cited list. During the data collection period, I learned more about making spreadsheets to keep up with my data by organizing the work that was collected each week and logging it for analysis and became proficient with Excel and SPSS.

Analysis of Self as Practitioner

Eight years of practice in the classroom has taught me more about the craft of teaching than any teacher preparation textbook and has molded a proficient teacher who always focuses student learning above all else. I represent and defend the needs of my students and work to make sure they are given adequate time, attention, strategies, and learning experiences. As a practitioner, it is important to seek out a deep understanding of the content knowledge being conveyed to students. It is important to gather strategies and provide the most effective educational experiences for students. Throughout my teaching career, I have attended many professional development activities related to work and share the learning with other teachers through redelivery, group training, and one-on-one support. Every effort is made to work well with my peers and communicate successfully with parents, administrators, and the community while maintaining free and inviting relationships with the parents of students. It is important to rally the support of parents in the beginning of each school year. The doctoral process has helped me develop many of the skills that relate to my strengths as a practitioner.

Analysis of Self as Project Developer

As a project developer, I have learned to be more assertive and decisive. As I began to construct and defend my design for research, I gained confidence in the process and was able to clearly explain my process to professors, URR, and IRB, as well as leaders within the study school district. Some areas that were strengthened included time management, communication, and organization of materials. There is value in designing a study to meet the demands of the problem and aligning all steps towards the design.

The white paper, which summarizes the local area and problem, offers a possible solution, along with data, meets the demands of the problem, offers a possible strategy for improvement, and is the capstone of the work that was poured into this project study. Writing the paper challenged me to synthesize the research from the study in a way that would convey the important elements and be clear to the readers.

The Project's Potential Impact on Social Change

The project was designed to share the study findings about the effectiveness of a current practice among elementary classrooms. In the study, I sought to test a potential solution to the local problem of low reading achievement. Grounded in Epstein's theory of overlapping spheres of influence, the assigned homework was intended to include parents as stakeholders in the educational endeavors of their children. Although data from the study revealed that IH did not have a significant impact on reading achievement, the white paper allowed a method of conveying information to teachers who may be interesting in assigning the tasks in the hopes of solving the problem of low reading achievement. Along with an interpretation of the data, the white paper provided a review of different methods for addressing the problem as well as ideas on how to improve on the practice of assigning IH. The project deliverable can impact social change by encouraging a dialogue among teachers and school leaders about the most successful methods for addressing the problem of low reading achievement.

Implications, Applications, and Directions for Future Research

Findings from the study indicate that IH is not an effective method for enhancing reading achievement among students in third grade. The objective of the white paper is to

inspire educators to think about finding methods for addressing the problem of low reading achievement and replacing practices that have not proven effectual. Results of the study could influence meaningful dialogue among teachers and administrators about alternative methods for increasing reading achievement.

Students who completed the tasks, both IH and non-IH group members, were engaged in meaningful assignments which enabled them to have more exposure to the state standards for learning in third grade. Further benefits may have been possible if more students and parents participated in the work. Future studies could focus on teacher and parent feelings towards interactive homework. Interestingly, some teachers did not seem to encourage completion of the tasks. It would be beneficial to investigate how teachers view homework, whether they feel it is actually helpful or just assign it because they are required to do so, and parental support with academic tasks. Parents' feelings towards homework participation would be enlightening to study, as it may provide some explanation as to the reason so few students participated. Teachers should continue to strive to design engaging activities for students to practice skills they learned in school. Providing teachers with professional development opportunities to improve the design of homework tasks and increase the instructional strategies they employ in the classroom may be a positive next step for educational leaders who read the white paper.

Conclusion

This section discussed the project in retrospect. The study addressed the problem of low reading achievement and provided a path for future research about the effectiveness of homework, parental involvement, and feelings of teachers and parents

about those topics. The project, the white paper, explained the study in detail and provided information about the local problem and possible solutions beyond current practice. The paper will allow leaders and teachers to make informed decisions about the use of interactive homework to address low reading achievement. Principals, school officials, and teachers will be able to examine the data from actual students in the system who have been assigned IH or non-IH and the changes in reading achievement over the prescribed time period.

Hopefully, the school district will use the study findings and consider the recommendations made in the program policy paper to improve reading achievement. Educators must employ methods outside of class to allow their students more opportunities with the standards in order for reading achievement to improve so that, in the end, students can be college and career ready.

