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Middle School Student Perceptions of Homework in Mathematics

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Middle School Student Perceptions of Homework in Mathematics

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Abstract

Homework has been a source of debate in schools for the past several decades and will continue to be an important topic in the future. It is a traditional part of education but some debate its importance in the classroom. This study explored student perception of homework and their reported performance in middle school mathematics. The research questions focused on student attitudes about homework, the relationship of students' self-efficacy and support resources to their homework completion, and the relationship of students' general level of achievement in mathematics to their attitudes about homework. The study involved a survey of 230 middle school students and their mathematics teachers. The survey did not demonstrate reliable measurement of the hypothesized factors of purpose, self-efficacy, and support resources related to students' overall perceptions about homework. However, overall, students reported positive attitudes and grades in math class. Gender and general level of achievement in mathematics class did show a relationship with certain aspects of students' responses regarding homework.

Introduction

When one thinks about school, homework is typically among the first thoughts. To some, these are pleasant thoughts, while to others, these thoughts evoke memories of torturous nights completing homework. Despite its familiarity, homework has been a source of debate in schools for the past several decades and will continue to be an important topic in the future. One side of the debate feels that homework is a necessary and crucial element of education. The other side questions if homework is actually beneficial to students. Homework is “tasks assigned to students by schoolteachers that are meant to be carried out during non-school hours” (Cooper, 1989, cited in Cooper, Lindsay, Nye, & Greathouse, 1998, p. 70).

One source of discussion is that there is no regulation of homework. State educational systems and local school districts generally do not have regulations set in place discussing homework. Instead, it is left up to the teacher to decide what is assigned for homework and why. Some school districts require a certain amount of homework, with amount measured by estimated length of time required to complete it, but allow the teacher to decide what to use the allotted time for. Teachers typically assign homework for one of three reasons: to introduce a new topic, to reflect on past material, or to teach a lesson they otherwise would not have time for in class (Sallee & Rigler, 2008). With the increasing pressure placed on teachers for students to succeed on standardized tests, teachers are increasingly relying on homework to teach material. Most teachers value the use of homework and regularly assign it as a part of their daily classroom routine (Sallee & Rigler, 2008).

Another source of discussion is that students are spending too much time on homework. Parents worry that homework is taking away a crucial part of students’ childhood and they have less time for other activities (Corno & Xu, 2004). However, the Brown Center on Educational

Policy (2003) reported that the hours spent studying per week, which includes homework (2.25), ranks behind hours spent per week watching television (13.5), playing (12.25), and participating in sports (8). Another study found that only a small percentage of elementary and middle school aged students complete on average more than two hours of homework each night. Most elementary and middle school aged students have less than one hour of homework each night (Van Voorhis, 2011).

The ultimate goal of homework, as a part of the educational system, is to improve student achievement by providing a chance to review learned material (Cooper, Robinson, & Patall, 2006). Overall, homework has a positive influence on student achievement, though this influence is much lower for students in elementary school (Cooper & Valentine, 2001).

Numerous researchers have sought to examine the empirical relationship between homework and academic achievement (e.g., Keith, Diamond-Hallam, & Fine, 2004; Kitsantas, Cheema, & Ware, 2011; Cooper, Lindsay, Nye, & Greathouse, 1998). Few, however, have analyzed the relationship between student perceptions of homework and achievement. As students complete homework, they may be influenced by their attitudes towards homework just as much as their ability. My survey looked to fill the gap in research, focusing on student perceptions of homework. By surveying students about common beliefs of homework, I assessed their perceptions regarding each influence. The teacher survey aspect of my study was also compared to the student survey to address the varying perceptions of homework from students to teachers.

In the next section, I will discuss the wide range of homework research. Previous studies have focused on certain aspects of homework, such as the amount of homework, students' self-efficacy, parental involvement, grade level, and support resources in relation to students'

achievement and feelings during homework. I will also review the history of homework and the various views of homework.

