The Effects of a Homework Club Intervention on Math Test Scores for At-Risk Second Graders in a Title I School

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Abstract

The purpose of this quasi-experimental study, pretest-posttest design, was to determine the effects of supporting math homework completion on the math achievement grades of at-risk second graders in a Title I public school. Students, who were unsuccessful, scoring below 70%, were invited to participate in a homework club as an intervention, conducted by the researcher who was also the classroom teacher. The purpose of the homework club was to decrease students' chances of becoming at-risk of failing the core subject. Five students were given permission by their parents to participate in the treatment after school homework club group and three students' parents declined the invitations, the control group. Both groups were given the same measurements: the pretests and posttests from units one and two of the math curriculum, homework assignments, and surveys. Parents of both groups also completed a survey. Participants of the homework club received a modified survey at the end of the study to depict their perceptions about the homework club. Ratings from the surveys suggested that students enjoyed participating in the homework club because they were able to complete their homework assignments, receive help from the teacher, and self-select manipulatives to solve math problems. Additional results from this study indicate there was an increase in the number of math homework assignments completed and in academic achievement when comparing the differences of the pretest and posttest results for units one and two for both groups. However, participants in the homework club demonstrated more academic growth on their unit two math assessment. Further research should be conducted to explore the effects of a homework club as in intervention in other subject areas.

CHAPTER I

INTRODUCTION

Overview

Educators are faced with the demands of teaching an extensive amount of curriculum throughout the academic school year. Homework provides opportunities to reinforce and enrich curriculum and provide students opportunities to develop study skills (Baltimore County Public Schools Policy, Rule 5210). Although the specific details are left to the discretion of teachers, school districts establish policies to ensure that homework remains an integral part of the educational process.

Most schools and/or school districts have developed homework policies for students at all levels. For example, Baltimore County Public Schools' current policy on homework varies according to grade level (Baltimore County Public Schools Policy, Rule 5210). In grades one through three, students are expected to have an average of 30 minutes of homework per day, three to four times a week excluding weekends and holidays. Students and parents often challenge homework policies. While parents' concerns tend to focus on the relevancy, frequency, and length of time spent on daily homework, students' complaints center around time lost from extracurricular activities and fatigue from working all day (Coutts, 2004). While many teachers work hard to provide students with opportunities to make up assignments, they also have to ensure that the assignments are graded and returned in a timely manner. Although there is controversy, understanding the benefits of homework and how to keep the load manageable and productive for teachers and students is important.

Implementation of homework policies can be difficult in some school settings. For example, in many Title I schools, homework may not be a priority due to the more pressing issues that affect the stakeholders of these improvised areas. Teachers face challenges when implementing effective instruction throughout the school day (Stichter, Stormont & Lewis, 2009). Parental involvement in urban schools often is low due to poverty, single parent households, or having both parents working (Flowers & Flowers, 2008). Students may become at-risk of academic failure and begin to display similar character traits as students with learning disabilities (Bryan, Burstein & Bryan, 2001).

This researcher became interested in the effects of homework completion in her role of as a second grade teacher in a Title I school. She observed that students were not successfully performing on the unit one math summative assessment and wished to learn more about contributing factors so she might implement strategies and/or interventions to help struggling students improve their academic performance.

Statement of Problem

Teachers in Title I schools encounter issues that impact the academic progress of students. Because of the effects of living in poverty, often students of Title I schools are at risk of academic failure. Children who are from improvised backgrounds are more at risk to display challenging behaviors, have negative interactions with teachers, receive less instruction due to being excluded from the classroom, and enter school with a reading achievement level behind that of their peers (Stichter, et al., 2009). The purpose of this study is to determine the effects of supporting math homework completion on the math achievement grades of at-risk second graders in a Title I public school.

Hypothesis

There will be no significant difference between the mean chapter assessment scores for at-risk second graders in a Title I school who do and who do not participate in an afterschool homework program with a certified teacher.

Operational Definitions

Academic achievement: students' performance on summative math assessments. For purposes of this study, adequate and/or successful academic performance means receiving a score of 70% or greater on summative assessments. Inadequate and/or unsuccessful academic performance means receiving below 70% on the summative assessments.

At-risk student: any child who is unlikely to graduate with the skills and self-esteem necessary to exercise meaningful options in the areas of work, leisure, culture, civic affairs, and inter/intra personal relationships (Sagor & Cox, 2004). Often when students are not meeting grade level expectations academically and/or are performing at least a year below grade level, they are considered to be at-risk.

Rate of homework completion: the percentage of homework assignments completed and returned by students.

Title I schools: schools identified by the number of students within the school who receives free and reduced price meals (FARMS) and usually are located in areas where many families have low socioeconomic status levels.

CHAPTER II

REVIEW OF THE LITERATURE

Homework can contribute to students' successful school achievement. Regardless of the level at which it is assigned, opinions about homework vary widely among stakeholders. The purpose of this literature review is to examine the various definitions, opinions, usage, and interventions used to make homework meaningful and purposeful. The first section discusses definitions and views related to homework. Section two of the literature review presents students' and parents' perceptions about homework. Section three examines educators' purposes for homework and their perceptions about it. The fourth section of the literature review identifies contributing factors that affect homework completion in urban or Title I schools. The final section suggests best practices for homework.

Definitions and Views about Homework

Views about homework from the perspectives of teachers, parents and students, vary and often refute one another. While many educators express the opinion that homework provides beneficial effects to improve academic achievement through the application of skills and good study habits, students, parents and even some educators often oppose these views. As students complete various educational levels, as reported by Coutts (2004), children's attitudes toward homework change and evolve. While preschoolers may request homework, possibly to emulate their order siblings or to feel more mature, their eagerness to complete homework becomes more of a chore by the time students reach middle school. One of the contributing factors to students' changing attitudes about homework is that stakeholders often have very different views about the topic.

For the purpose of this literature review, homework is defined as "tasks assigned to students by schoolteachers that are meant to be carried out during non-instructional time" (Van Voorhis, 2011, p. 220). As an academic task, homework involves motivational processes that differ from those related to class work activities. First, homework takes hours from after school time and competes with activities in which students engage during their leisure time. Second, unlike class work activities that are performed in an educational setting, homework is done at home with only a few environmental cues and supports for focusing on tasks. Finally, unlike class work activities which are conducted under the supervision of a teacher, homework is done either with no supervision or under the supervision of a parent (Katz, Kaplan & Gueta, 2010).

Students' and Parents' Perceptions of Homework

The perception students have about homework often is negative, such as that expressed in the following statement of a grade 5 student named Mike.

> "I get nothing out of homework. I know everything that's in it and it's boring and a waste of time. It would be better if you actually learned something from homework. You only learn things at school so what's the point of doing it again at night? You've had six hours at school. It means I can't ride my bike and play outside with my friends" (Coutts, 2004, p. 182).