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Appendix A: Project

Interactive Homework as a Strategy to Improve Reading Achievement Among Third Grade Students

A Program Policy White Paper

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Table of Contents

Introduction

The initiation of common standards across the United States requires students to independently read and comprehend more complex text in the elementary grades (Bunch, Walqui, & Pearson, 2014). Currently, students in the United States score lower than students in other countries on international educational assessments in the areas of reading and comprehension (Merry, 2013).

It is the district's responsibility to ensure adequate progress is being made toward meeting the reading goals that are set forth by the State. The College and Career Readiness Performance Index (CCRPI), which is Georgia's system to regulate school performance, stipulates that 85% of students should exit third grade reading at a Lexile level of 650 score or higher (Georgia Department of Education, 2013). Knowing how difficult a text will be to read in conjunction with how well a student can read should help predict how well a student will comprehend that specific text (Georgia Department of Education, 2015a).

Reading Results at the Local Level

Results from a recent CCRPI report for the study school reveal that 30.5% of students exit third grade reading below 650L (Georgia Department of Education, 2014b). Georgia began a new assessment system in the 2014 school year that categorizes learners into four classes: beginning learner, developing learner, proficient learner, and distinguished learner. The Georgia Milestones Assessment System is a summative assessment for Grades 3 through 12 that features open-ended comprehension items after passages, norm-referenced and criterion-referenced multiple-choice items, and a writing

component in response to reading passages (Georgia Department of Education, 2015). Results demonstrate the discrepancy in reading performance at the school district and are shown in Table 1. Over half of students scored in the beginning or development range in third, fourth, and fifth grade (Georgia Department of Education, 2015). While it does appear that the number of proficient or distinguished readers does rise in fifth grade, it would be most beneficial for the county to begin using strategies that work towards raising the levels of proficient and distinguished learners at the earlier grades as well.

Table 1

Local Georgia Milestone ELA Percentages of Beginning, Developing, Proficient, and Distinguished Learners, Grades 3-5

	English Language Arts						
Grade	*N*	*M*	*SD*	Beginning	Developing	Proficient	Distinguished
3	2,115	510.6	59.4	28.0%	30.8%	29.3%	11.9%
4	2,003	507.1	50.5	27.0%	36.1%	28.1%	8.8%
5	2,022	514.8	52.7	23.6%	32.7%	34.8%	8.9%

Review of Literature

The literature review is composed of literature intended to explore the aspects related to increasing reading achievement including the use of homework, the impact of parental involvement in homework completion, and other research-based strategies for improving reading achievement. Current literature focuses on the influence of interactive homework on raising student achievement in the middle and high school grades (Bennett-

Conroy, 2012; Van Voorhis, 2011a). A number of researchers have explored the assignment of interactive homework in middle grades and the results on students' achievement in the areas of language arts, science, and math, but few have focused on the influence of interactive homework on reading achievement in the elementary grades. The current study addressed the need for a clearer understanding about achievement changes when interactive homework is used in the elementary setting.

Homework. Homework offers an opportunity for students to use the most effective instructional elements of reading achievement at home; however, homework has many other purposes as well. Some purposes for homework include reviewing material learned at school, and a way to communicate with parents about what is being learned in class (Carr, 2013; Epstein, Coates, Salinas, Sanders, & Simon, 1997; Van Voorhis, 2003). The debate about the effectiveness of homework in raising academic achievement has been long-lasting (Fehrmann, Keith, & Reimers, 1987; Gill & Schlossman, 2004). Even still, homework is an element used by the vast majority of teachers to reinforce concepts learned in the classroom. Several studies have reported on the effect homework has on academic achievement (Battle-Bailey, 2006; Maltese, Tai, & Fan, 2012; Kitsantas, Cheena, & Ware, 2011). The 2003 Program for International Student Assessment (PISA) student questionnaire was used to investigate students' performance as it relates to homework completion (Kitsantas et al., 2011). When support resources, such as a quiet area for homework completion, necessary books, an Internet connection, a dictionary, and a calculator were controlled for, there was a "moderate correlation with achievement (r=.32, p < .001)" (Kitsantas et al., 2011, p. 321). This suggested that support resources

are an important element when it comes to the effectiveness of homework in improving achievement. Teachers should ensure students have necessary resources for homework completion. Time spent on homework completion can make a meaningful difference on standardized test scores, provided students are equipped with necessary materials (Kitsantas et al., 2011).