Literature Review

History of Homework

The history of homework is long and varied, especially throughout the twentieth century. In the early twentieth century, people viewed homework positively as a way to work and strengthen the muscles of the brain while at home (Cooper et al., 1998). However, repetition and drills fell out of favor in the 1940s and were replaced with the concept of problem solving. Problem solving involved using one's intuition more than memorizing facts, thus making homework based on drills less common. With the launch of Sputnik by Russia in the late 1950s, Americans feared that students were unprepared for the rigors of the technological future ahead (Cooper, 2001). The revival of homework was based on the belief that homework could allow students to learn at a quicker pace by practicing outside of the school day. Yet again, as attitudes in the world changed, attitudes toward homework reversed in the 1960s. Scholars alleged homework placed too much pressure on students, and they questioned its benefits (Cooper et al., 1998). The 1980s led to another change in attitudes towards homework. The report *A Nation at Risk* warned of the rise of mediocrity in the United States and identified homework as a defense against it (Cooper, 2001). Since then, homework has been a staple in the classroom and the amount of homework has generally risen. In the 1990s, some professionals were again concerned that students had too much homework, but homework has remained popular in school (Cooper, 2001).

View of Homework

While the definition of homework does not change, there are different connotations of homework. One study found that 90% of teachers, parents, and students believe that homework will help students (Van Voorhis, 2011). Despite this, some also view homework as busywork assigned to students. Sallee and Rigler (2008), in a survey of 180 high school students, found that an equal number of students viewed homework as busywork compared to a way to prepare for class. While the article does not specifically define busywork, the context suggests that busywork does not prepare students for future classes and merely fills time in class. An equal number of students also viewed homework as an easy way to earn points in class compared to deepening one's understanding of the material. Cooper et al. (1998) surveyed students and found that students in lower grades, on average, felt that homework helped them learn.

Most students view homework as a job: something they may not want to do but must (Corno & Xu, 2004). Children recognize the difference between homework and fun activities and realize they must complete homework before moving on to fun. They also recognize that homework helps develop important work and study habits for the future.

Attitudes towards homework grow and change as a student matures. Warton (2001), through an interview study of second, fourth, and sixth graders, found that older students were more autonomous than younger students. Second graders were compelled to complete their homework to avoid getting in trouble with a parent or teacher or to save an adult the effort of reminding them to do their homework (Warton, 2001). In comparison, sixth graders recognized that it was their own responsibility to complete their homework and that no one else could learn the material for them. They also acknowledged that they must learn to complete their homework on their own because no one will remind them to complete it in high school (Warton, 2001).

Amount of Homework

Several studies have researched the relationship between the amount of homework given to students and their academic achievement, but there is no consensus on the results. Keith, Diamond-Hallam, and Fine (2004) found that students who spent more time doing homework achieved at a higher level than those who spent less time. Furthermore, the study found the relationship between time spent on out-of-school homework (homework completed entirely outside of school) and grades to be statistically significant. This indicates that completing homework outside of school may positively relate to students' grades (Keith et al., 2004). The study also indicated that more frequent, shorter assignments are more effective than less frequent, longer assignments, which is related to the concept that students' motivation decreases the longer they spend on an assignment, as seen in a study by Kitsantas et al., (2011).

In a separate study, Cooper et al. (1998), using the Homework Process Inventory (HPI) questionnaire, found that there was not a relationship between the amount of homework assigned, which was based on estimates of time needed to complete the assignment, and student achievement. Here, researchers looked into the amount of homework typically assigned by the teacher, whereas Keith et al. (2004) looked into the amount of time spent actually completing homework. Upon closer examination of the amount of homework students reported they completed instead of the amount of homework assigned, the study did find a positive correlation between homework completed and achievement (Cooper et al., 1998). Approximately 65% of students in the study reported completing all of their homework.

In contrast, Kitsantas et al. (2011) surveyed 15-year-olds and found that there was a negative correlation between time spent on math homework as reported by students and achievement. The study also found that students who were black or Hispanic spent significantly

more time on math homework than white students did, possibly indicating a precursor to the lower achievement of blacks and Hispanics. The negative correlation is related to the concept that assignments that are too long can lead to a decrease in motivation to complete the assignment, thus decreasing students' motivation to learn a topic (Kitsantas et al., 2011).

The wide range of results produced when researchers analyze the effect of the amount of homework on achievement may stem from the varying classifications of homework. Some studies did not specify the variable analyzed- the amount of homework assigned or the amount of homework completed. Separating the two concepts showed that the amount of homework assigned generally had no influence on a student's achievement, as determined by the state standardized test, while the amount of homework the student completed had a positive correlation with achievement (Cooper et al., 1998). In the studies that did not specify the difference between the two concepts and analyzed them as one single variable, the amount of homework had a positive correlation with students' achievement, measured by grade point average in 12th grade (Keith et al., 2004).