Although the perception about homework reflected in the quote above is common among many intermediate students, students' views of homework evolve both positively and negatively as they matriculate through the various grade levels. According to Katz, et al., (2010), one factor that may contribute to students' negative views of homework is the cost, or the desirability of the

activity that is expended in order to complete assignments. When students have to make a decision between completing homework versus participating in an interesting activity, most children will choose the later. Unless students understand the intrinsic value of homework, they generally will not find it interesting nor will they be engaged in completing it. When students engage in homework assignments not because of interest or excitement but rather because of a sense of duty, a desire to please, and/or to avoid punishment, the benefits often are in jeopardy. Extrinsic motivation has been associated with low persistence, learning, and achievement and with the greater risk for dropping out of school. With intrinsic motivation, students are more likely to have positive outcomes such as persistence, creativity, performance, and positive emotions and interest in school.

Towards the end of their elementary school years, some students' views about homework begin to evolve with the help of parents or a guardian-type figure in their lives. Although direct parental involvement may decline during this time, students and parents may be able to reach an understanding about the purpose of homework as a way of learning responsibility and as preparation for future. Over time, social pressures and identity issues in middle school become important factors in the lives of adolescents and begin to interfere with their academic performance. "The regular homework habits of early childhood might still please teachers and parents, but socially they are often a real liability, inviting negative labels and ridicule: only nerds, grinds, and of other social 'losers' maintain such 'goody-goody' habits" (Jackson, 2007 p.57). By the time students reach high school, their purposes for completing homework focus more on consolidation and revision (Coutts, 2004). Students begin to understand some of the teachers' viewpoints about homework. For example, they may realize that there is not enough time to teach the entire curriculum during regular class time. This realization may be motivational for some

students. As a grade 10 student remarked, we "actually learn it ourselves so we can refer and reflect on the lesson afterwards" (p. 185).

Parents whose children are in primary grades often describe their views of homework in terms of long-term socialization goals such as maintaining routines and being responsible, as well as practicing basic literacy and numeracy skills. Many parents acquire the view that homework is associated with a rigorous school program. Unfortunately, there is no research to support the assumption that young children share the long-term socialization views of their parents. This difference may cause conflict when students are completing homework at their homes. By the time students reach high school, the views of homework among all stakeholders, parents, educators, and students tend to reach consensus. Most agree that homework is a vehicle for academic progress (Coutts, 2004).

Educators' Purposes and Perceptions

With the continued controversy regarding the purposes for and value of homework, some educators may question if the positive effects outweigh the negative feedback. When asked about the rationale for assigning homework, the responses from teachers can be grouped into one of four categories: 1) academic functions, 2) general socialization, 3) home/school/community communication and 4) school and system requirements (Coutts, 2004). Cooper, as cited by Van Voorhis (2011) states that goal of homework specifically in the primary grades should "encourage positive attitudes and character traits, allow appropriate parent involvement, and reinforce simple skills introduced in class" (p.224). On the other hand, some educators claim, "that the practice of assigning homework has negligible effects on student achievement and, because students dread it, homework can actually lead to a lack of interest in learning" (Haas, 2008, p. 14). In this case,

homework may be used as busy-work where students spend time practicing skills for which they do not need additional practice or struggle with assignments they do not understand. This view creates a self-reinforcing cycle where there are fewer students doing homework, less class work based on homework, less homework that matters, and even less reason for students to do homework (Jackson, 2007).

Good, as cited by Summers (2008), describes several beliefs and theories of motivation that can assist educators when engaging students in academic tasks. The two motivational beliefs that researchers study frequently are control/competence and value. “Control beliefs are the students' perceptions about the likelihood of accomplishing desired outcomes under certain conditions; competence beliefs are the student's perceptions about his or her capability to accomplish certain tasks. Value beliefs are the reasons why an individual would want to become or stay engaged in an academic task” (p. 2). The three theories of motivation are the expectancy-value theory, attribution theory, and achievement goal theory. Educators are eager to learn strategies to motivate students and help them understand the value of completing assignments. Both beliefs and theories are important when using homework as an intervention to help students perform successfully. Research related to the beliefs described above includes suggested strategies educators can use to determine whether students believe they can accomplish academic tasks and their reasons for choosing to complete tasks.

Contributing Factors that Affect Homework Completion in Urban or Title I Schools

In 1965, Congress adopted the Elementary and Secondary Education Act whose goal was to decrease the academic achievement gap between “high- and low- performing children, especially the achievement gaps between minority and nonminority students, and between

disadvantaged children and their more advantaged peers" (U.S. Department of Education (n.d.), para. 2). The policy was revised in 1994; Title I funding continues to supplement budgets for designated schools by providing *at-risk* students with additional resources to accommodate their needs. Title I schools generally are identified by the number of students within the school who receive free and reduced price meals (FARMS) and usually are located in areas where many families have low socioeconomic levels. Often when students are not meeting grade level expectations academically and/or are performing at least a year below grade level, students are considered to be *at-risk.* These struggling learners often have difficulty completing homework that requires them to read or write beyond their independent level or may have learning characteristics that interfere with starting, organizing, monitoring, and finishing assignments (Margolis, 2005). As cited by Flowers & Flowers (2008), Grigg, Donahue and Dion report test score data in the National Assessment of Educational Progress that concludes that African Americans males are often the minorities that score lower than their Caucasian peers when analyzing standardized reading assessments.

When specifically addressing gaps in reading achievement among groups of students, consideration must be given to the factors that may contribute to this gap. Early language development on the primary level, family and community backgrounds, and the type and quality of educational experiences of some minority families are examples of factors that lead to large differences in academic achievement among groups of students (Flowers & Flowers, 2008). In a study conducted by Flowers and Flowers, data were used from the Educational Longitudinal Study of 2002 (ELS 2002) involving 752 public, Catholic and private high schools during the spring of the academic year 2001-2002. Urban or inner city schools accounted for approximately 40 percent of the national probability sample. The participants in the study were African American students

from urban areas. The study was designed to determine the effects of family income, the amount of time spent on homework, and parental expectation on reading achievement. All three variables had a positive effect on the reading achievement of the African American high school students. The research findings "indicated that the time spent engaging in homework resulted in higher reading achievement scores" (p.162). The findings also suggested that students whose parents believed that they would attain academic credentials beyond high school were more likely to attain higher achievement scores. These findings support the conclusion that parents' expectations are related directly to students' expectations and outcomes.

The similarities between the achievement of students with learning disabilities and those labeled as *at-risk* have been noted by researchers such as Bryan, et al. (2001). Bryan, et al. describe students with learning disabilities or ADHD as any child who has been diagnosed by a licensed professional (such school psychologist, clinical psychologist or speech and language specialist) as having difficulty acquiring knowledge and skills to the normal level expectancy of his/her peers. "For students with learning disabilities, homework problems have been attributed to personal deficits such as short attention span, memory deficits, poor receptive language, and/or lack of organizational skills (Bryan & Burstein, 2004, p. 213)" which are similar characteristics of at-risk students (Bryan, et al., 2001). Because students with disabilities cope with many challenges, time and supportive resources are essential. Often students with learning disabilities will need additional parental support and time to complete homework. For this reason, parents with disabilities often find homework stressful (Margolis, 2005).