Maltese and colleagues (2012) used data from the National Center for Education Statistics collected in 1980 and 2002, and the National Education Longitudinal Study of 2002 to explore the effectiveness of homework on improving students' scores. Elements of the data such as final course grades, time spent on homework, standardized test scores, and demographic information such as race, gender, and parent education level were examined. Unlike Kitsantas and colleagues (2011), the researchers found no consistent relationship between time spent on homework and grades, leading them to argue that the large amount of time students spend on homework may actually be the problem with it (Maltese et al., 2012). The information yielded leaves more questions about the effectiveness of time spent completing homework.

The PISA (2012) data were used by Cheema and Sheridan (2015) to investigate relationships among mathematics achievement, mathematics stress, and time spent on mathematics homework among 4,978 15-year-old students in different countries around the world. Multiple-choice and constructed response questions related to standards of mathematics were used to measure achievement and a 5-item scaled survey completed by students depicted their stress level. Least squares multiple linear regression models were used to find correlations among variables. Gender, grade, and race variables all had a

significant effect on mathematics achievement (Cheema & Sheridan, 2015). Further, math anxiety and time spent on homework had a significant effect on achievement. A one standard deviation increase in math anxiety was associated with a one third decrease on math achievement. Reported increase of time spent on homework was positively associated with higher math achievement scores. Researchers noted that more time spent on homework yielded less anxiety, and concluded that teachers who notice students with higher anxiety towards math may want to increase math homework in order to decrease anxiety (Cheema & Sheridan, 2015).

Time spent on homework has had varied effects on academic achievement. Reports on the relationship between time spent on homework and achievement have been both positive (Keith, 1982) and negative (Cooper, Robinson, & Patall, 2006; Nunez, Rosario, Vellejo, & Gonzalez-Pienda, 2013). One the other hand, frequency of homework has regularly held a positive association with high academic achievement (Dettmers, Trautwein, Ludtke, Kunter, & Baumert, 2010; Fernandez-Alonso, Suarez-Alvarez, & Muniz, 2015). Rosario and colleagues (2015) studied the connection between a number of instructional purposes, such as homework for practice, homework for preparation, and homework for extension, among students in Grade 6. In this study, a pretest-posttest cluster design was used to measure achievement before and after the homework was implemented. The study controlled for gender, prior knowledge of mathematics, mathematic self-efficacy, amount of time spent studying, and parents' educational level. The quasi-experimental design was used to address the relationship between instructional purposes including practice, preparation, and extension, number of homework

assignments, and achievement in mathematics (Rosario et al., 2015). Twenty-seven classes were randomly given three different homework purpose conditions over a 6-week period.

Results revealed that although participation was voluntary, most students did complete the homework. After using two-level analyses on results, findings suggested that homework intended to provide extension, or extending beyond the learning done during class time, was the most effective in aiding mathematics achievement. While the usual focus on homework is practice, meaning students practice exactly what they learned in class, this study revealed that teachers should be assigning tasks for homework that extend what is taught in class rather than the predictable drills of skills that were fully taught in class (Rosario et al., 2015). Such tasks have been shown to be more beneficial for learning and mastering mathematics content (Rosario et al., 2015).

Other researchers have looked at homework assignment design in terms of its effectiveness in increasing achievement. Ozcan and Erktin (2015) examined the effectiveness of homework that had been embedded with metacognitive enrichment to improve mathematics performance as well as student homework behaviors. Achievement among 44 students was gauged using a pretest-to-posttest comparison with first and second semester mathematics report card scores. For the study, Ozcan and Erktin (2015) cited Flavell's (1976) description of metacognition, the understanding of one's own cognitive process. For the quasi-experimental design, two classes at an elementary school were assigned to the treatment and control group. Treatment participants were assigned mathematics homework that had been enriched with metacognitive questions, while the

control group participants were assigned the same tasks without the metacognitive questions (Ozcan & Erktin, 2015). A Likert-type Mathematics Homework Behaviors Scale (Ozcan & Erktin, 2013) was used to evaluate homework behaviors for this study. Parents and students filled out these forms to measure students' feelings about homework, need for extra support, parents' feelings about the homework tasks, and students' willingness to complete the tasks. The student form contained of 16 items with three subscales and the parent form had 15 items with two subscales (Ozcan & Erktin, 2015).