Self-Efficacy

Self-efficacy is a student's "belief in his or her ability to perform at a designated level" (Bandura, 1997, cited in Kitsantas et al., 2011, p. 310). Students' self-efficacy can affect their attitudes toward school and their academic achievement. Kitsantas et al. (2011) examined the relationship between students' self-efficacy in math and their academic achievement. Their research found that girls generally reported lower self-efficacy levels than boys, even if they performed at the same level (Kitsantas et al., 2011). White students had higher self-efficacy levels than African American students. The study asked students to rank their confidence in various problems from very confident to not at all confident. Results showed a significant

correlation between self-efficacy and student achievement in math ($r = 0.54$; Kitsantas et al., 2011).

In another study, researchers examined the relationship between students' homework practices and self-efficacy, perceived responsibility, and academic achievement (Zimmerman & Kitsantas, 2005). In the study, 179 female high school students were surveyed. The survey measured self-efficacy by asking students to rate their belief that they could handle academic situations and learning conditions (Zimmerman & Kitsantas, 2005). Zimmerman and Kitsantas (2005) found that homework practices and self-efficacy have a statistically significant positive relationship. Homework practices can range from organization to concentration to memorizing material. Further analysis demonstrated that homework practices have more influence over self-efficacy than self-efficacy over homework practices. The results reported that the direct relationship between homework and academic achievement was zero (Zimmerman & Kitsantas, 2005). However, there was an indirect relationship from homework to academic achievement through self-efficacy and perceived responsibility. These results indicate that while homework practices do not directly influence achievement, they do affect a student's self-efficacy and perceived responsibility, which can influence achievement (Zimmerman & Kitsantas, 2005).

Parental Involvement

Homework, based on the definition, is completed outside of school. Therefore, teachers cannot help students with various issues arising during homework. Instead, often the only adults available to help students are their parents. There has been a wide range of research related to parental involvement and homework. Corno and Xu (2004) found that some parents offer little to no assistance for students at home. Other parents provide far too much parental assistance,

going as far as completing their students' homework for them. Both of these scenarios can negatively influence a student's academic performance (Corno & Xu, 2004).

While researchers such as Corno and Xu have looked into the role parents play in homework, others have looked into the influence parents have on the homework process. Van Voorhis (2011) found that elementary and middle school students had more positive feelings during homework completion when there was parental interaction compared to when there was none. This study indicated that students preferred their parents to help with homework. Eren and Henderson (2011) discovered that the academic level of parents affected the influence parental assistance had on students. Parents with only a high school diploma had less influence on students than parents with college education because it is more difficult for these parents to help with certain homeworks (Eren & Henderson, 2011). Finally, despite the influences that parents have on homework as shown in the previous studies, parents cannot be held responsible for not effectively helping with homework. Corno and Xu (2004) stated that parents received little to no guidance as to how to help with and supervise homework. Parental involvement varies from student to student, and studies have shown different results when parents help with homework.

Support Resources

Several studies have shown that students with more support resources available have higher academic achievement (Kitsantas et al., 2011; Sallee & Rigler, 2008). Support resources are "the different available resources that students can use while doing homework" (Kitsantas et al., 2011). They can vary from access to a computer and the internet to a desk to work at. Kitsantas et al. (2011) surveyed 15-year-olds and discovered that the more homework support resources available to students, the higher their achievement in math. They also noted that more

support resources can increase self-efficacy in students as a form of social status (Kitsantas et al., 2011). This, as noted previously, can lead to a higher level of student achievement. Sallee and Rigler (2008) surveyed high school students about their life outside of school. About 57% of students surveyed used a support resource similar to book summaries frequently and about 75% used them at some point (Sallee & Rigler, 2008). The researchers also acknowledged that while some students had a wide range of support resources available at home, including knowledgeable parents, other students did not. The students with limited support resources, at times, had additional responsibilities, such as after-school jobs. This often led to less time for homework for them, which can be related to lower achievement (Sallee & Rigler, 2008). Overall, less support resources is related to lower achievement.