Best Practices for Homework

Few extensive research studies have identified a positive correlation between homework and academic achievement of elementary students. However, according to Farrow, Tymms and Henderson (1999), the relationship grows more positive and stronger in secondary schools. When examining the achievement scores of the core subjects, reading, mathematics and science, of primary students, research cited by Farrow, et al. indicated that the highest test scores were achieved by students who reported doing homework once a month in each subject while homework reported more frequently than once a month generally was associated with lower achievement. This finding contradicts the generally accepted view of homework as *'more is better'*. However educational researcher Robert Marzano concludes that when structured appropriately, homework can have an overall positive effect on student achievement (Haas, 2008).

Researchers such as Summers (2008) have offered suggestions regarding the use of homework to educators whose students have a low perception of their ability and decreased value for academic tasks.

> "The teacher should make sure that grades on assignments will not be publicly available, offer good reason for doing the assignment, and perhaps give students some amount of choice either between assignments or within the same assignment. As most educators know, however, students will often find a way to compare themselves to others if it is important to their sense of self-concept and they have strong attainment value for the

> task. Teachers must weigh both classroom factors and students' personal factors when assessing students' valuing of academic tasks" (p.13).

Pre and posttests can be used to identify improvements made throughout the curriculum. Progress made from pre to posttest could provide intrinsic motivation for students.

One way to personalize homework for families is to design and send interest inventories and evaluations for activities. The information can help teachers modify future assignments throughout the year (Bailey, 2004). This procedure also may help maintain effective communication between school and home. Another strategy to encourage positive communication is to have students record daily homework expectations or assignments in an agenda book so parents also are aware of the expectations. This strategy is especially helpful for students with disabilities. When assignments are sent home, teachers should include clear directions and examples to decrease confusion or misconceptions. Bryan and Sullivan-Burstein (1998) state that homework that includes real life situations where students are to complete hands on activities may produce higher rates of homework completion. When students are able to manipulate objects to solve problems on their own, they are more likely to take ownership of their learning and produce meaningful outcomes. When specifically addressing the needs of parents and students in low socioeconomic areas or students with disabilities, interventions such as before school or after school homework clubs that are facilitated by teachers may be beneficial. These steps may eliminate stressful situations between parents and children regarding homework completion.

Conclusion

It is important that educators understand that different approaches to instruction and homework are needed to accommodate the diverse characteristics and needs of students. Whether students are motivated, at-risk, are college-bound, or experience learning disabilities, educators must ask important questions regarding homework that not only address the needs of students as an entire group but also as individual students.

CHAPTER III

METHODS

The purpose of this study was to determine the effects of supporting math homework completion on the math grades of at-risk second grade students in a Title I public school.

Design

In this quasi-experimental study, participants were grouped according to data that were collected from a previous math summative unit assessment created by the mathematics department of the Baltimore County Public School System. Students scoring 70% or less on the math summative unit assessment were invited to participate in this study. The design included two pre-assessments (created by the researcher), a homework club treatment interval, and two post-assessments (created by Baltimore County Public School System). The assessments were used to determine the effectiveness of participation in a homework club as an intervention.

Participants

The eight participants involved in this study were enrolled in second grade at a Title I public school during the 2013/14 school year. In 2001, the school adopted a magnet program that offers a specialized curriculum which focuses on science and the arts. Students from outside the regular school district boundaries have an opportunity to apply to attend the school. The school population for the 2013-2014 school year consisted of 509 students from pre-kindergarten through fifth grade and included two early childhood classes. The demographics included 92% African American students. The student population was 95% FARMS (Free and Reduced Meals). The school had a 95% mobility rate. There were 50 students who had an Individualized Educational Plan (IEP).

On the first mathematics unit assessment created by the mathematics department of Baltimore County Public School System, eight students, out of a class of 20, had not successfully completed the summative math assessment for the chapter in that their performance was below 70%. Additional math achievement data were collected for these eight students to identify the frequency of homework completed throughout unit one. From the group of eight students, five of the students were given permission by their parent(s) to participate in the homework club (treatment group) and three students were not given permission by their parent(s) and therefore were assigned to the control group.

Instruments

There were seven instruments used in this study. Two instruments were pretests and two instruments were posttests. A pretest and a posttest were given for each of the math units from the math curriculum; Unit One: Addition, Subtraction and Number Sense and Unit Two: 2 Dimensional and 3 Dimensional Geometry. Two additional instruments were administered to survey students' perceptions, abilities, and environment when completing math assignments both at home and after the treatment of participation in the homework club. The last instrument was a survey given to parents of students in both the treatment and control groups. The researcher created all surveys.

Pretests

The researcher, who also was the classroom teacher, created the pretests for units one, Addition, Subtraction and Number Sense, and two, 2 Dimensional and 3 Dimensional Geometry. The pretests mimicked the end of the unit assessments (posttests) for units, one and two which were developed by the math department of the Baltimore County Public School system in 2013. Both

the treatment and control group received the pretest in order to assess students' prior knowledge of math skills and concepts prior to instruction.

Posttests

The two posttests were created by the mathematics department of Baltimore County Public School System in 2013. The differences in students' achievement on the two assessments were used to identify the students' progress. The differences between the pre and posttests of each unit were used to identify the progress of students in both the treatment and control group.

Surveys

Surveys were conducted to identify views about math homework from both students and parents.

Student surveys consist of ten *yes, sometimes and no* statements, which depicted their responses about their perceptions regarding math, abilities, or strategies used when completing homework and the environment in which they complete their homework. The intervention group also was given a survey at the end of the intervention that related to the environment in which the intervention was conducted.

Parent surveys consisted of six items in which parents were prompted to choose one of the following responses: *never, rarely, sometimes, frequently,* or *always* to determine parents' perceptions about the strategies used to complete homework. For example, one of the items prompted parents to estimate the amount of time their child spent on homework daily. *See appendices for surveys, pre and posttests.*

Procedure

The treatment group attended an after school homework club for three weeks, Monday through Thursday for 45 minutes each day to assist with math concepts and homework completion. Participants were given the option to complete assignments with a peer or independently. They also were able use manipulatives of their choice to serve as a visual aid when solving the mathematical problems. The treatment provided opportunities for the teacher to work one-on-one with students. At the end of the unit, both treatment and control groups completed a summative assessment, or posttest, for unit two. The assessment was read to both groups to avoid any reading fluency issues.

Surveys were given to participants in the treatment group and control group as well as parents of the participants in both groups. Participants in the treatment group received a similar survey at the conclusion of the treatment. Additional items were added to identify the participants' perceptions and motives for participating in the treatment.