ANCOVA was used to determine differences in means between the groups' pretest and post test scores, first and second semester grades, and to determine the effect of homework on mathematics performance. The intervention was the assignment of homework embedded with metacognitive enrichment activities (IH). The intervention had a significant influence on mathematics performance, $F(1, 3) = 4.41$, $p < 0.05$ (Ozcan & Erktin, 2015). ANCOVA was used to evaluate the effects of the intervention, metacognitive enrichment homework activities, on homework behavior. Findings suggested that embedding metacognitive questions in mathematics homework does not have a significant effect on student homework behavior, $F(1, 30) = 2.05$, $p > 0.05$. Designing meaningful homework tasks that extend what is learned in school and encourage students to think about their own cognitive processes along the way can be effective in raising student performance and achievement (Rosario et al., 2015; Ozcan & Erktin, 2015).

In order to determine the efficacy of using the Homework Performance Questionnaire (HPQ) for parents and teachers to make judgments and predictions about performance on homework assignments of students with attention deficit hyperactivity disorder (ADHD), Mauton, Marshall, Costigan, Clarke, and Power (2012) examined HPQ and homework samples of 91 students who had been diagnosed with ADHD. The HPQ measures the competence of students, student task engagement, and responsibility and commitment to completing tasks as judged by parents and teachers. Participants were in Grades 2-6, and rated at or above the 85th percentile on the inattention or hyperactivity impulsivity subscale of the school version of the ADHD rating scale. Comparing HPQ teacher and parent survey scores with scored homework samples suggested that HPQ scores were a good indicator of homework performance among students with ADHD (Mauton et al., 2012). Practical uses of findings for this study include the use of HPQ to monitor homework difficulties and differentiate assignments based on the needs of students with ADHD. This study suggested that students with ADHD may need differentiation in order to gain the full effectiveness of homework as a means to review skills learned in school (Mauton et al., 2012).

Using Interactive Homework to Support Parental Involvement and Improve Reading Achievement. Parental involvement has been found to increase student motivation, effort, and achievement in school (Epstein, 2013; Xu, Benson, Mudrey-Camino, & Steiner, 2010). It is important that educators use effective methods to engage parents in supporting their children's reading progression. In an effort to establish and maintain effective parental involvement, Epstein and colleagues (2002) designed

homework tasks that encourage parent interaction and include a guided approach for parents to take part in homework efforts. The scripted tasks serve as a review of skills and strategies learned in class (Epstein et al., 2002). Teachers Involve Parents in Schoolwork (TIPS) was initially established to increase parental involvement in the middle grades. Each TIPS assignment includes a letter to parents or guardians explaining the concepts covered and instructions on how to complete prescribed assignments (Epstein et al., 2002). Mathematics, language arts, and science TIPS assignments for middle grades are used throughout the country (Epstein, Simon, & Salinas, 1997; Van Voorhis, 2003). Interactive homework (IH) that guides parents on how best to help their student understand concepts and skills learned at school could be beneficial in addressing the heightened demands that the Common Core Standards (National Governors Association Center for Best Practices, 2010) shoulders on elementary students in the United States. The work discussed here outlines results of interactive homework on four local third grade classes.

Other Research-Based Strategies for Improving Reading Achievement. Besides using interactive homework to increase reading achievement, there are several research-based strategies for improving achievement in the classroom that should be considered. Puccioni (2015) found that time on reading instruction was positively associated with children's reading achievement regardless of children's approaches to learning. Children's approaches to learning have been found to influence academic achievement (Li-Grining, 2010). Approaches to learning factors include a student's attention span, persistence, flexibility, motivation, and organization (Fantuzzo, Bulotsky-

Shearer, McDermott, McWayne, & Frye, 2007). Puccioni (2015) hypothesized that students with positive approaches to learning would increase more in reading achievement than those with negative approaches among students who received a substantial amount of instructional time on reading. However, findings show that regardless of student approaches to learning, academic achievement increases when time spent on specific reading instruction is increased (Puccioni, 2015).

Marzano (2010) emphasized the importance of summarizing to improve reading comprehension. Students should be taught to summarize as they read in a way that records text structure, adds layers of meaning within the text, includes description of graphic representations, and includes an interpretation of what was read (Marzano, 2010). The U.S. Department of Education, Institute of Education Sciences (2014) recommended the use of repeated reading, which is defined as an academic practice where students read a passage aloud several times. According to the U.S. Department of Education, Institute of Education Sciences (2014), repeated reading can be used in the classroom to increase comprehension and reading fluency.

Guiding Research Question

Homework has historically been used as a means of improving on skills learned in school. Interactive homework (IH) refers to homework designed to promote interaction among students and parents (Van Voorhis, 2011a). For this study, the effects of using of IH was examined. This project study was guided by the following research question:

> How do students completing IH compare in reading achievement, as measured by a standardized test, to students completing non-IH?

A quasi-experimental study designed helped gather more information about the guiding question in one school in the local school district among third grade students.

Data Collection

The purpose of this quasi-experimental study was to examine the effectiveness of IH on improving reading achievement in third grade students at the study school. This study compares the scores of students who completed IH to the scores of students who completed non-interactive homework over a 9-week grading period. This comparison was achieved using the Epstein et al. (1995) TIPS with a treatment group and non-IH homework with a comparison group in a quasi-experimental study. Reading achievement was measured using a standardized test before and after the treatment period. Past studies have shown TIPS assignments to be effective in improving scores among students in the middle grades in mathematics, reading, and science (Epstein et al., 1997; Van Voorhis, 2003). This study was designed to determine if TIPS effectiveness in middle grades could be carried over to the elementary level, given appropriate modifications to align with reading and language standards. The number of tasks completed and the growth among groups was analyzed after a 9-week assignment for IH. Participation was also analyzed because the tasks were voluntary. In order for any strategy to be successful, it must be completed, so it was necessary to investigate factors that may come into play regarding participation such as gender, ethnicity, and type of homework.

Results

Gender and ethnicity did not play a significant role in determining which students would participate in the enrichment activities. An independent-samples t test was conducted to evaluate whether the mean number of tasks completed differed between females and males. The test was not significant, $t(78) = 1.40$, $p = .165$. The η^2 index was .02, which indicated a small effect size. A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between different ethnic groups and completion of homework tasks. The independent variable, ethnicity, included four levels: Caucasian, African American, Hispanic, and Asian. The dependent variable was the number of homework tasks completed over the 9-week period. The ANOVA was not significant, $F(3,76) = 1.22$, $p = .307$. The strength of the relationship between the ethnicity and the number of completed tasks, as assessed by η^2, was small (.05).

The type of homework, however, IH or non-IH, did significantly predict whether the activities would be completed. An independent-samples *t* test was conducted to evaluate whether the mean number of tasks completed differed by the type of homework task, IH or non-IH. Because the Levene's Test for Equality of Variances showed equal variances could not be assumed, $F(1, 78) = 11.84$, $p = .001$, a *t* test that does not assume equal variances was used. The test was significant, $t(66) = 3.48$, $p = .001$. There was a significant difference between students in the interactive homework group and students in the non-interactive homework group on the number of tasks completed. The effect size, as measured by η^2 was large (.14). That is, 14% of the variance in the number of tasks completed was accounted for by the type of homework. The mean number of tasks

completed for students in the non-interactive homework (M = 3.30, SD = 3.00) was higher than the mean for students in the interactive homework group (M = 1.35, SD = 1.89). This shows students in non-interactive homework group completed about two tasks more, on average, than students in the interactive homework group.

Using only students who completed tasks, a t test for independent samples showed that there was a statistically significant difference between IH and non-IH groups on the pretest. The independent samples t test results were $t(43) = 2.23$, $p = .031$. The effect size, as measured by η^2 was medium (.10). Of the 18 students who completed IH, the mean score was 46.36 with a standard deviation of 12.39. The mean score on the pretest for students in the non-IH group was 36.39 with a standard deviation of 15.98. The students in the IH group had a pretest mean almost 10 points higher than the non-IH group. Because of the difference between the two groups on the pretest, it was necessary to adjust the posttest means for the difference between the treatment and control groups on the pretest. Therefore, an analysis of covariance (ANCOVA) model was used to assess the difference in the groups' posttest means after adjusting for the pretest.

Prior to using ANCOVA, it was necessary to determine whether an assumption of ANCOVA was met, the homogeneity of the slopes. Specifically, ANCOVA assumes that the slopes of the regression lines for each group are similar. When the assumption is met, ANCOVA can be used to evaluate the difference between groups' posttest means after adjusting for differences in the covariate, the pretest means. The test of the homogeneity of the slopes was not significant, $F(1, 41) = 1.04$, $p = .314$, meaning the slopes were

homogenous and ANCOVA could be used to evaluate the difference between the two group means on the posttest after adjusting for the pretest, the covariate.