CHAPTER IV

RESULTS

The purpose of this study was to determine the effects of supporting math homework completion on the math grades of at-risk second grade students in a Title I public school. Data representing the results of the study are presented below.

Results of Homework Treatment

Table of the Measures of Central Tendency

	Group	N	Mean	Std. Deviation	Std. Error Mean
Growth Gain	Attended	5	19.0000	17.88854	8.00000
	Didn't attend	3	-7.0000	5.56776	3.21455
HomeWrkGain	Attended	5	19.2000	13.68211	6.11882
	Didn't attend	3	1.3333	10.06645	5.81187

Table of Independent t test Analysis

		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Growth Gain	Equal variances assumed	2.381	6	.055	26.00000	10.92195	-.72504	52.72504
	Equal variances not assumed	3.016	5.129	.029*	26.00000	8.62168	4.00332	47.99668
HomeWrkGain	Equal variances assumed	1.943	6	.100	17.86667	9.19646	-4.63625	40.36959
	Equal variances not assumed	2.117	5.508	.083	17.86667	8.43906	-3.23887	38.97221

P<.05

Results of Student Surveys

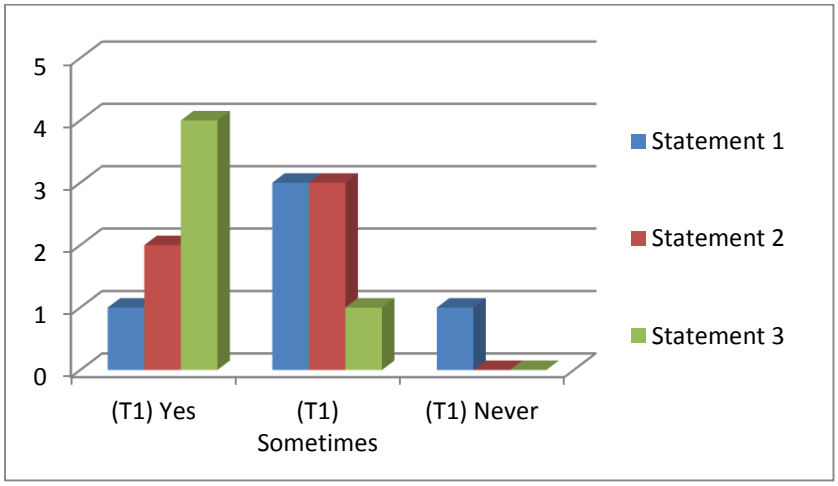
Three statements focused on students' perceptions about math and math homework.

Statement 1: I am good at math.

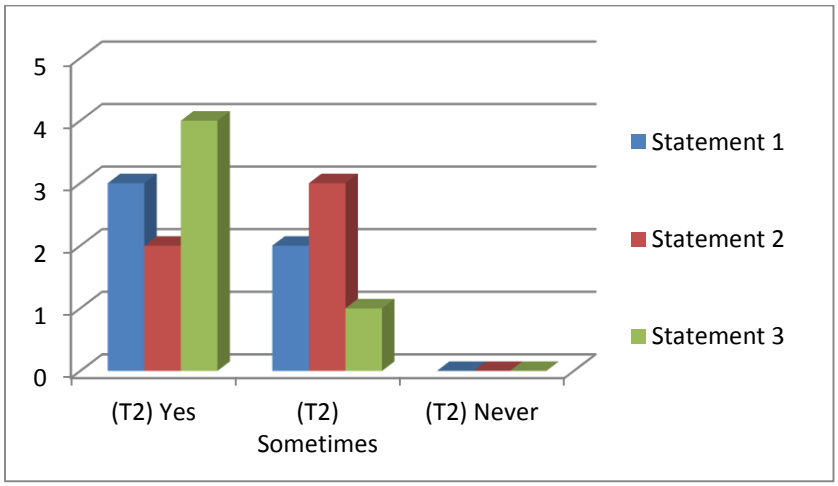
Statement 2: I like doing math.

Statement 3: I like doing math homework.

Responses from Treatment Group (T)

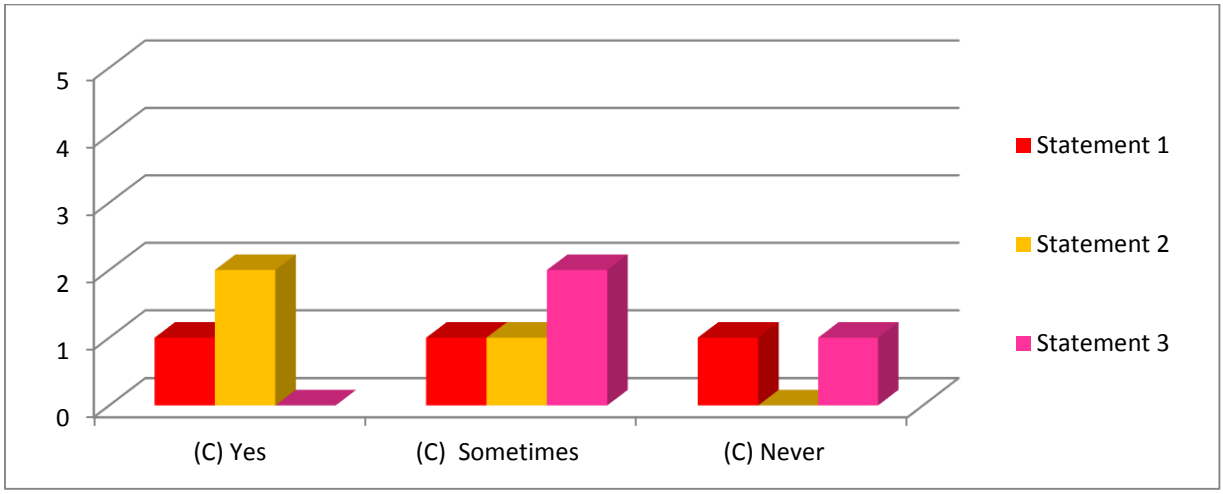


T1= before treatment responses



T2= after treatment responses

Responses from Control Group (C)



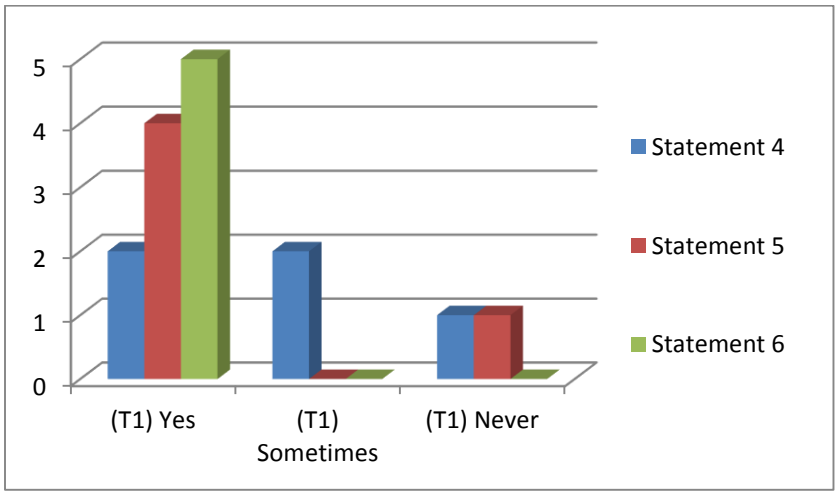
Three statements focused on students' opinions about their abilities and strategies they use to complete math assignments.