After adjusting for the pretest, the ANCOVA for the effect of the type of homework on the posttest scores was not statistically significant, $F(1, 42) = 2.81$, $p = .101$. However, the effect size was medium (.06). The treatment group (IH) had an adjusted posttest mean NCE score of 49.32 with a standard deviation of 1.45. The 95% confidence interval for the difference in means was 47.40 to 52.25. The control group (non-IH) had an adjusted mean NCE score of 46.12 with a standard deviation of 1.17 and the 95% confidence interval was 43.76 to 48.48. Although not statistically significant, the difference in means may have some practical significance. The adjusted posttest mean for the interactive homework group was over three points higher than the adjusted posttest mean for the non-interactive homework group. Because of the inverse relationship between the sample size and the scale of the probability, the lack of statistical significance might be accounted for by the somewhat small sample ($N = 45$). However, the lack of significance in growth between the groups suggests that the assignment of IH does not have a positive effect on reading achievement.

Explanation of Results

Analysis showed that students who were assigned enrichment activities for homework that did not require the support of a parent were more likely to complete the tasks. This could be due to fewer parents being present during the evening hours because of work and other obligations outside of the home. An examination of the differences between pre and post test scores among students who were assigned IH and students who

were assigned non-IH revealed that IH was not very effective in increasing reading achievement. Among the participants who did complete IH assignments, there was a 3-point gain in the adjusted mean score of growth over the students who completed non-IH tasks. Although not statistically significant, the difference in means may have practical significance. If IH tasks are to be assigned in the future, a better method for developing greater accountability and higher interest reading tasks should be designed so that the assignments would be given the effort and attention necessary to result in improvement on skills related to reading acquisition.

Considerations When Interpreting Data

Several factors should be considered before determining whether to implement IH in third grade classes when looking at the results of this study. Factors include the amount of time IH was implemented in classes, participation of students, attitude of parents towards participation in homework activities, and the attitude of teachers towards issuing that form of homework. For this study, IH was only implemented for a 9-week period. This may not have been enough time to illustrate the full benefit of the strategy on reading achievement. Another consideration is student participation because in the current study, several of the original participants opted out of the voluntary assignments. They could not be included in the data collection. For future use, a determination would need to be made about the voluntary nature of the assignments. The addition of consequences for non-completion may encourage students to complete assignments. Additionally, students whose parents work in the evening may not be able to participate in the tasks if it is required that they be completed with an adult. The final factor that

should be considered when determining whether to continue with IH is the teachers' perceptions of the assignments. If teachers feel that the assignments are worthwhile, they will be more likely to willingly assign them and encourage completion. Because data from the study illustrate that IH has been an ineffective method for increasing reading achievement, teachers and administrators should explore other methods for addressing the problem of low reading achievement among some students.

Recommendation for Improving Reading Achievement

Careful consideration of the findings of this study led to a recommendation that classrooms continue to use modified IH as a means for improving reading achievement. The proposal stems from numerous other studies that have found homework and parental involvement in academic achievement beneficial (Battle-Bailey, 2006; Epstein, 2013; Kitsantas et al., 2011; Maltese et al., 2012; Xu et al., 2010) as well as the slight increase in reading achievement among students who completed the IH tasks over the students who completed non-IH tasks. It is suggested that the homework tasks be redesigned to more closely extend and review material learned during the school day while providing extra support and explanations for parents who are trying to help their children with homework. Activities should require tandem work with an adult at home.

After a year of IH implementation in third grade, it is recommended that another series of assessments follow to determine the true effectiveness of IH. Results from the assessments will aid stakeholders in deciding how to use the strategy in the future. If the series of assessments yields positive results, meaning IH significantly improved reading achievement, it is recommended that training be provided for teachers to use IH

throughout the county. All teachers should be involved in professional development courses that will enable them to develop homework tasks that align with standards with the goal of including parents, and teaching parents to use strategies that lead to improved reading achievement.

Sharing Data

The findings from the study are outlined in this white paper to be shared with leaders at the district level and administrators at the study school. The recommendation is that data and results be shared with the school staff. It is important to deliver the information to teachers who may be able to make decisions about the use of IH as a means of improving achievement. Leaders at the district and school level may want to share data with third-grade teachers at the school in order for them to review the effectiveness of IH in their classes. Following that, results should be shared with other grade levels at the school so that all teachers can use data-based decision-making to plan for the use of homework in their classrooms. Beyond that, it is recommended that results be shared throughout the school district so that all teachers can have the benefit of the knowledge gained from the project. Being equipped with the findings of this research, teachers can make more educated decisions about how to address the issues of homework, parental involvement in academic tasks at home, and ways to improve reading achievement.

Justification for Continued Implementation

Homework is a tool teachers use to encourage their students to review and refine skills learned at school. However, it can be a source of struggle for parents, who may not

understand how to assist their child in homework completion (Bang, 2011; Good, Masewicz, & Vogel, 2010; Martinez, 2011; Park, Byun, & Kim, 2011). Scripted homework assignments that provide explanation for parents may be valuable as students who have multiple sources of support are more likely to succeed academically (Epstein, 2013). Several studies have highlighted the belief that parental support can be extremely beneficial to student achievement (Chucchiara & Horvat, 2009; Epstein, 2013; Fantuzzo, Tighe, & Childs, 2000; Griffin, 2010; Radzi, Razak, & Sukor, 2010).

The most recent CCRPI indicators demand the highest reading achievement the state has seen yet (Georgia Department of Education, 2013). Improving reading achievement is a serious issue for the school and system (Georgia Department of Education, 2014a). This study investigated the effects of IH on reading achievement for third grade students. Though results of the study were not significant, implementing IH may positively enhance the amount of time students spend practicing the reading and comprehension skills learned at school with the support of parents. Improved homework delivery methods, such as the use of IH, will increase parents' ability to help their children apply what they have learned at school to the experiences they face at home during and outside of homework completion.

A last justification for continuing the use of IH in third grade classes is that there is no financial support needed to use IH. Teachers can adapt interactive homework assignments online or make up their own using the skills and strategies learned in class. Teachers will need to put forth effort into constructing the assignments.

Conclusion

Learners in the local community are diverse and need support to attain reading achievement gains. Low reading achievement has been identified as a problem for the central Georgia school in this study. Some reasons for the problem could be a high proportion of English language learners in combination with a low incidence of effective parental involvement. The current study investigated the use of IH among third grade students and found that students who were assigned IH were less likely to complete it than students who were assigned homework tasks that could be completed independently. However, reading achievement changes over time yielded a 3-point gain among students who completed IH over those who completed non-IH. Parent awareness workshops designed to inform guardians of the efficacy of IH could increase parental commitment to providing support during homework completion. Homework assignments that include the participation of parents and make an effort to communicate the objectives of the tasks have been effective in increasing academic achievement. The assignment of IH tasks could encourage more support outside of the school and therefore raise reading achievement, assuming it supported by teachers and parents alike.

Resources

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Appendix B: Permission to Use TIPS

To: Amanda Hunnell

From: Joyce Epstein

Re: Requested information on TIPS

I apologize for the delay in responding to your email. It has been a busy fall with many deadlines. E-mail has suffered.

I am glad to know of your interest in school, family, and community partnerships and its link to topics of social change.

Per your question, below:
At the elementary level, we began our work with TIPS Math (K-5) because elementary teachers were already asking students and parents to use homework time to focus on "standards" of reading for pleasure, practicing spelling words, and doing some sentence/story writing. The teachers were comfortable in encouraging parent-child interactions in reading, but were very uncomfortable about parental engagement in math.

Some elementary teachers (particularly in grades 4 and 5) have used our middle grades Language Arts TIPS and adapted them to make them a bit simpler for the younger students. You will see one of those adaptations of a TIPS example on the website at: http://www.csos.jhu.edu/p2000/tips/tips_download_pdf/hairytales.pdf . This is a middle grades activity adapted for the 4th grade.)

We do not plan a curricular-linked series for elementary language arts/reading unless we find a funding partner for the development and production that is required. However, you are welcome to adapt grade 6 language arts activities for a study in grade 3, if you believe the skills match the standards/requirements for your grade/school/district.

We did a workshop on TIPS at our fall (October) Conference (next in October 2015) or on-site professional development that is planned and contracted with a school or district.

Or, give a call if you have specific questions about TIPS or your study.

Best of luck with your project and program.

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Appendix C

Week 1 Homework Task Sample

Task 1- COVER PICTURE -- A MAIN EVENT

OBJECTIVE To design an attractive book cover or cover picture that shows a main event of a story we read in school.

MATERIALS Crayons or markers and other supplies to create the cover picture. Scratch paper for planning ideas.

I will make a cover picture for the story: _____.

1. Recall one main event from that story. On another sheet of paper, draw the event, showing the characters or the setting of the event. Make your cover colorful and unique so that someone would want to read the story. Use colored pencils, crayons, or a pen to complete your work. If you prefer, you may use a separate paper for your cover picture.