Statement 4: I try my best first before asking for help.

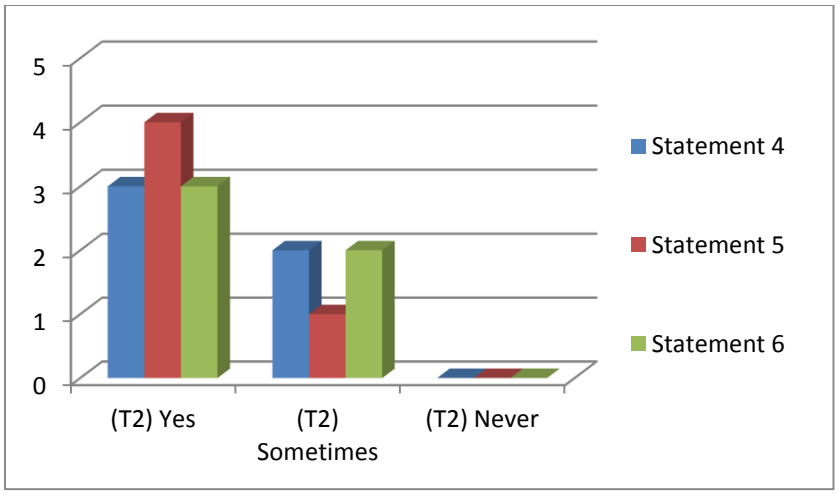
Statement 5: I can explain how I solve math problems.

Statement 6: I think about whether my answer makes sense or not.

Responses from Treatment Group (T)

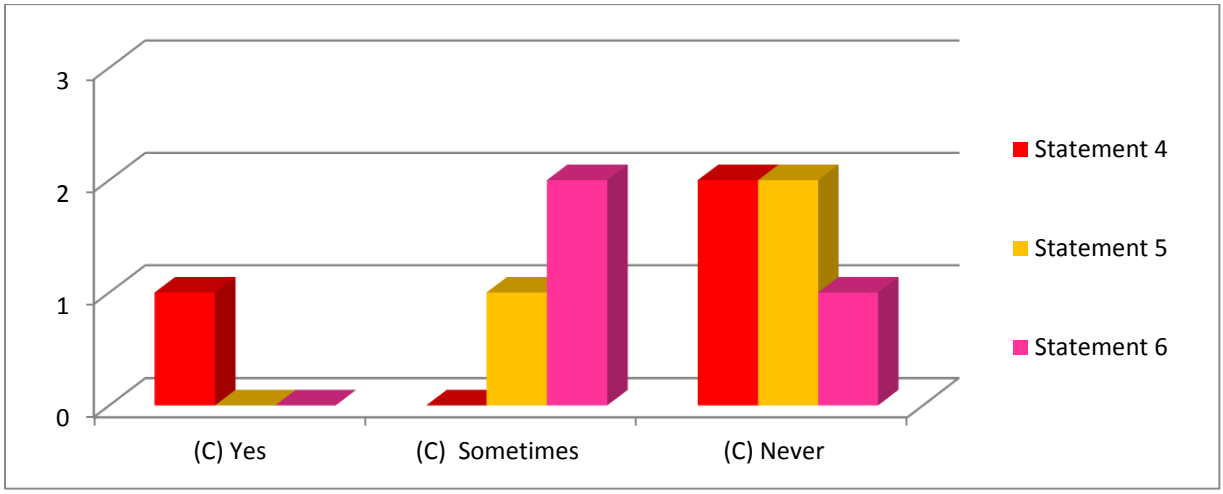


T1= before treatment responses



T2= after treatment responses

Responses from Control Group (C)



Four statements focused on students' environment at home when completing homework.

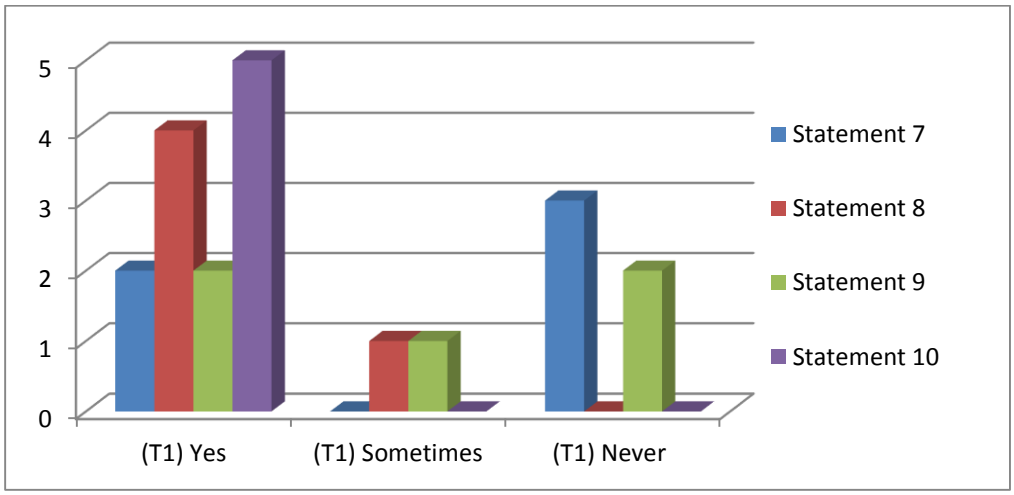
Statement 7: I have manipulatives at home to help with my math homework.

Statement 8: I like to use manipulatives to do my math homework.

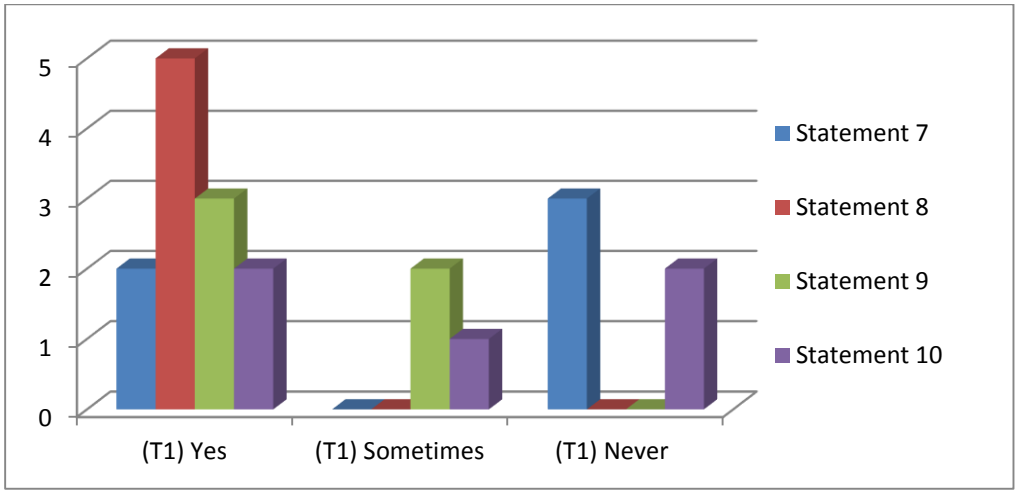
Statement 9: I have a quiet place at home to do my homework.

Statement 10: My parents are able to help me with math homework

Responses from Treatment Group (T)