NOW TRY THIS!

1. Write a summary of the scene shown on your cover picture. Tell the name(s) of the character(s) and/or setting shown, explain what is happening in your picture, and how it was important as a main event in story.

_____

_____

_____

_____

_____

2. Why did you select this scene for the cover picture instead of other important scenes?

_____

_____

Task 2- Nouns and Adjectives in the Kitchen

OBJECTIVE To identify ten (10) nouns and write adjectives for each noun.

THINGS TO REMEMBER

A **noun** is a word that names a person, place, or thing
An *adjective* is a word that describes or modifies a noun.

Examples: *thick* **soup**,  *cold* **milk**,  *plastic* **fork** 

PROCEDURE

1. Search for items in your kitchen such as soup, chairs, and spoons, and write each item in the column of **NOUNS**. You may include people, places, and things.

2. For each one, record two adjectives of your choice that would work for the noun in the columns labeled adjectives.

NOUN AND ADJECTIVE LIST

	NOUNS	***ADJECTIVE***	***ADJECTIVE***
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____

1. Where in your kitchen did you find the most nouns? _____
2. What were the categories of the nouns you found? (For example, beverages, fruit.)_____

_____

3. Choose three of the most unusual nouns and their adjectives from your list, and write an interesting sentence for each set on your own paper.

Appendix D: IH Parent Signature Pages

Task 1

Dear Parent or Guardian,

We are learning about the main events in a story. This activity will help build skills of developing main ideas. I hope you enjoy this activity with me. This assignment is due _____. Sincerely,

_____

PROCEDURE

1. Decide which story you liked best in the unit.
2. Complete the tasks on assignment 1.
3. **Read what you have written to your family partner.** Fix any sentences that are not clear.

Show the final copy of your cover picture to your family partner.

Parent Signature: _____

Task 2

Dear Parent or Guardian,

We are learning how to identify nouns and adjectives. I hope you enjoy this activity with me. The assignment is due _____.

Sincerely,

_____

PROCEDURE

1. Have your family partner help you spot ten nouns in the kitchen.
2. You and your family partner must come up with one adjective to describe each noun.
3. Complete questions 1-3 together.

Parent Signature: _____

Appendix E: Parent Letter for Non-IH Students

Dear Parents,

During this 9-week grading period, your child will be assigned two additional homework activities printed on purple paper that can be completed in one or two settings during the week. The purple paper assignment will be sent home each Monday and collected the following Monday, allowing your child freedom to choose the most convenient time throughout the week to complete it. There will be a total of nine purple paper assignments with two activities on each one on the front and back, involving reading, writing, and language tasks. It is important that students complete these activities and turn them in each week. Students will receive the same consequences and rewards for completion or non-completion as regular homework assignments in this class.

Expect purple paper assignments to come home beginning next Monday. If you have any further questions, feel free to contact your child's teacher.

Sincerely,

Third Grade Teacher

Appendix F: Parent Letter for IH Students

Dear Parents,

During this 9-week grading period, your child will be assigned two additional homework activities printed on purple paper that can be completed in one or two settings during the week. The purple paper assignment will be sent home each Monday and collected the following Monday, allowing your child freedom to choose the most convenient time throughout the week to complete it. There will be a total of nine purple paper assignments with two activities on each one on the front and back, involving reading, writing, and language tasks. It is important that students complete these activities and turn them in each week. Students will receive the same consequences and rewards for completion or non-completion as regular homework assignments in this class.

Parents and family members are encouraged to assist students on the purple paper activities, using the instructions stapled to each purple paper, then sign the parent signature line, confirming that an adult assisted in the homework activity.

Expect purple paper assignments to come home beginning next Monday. If you have any further questions, feel free to contact your child's teacher.

Sincerely,

Third Grade Teacher

Appendix G: White Paper Evaluation and Feedback Form

Please circle your selection for the following statements and return this form to Amanda Hunnell via the county mail pony #4054. Thanks!

The information provided in the white paper was easy to understand.	Agree	Disagree	Unsure
The topic of the white paper is relevant to my role in the school system.	Agree	Disagree	Unsure
I will be able to apply what I learned from the white paper in my class.	Agree	Disagree	Unsure
My students complete assigned homework.	Agree	Disagree	Unsure
I assign homework in the area of reading.	Agree	Disagree	Unsure

Please provide feedback and comments regarding your thoughts on the white paper.

_____

_____

_____

_____

_____

_____

_____