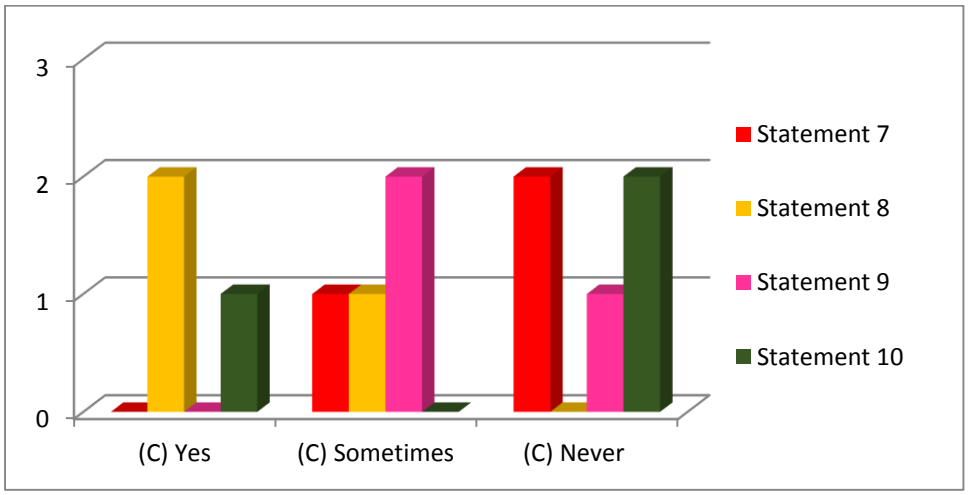


T1= before treatment responses

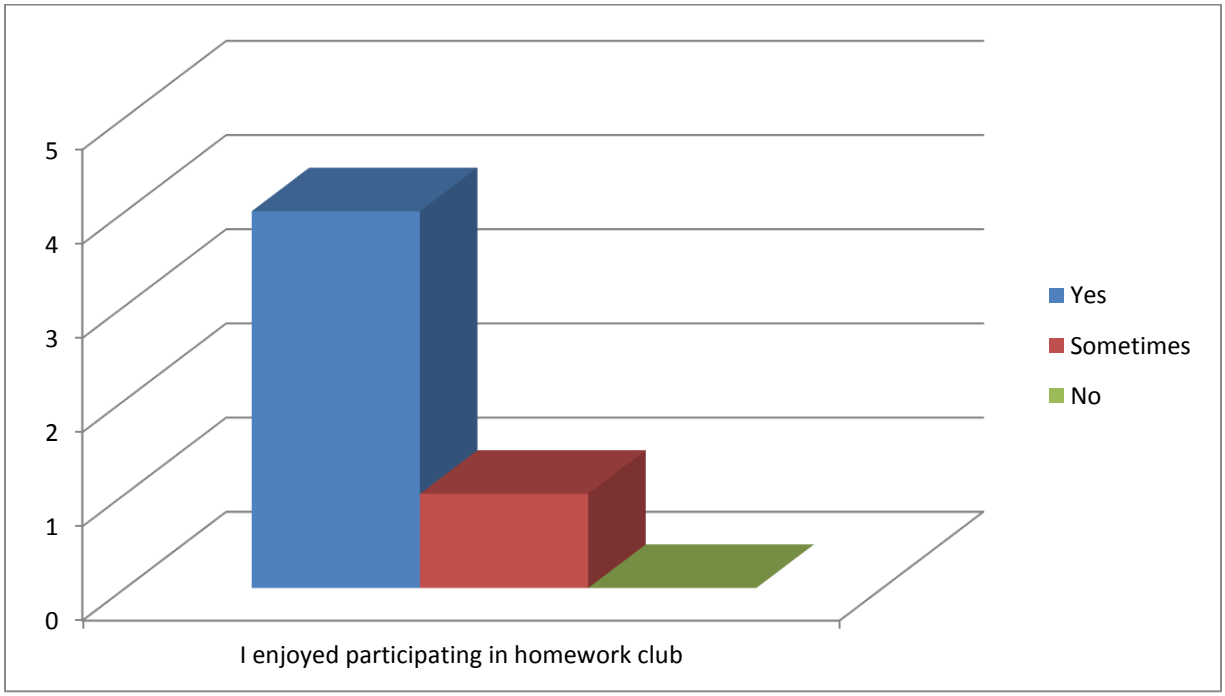


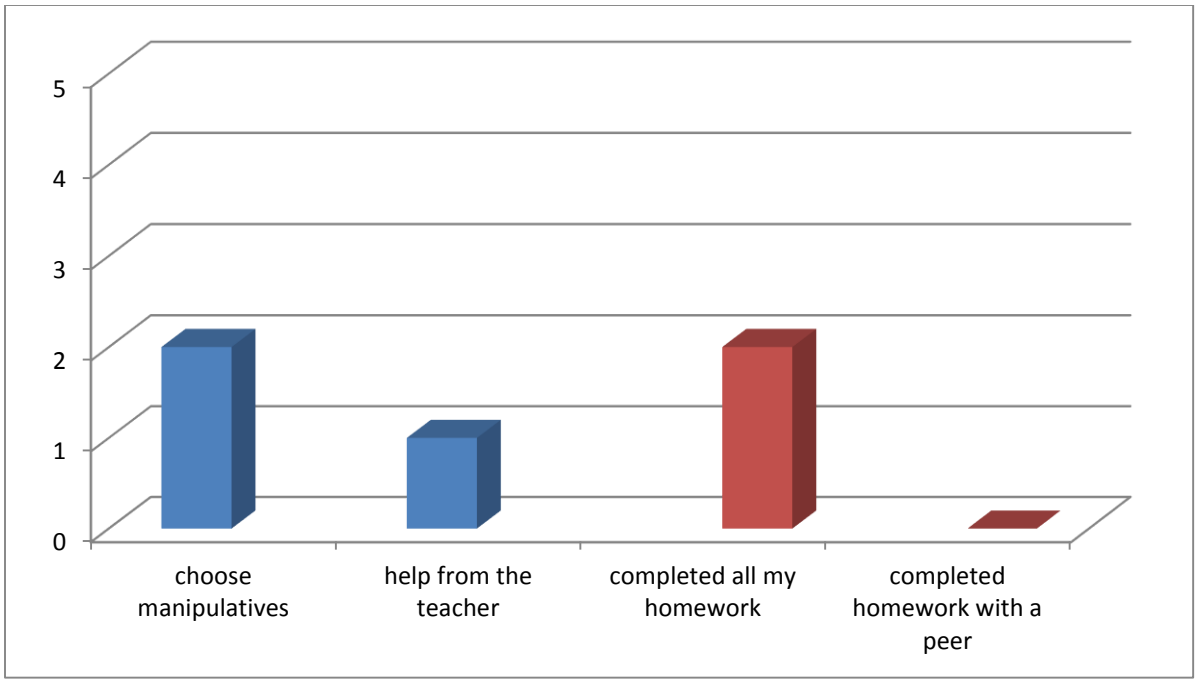
T2= after treatment responses

Responses from Control Group (C)



The following graphs present data from the last statement on the survey completed by the treatment group at the end of the intervention. The question related to participants' perceptions about the homework club. As a follow-up statement, participants were prompted to identify their main purpose for attending the homework club.

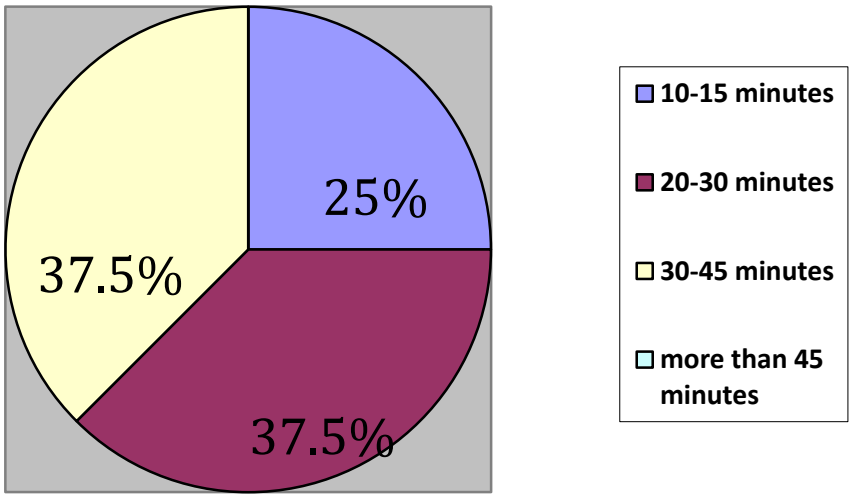



5
4
3
2
1
0
choose manipulatives
help from the teacher
completed all my homework
completed homework with a peer

Results of Parent Surveys

	Never	Rarely	Sometimes	Often	Always
Has your child's math homework provided enough support for you to assist your child successfully?	0	5	2	1	0
Has your child's math homework provided your child with opportunities to solve real life problems?	0	0	2	4	2
My child complete math homework independently.	1	1	2	2	2
After my child completes math homework, I discuss his/her answers.	0	2	5	1	0
My child can explain his/her answers to problems from their homework.	1	2	4	1	0
My child's math homework is related to problems on test.	0	0	2	1	5

The data below shows the responses from the parents of participants of this study when prompted to estimate the amount of time their child spends on math homework daily.



CHAPTER V

DISCUSSION

This study examined the impact of an after school homework club on the mathematics achievement of at-risk second graders in a Title I public school. The data that were collected and analyzed throughout this study consisted of student performance on two pre and posttests, and responses to surveys that were administered to students and parents. The researcher created each of the pretests, ensuring that the format and content of the pretests was similar to that of the two posttests, which were created by curriculum writers in the elementary mathematics department of Baltimore County Public Schools in 2013. The researcher also created the surveys that were administered to students and parents.

Analysis of the Data

Analysis of data from the study revealed that students in the control and treatment groups increased their achievement score from pretests to post tests. Of the students selected to participate in the program, some declined and did not attend. This student decision opened the possibility for the data to be analyzed as having a treatment group and a control group which had not been possible when all students were going to participate. Data on gains in unit test scores were computed as well as gains in homework completion. These gains were compared for the treatment and control groups. The control group included only three students, which makes analysis difficult from a statistics standpoint. However, data were analyzed utilizing the independent t test. The tables in Chapter IV include the analysis of central tendency; followed by the independent t test analysis.

A statistically significant growth in unit test scores is observed when the t test examines the data from the view of unequal variances. Because of the small control group size, it may be inferred cautiously that the groups did differ. This is a cautious inference since the statistical difference for equal variances is .055 and above the normal error rate for a type 1 error.

Although identifying the perceptions about math, students' abilities and the environment in which students complete homework were not a purpose for this study, research suggests that these factors can contribute to the frequency of homework completion (Van Voorhis, 2011; Cooper, Jackson, Nye, & Lindsay (2001); Farrow, Tymms, et al. (1999). Students who participated in the homework treatment demonstrated an increase in their self-efficiency levels when surveying their abilities to explain how they solved math problems. More participants in the treatment group choose either yes or sometimes for trying their best before asking for help after the homework intervention. It is noted that seven out of the eight participants from both the treatment and control group enjoyed using manipulatives to solve math problems, only two of them definitely had manipulatives at home to help with math homework.

According to parents of participants in both the control and treatment group, homework assignments did not always provide support for them to assist their child successfully. It is also noted that most parents occasionally discussed their child's math homework after completion. A conclusion could be made that one factor affects the other. Parents may not have been able to have appropriate or necessary discussions with their child due to the lack of support needed to understand the assignments. Parents' estimations about the amount of time students spent on math homework alone evenly ranged from 10 to 45 minutes daily. These data exceed the expectations for elementary students in grades one through three according to Baltimore County Public School

System's homework policy. The researcher concluded that the variations in time differed due to expectations of the homework assignment or the ability of the students.

Threat of Validity

Throughout this study, there were three major threats to validity: the small sample size, the limited implementation time frame, and the knowledge of the teacher as the homework coordinator. Due to the small number of students not successfully performing on the unit one math assessment, it allowed only eight students to be considered as participants in ~~to~~ the study. Of those eight students, five were given permission by a parent(s) to participate in the homework club as the treatment group, leaving only three students to serve as the control group. A better sample size would include students from other classes to make a larger sample size. A secondary threat to validity of this study was the time allotment. The homework intervention took place over three weeks during which participants met four days a week. This allowed only 12 sessions to be conducted during the duration of the study. Additional participants for both the control and treatment group and more time to offer the intervention would allow more comprehensive data to be collected and analyzed. A third major threat to validity was the use of the classroom teacher as the homework coordinator. The researcher served a dual role as the classroom teacher, who assigned the homework and as the coordinator for the homework intervention group. The dual responsibility of the researcher allowed participants of the treatment group to have access to the researcher's expertise that is not available when students complete homework at home.

Comparison to Other Research

The results of this study support the theories proposed by Sanacore (2002), that homework clubs provide a safe and caring learning environment in which struggling students can receive

additional guided practice in small group or one-on-one. Using the students' classroom as the location for homework intervention club allowed participants to feel comfortable with their environment. They were familiar with locating the self-selected materials and manipulatives to make their math comprehension concrete when solving math problems. Participants were able to take additional advantage of strategies implemented by the researcher which were learned during professional development sessions provided by the mathematics department of Baltimore County Public School System throughout the course of the year. Because of the relationship already established between the researcher and the participants, the researcher was able to tailor activities and support through students' learning styles and personalities.

Contrary to research conducted by Bryan and Burstein (2004), this study did not utilize the strategy of having students graph their homework completion during the homework intervention treatment. Bryan and Burstein described how students shared their collection of data with parents during a student led parent-teacher in which students used different colors to indicate when homework was handed in on time, handed in late or not turned it all. This strategy could have been used during this study to motivate students and provide an opportunity to increase parental involvement.

Implications for Future Research

The findings of this study resulted in a significant connection between homework completions of at-risk second graders in a Title I school on their academic achievement on summative math assessments. To expand on this study, additional research could examine the effectiveness of homework clubs as an intervention for other subjects, across grade levels and/or across other Title I schools. The findings of these studies could result in more federal funding for

before or after school programs to provide support to children in Title I schools. As there is a plethora of research examining the contributing factors that affect the academic achievement of students living in families with low socioeconomic status and/or Title I schools and the need for additional resources and time to obtain mastery of skills, there is little to no funding for before school or after school programs. As described by Sanacore (2002), well planned homework clubs provide an extension of school-related learning through a safe environment and/or individualized and small group activities that can benefit learners who are at-risk of failure.

A second avenue for future research could examine the types of homework assignments students are more likely to complete and/or providing students with options of homework assignments that are tailored to their interest or talents. As suggested by Van Voorhis (2011), students are likely to complete homework when they perceive the assignments to be engaging and are connected to real life experience, when students are given a menu of choices to select homework assignments, and when the assignments are on their ability level.

Summary

While there has been much research that examines actors that contribute to placing students at risk, strategies for decreasing the academic achievement gap, and parental involvement or perceptions about homework and its intended usage, there is little research that link the topics together in regards to elementary students in Title I schools. Although it is known that additional time to practice skills will increase students comprehension and independency levels, it is not agreed upon what conditions are most beneficial for at-risk students in Title I schools when receiving this additional practice time.

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APPENDIX A

Math Help is on the Way!

October 1, 2013

Dear Parents,

Does your child have difficulty completing math homework? Well, help is on the way! Starting October 14, I will be hosting an afterschool homework club. Students will use problem solving strategies and manipulatives to practice new math concepts on their homework. Pre and posttests will be administered to measure progress throughout the duration of the sessions. It is recommended that students attend all sessions to reap the benefits of the program. Sessions will be held every Tuesday through Thursday from 3:45 to 4:30.

Your child is allowed to bring their own snack to homework club.

If you have any questions or concerns, please contact me at sfrancis@bcps.org or (410) 887-3210.

Ms. Francis

I, _____, **DO NOT** give my child, _____, permission to participate in the afterschool homework club.

I, _____, give my child, _____, permission to participate in the afterschool homework club.

Parent Contact: Mother: _____ (Phone #): _____

Father: _____ (Phone #): _____

Emergency Contact: _____

Relationship: _____ (Phone #): _____

APPENDIX B

Student Math Survey

(After)

Directions: Answer the questions by shading ☺ 😐 ☹

YES	SOMETIMES	NEVER		
			Perception	
☺	😐	☹	**I enjoy math.**	
☺	😐	☹	**I am good at math.**	
☺	😐	☹	**I like doing math homework.**	
☺	😐	☹	**I try my best first before asking for help.**	**Ability / Strategies**
☺	😐	☹	**I can explain how I solve math problems.**	
☺	😐	☹	**I think about whether my answer makes sense or not.**	
☺	😐	☹	**I like to use manipulatives to do my math work.**	**Environment**
☺	😐	☹	**I like having a choice of manipulatives to help complete my homework.**	

☺ **I enjoyed participating in homework club because:**

◯ I was able to choose manipulates to complete my homework

◯ I was able to get help from the teacher

◯ I was able to complete all of my homework

◯ I liked completing my homework with a peer

Other _____

😐 **I sometimes enjoyed participating in homework club because:**

◯ I was able to choose manipulates to complete my homework

◯ I was able to get help from the teacher

◯ I was able to complete all of my homework

◯ I liked completing my homework with a peer

Other _____

☹ **I did not enjoy participating in homework club because:**

◯ I was not able to choose manipulates to complete my homework

◯ I was not able to get help from the teacher

◯ I was not able to complete all of my homework

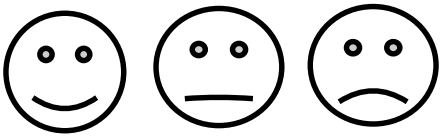
◯ I did not like completing my homework with a peer

Other _____

APPENDIX C

Student Math Survey

(Before)



YES SOMETIMES NEVER

Answer the questions by shading

Perception

I enjoy math.

I am good at math.

I like doing math homework.

Ability / Strategies

I try my best first before asking for help.

I can explain how I solve math problems.

I think about whether my answer makes sense or not.

Environment

I have manipulatives at home to help with my math homework.

I like to use manipulatives to do my math work.

I have a quiet place at home to do my homework.

My parents are able to help me with math homework.

Name _____ Date _____

APPENDIX D

Parent Math Survey

Parental support is essential to student progress. As an effort to assist both you and your child more sufficiently with math homework, please take the opportunity to complete the questions below. Please choose one answer.

1. Has your child's math homework provided:

   enough support for you to assist your child successfully?

   ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

   your child with opportunities to solve real life problems?

   ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

2. My child completes math homework when assigned.

   ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

3. About how much time does your child spend on math homework daily?

   ○ 10 – 15 minutes

   ○ 20 – 30 minutes

   ○ 30 – 45 minutes

   More: _____

4. My child completes math homework independently.

   ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

5. After my child completes math homework, I discuss his/her answers.

   ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

6. My child can explain his/her answers to problems from their homework.

   ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

7. My child's math homework is related to problems on test.

   ○ Never ○ Rarely ○ Sometimes ○ Often ○ Always

Name _____ Date _____