Grade Level

The relationship between homework and student achievement is typically smaller for students in elementary school compared to students in secondary school. Cooper and Valentine (2001) suggested that one reason behind this result is that younger students have a harder time focusing on homework, leading to more distractions and less time working on the assignment. They also believed that younger students have less effective study strategies, thus reducing the effectiveness homework has as an opportunity to practice what students learn during the school day (Cooper & Valentine, 2001). It is also important to note that high school students are generally assigned more homework than elementary school students. Cooper et al. (1998) found that lower-grade students were assigned about 15 to 30 minutes of homework each night, whereas upper-grade students were assigned about 15 to 30 minutes of homework in each subject every night in total.

In this study, I analyzed the relationship between student perception of homework and their reported performance in math class. Furthermore, I looked into the reported self-efficacy and amount of homework by students and their influences on perceptions. My study was focused on the math classroom because based on my experiences and observations, homework is assigned most frequently in math class. This is most likely because of concept of learning and understanding through drill and repetition. Other studies have focused on implementing a new technique for homework (Van Voorhis, 2011) or viewed homework as one of many after-school activities that influence students' learning (Sallee & Rigler, 2008; Cooper et al., 1998). This study was designed to explore how students' beliefs and opinions regarding homework link to achievement. From the results, recommendations were made to teachers as to how to discuss and use homework in the classroom to possibly have a positive effect on student achievement.

In the next section, I review the methods used in my study. I also discuss the participants of the study.

Methods

This study involved a survey about perceptions of homework with students in middle school. The survey was conducted in order to answer three questions related to homework. The research questions were as follows:

1. What attitudes do students display about homework?
2. How do students' self-efficacy and support resources relate to their homework completion?
3. How does students' general level of achievement in mathematics relate to their attitudes about homework?

Participants

The sample consisted of students in grades six through eight in one suburban middle school in a Northeastern state. A total of 230 students completed the study, including 104 male and 125 female. The distribution of students by gender and grade level is shown in Table 1.

Four teachers completed the teacher survey.

Table 1

Student Participants by Gender and Grade

	Female	Male	Total
6 th Grade	28	39	67
7 th Grade	45	36	81
8 th Grade	52	29	81
Total	125	104	229

Instrument

The instrument for this study was a researcher-developed survey. After a review of the literature about homework, six central concepts related to homework, especially with regard to completion and student attitude toward it, became apparent: the view of homework, the amount of homework, student self-efficacy, parental involvement, support resources, and grade level. From these sections, I chose to survey students asking if homework helped them learn, if they saw the purpose of homework, if self-efficacy affected homework completion, if support resources affected their completion, and how much homework they were given. After initial content validation efforts yielded concerns from reviewers that topics were not strongly defined, the first two topics were combined and redefined.

The first intended factor for the survey, purpose of homework, was defined as “Students understand why they are given homework and understand the purposes of homework. They recognize the effects homework has on their learning.” The next intended factor was about the students’ reported self-efficacy in relation to homework completion. It was defined as “Students’ self-efficacy is their confidence in their own math ability, and specifically their ability to complete mathematical tasks.” The third intended factor focused on the relationship of support resources to homework completion. It was defined as “Support resources, such as a quiet place to work or parental help, that may influence students’ homework completion.” Beyond the items focusing on these three topics, another section of the survey explored students’ homework patterns and habits, including how much homework students were given each day. The survey also asked students general demographics questions.

To explore the first three topics, the survey prompted students to respond to a series of statements using a five point Likert scale ranging from Strongly Agree to Strongly Disagree. There were ten items focused on each topic, resulting in thirty items total in the main section. The initial set of items were reviewed for alignment with the intended factor definitions and refined based on expert feedback. This study represented, in part, an initial pilot of the survey. The fourth topic asked students to reply to ten questions using a variety of time scales and Likert scales. The full survey can be found in the appendix.

The teacher survey was intended to provide context as to how homework was used in the math classrooms in which student respondents participated. The survey asked four closed-response questions regarding amount of homework and the grading of homework and one open-ended question about the purpose of homework in the teacher’s class. The teacher survey can be found in the appendix.

Data Collection Procedures

Following school approval and IRB approval, the survey, parent permission letter, and information sheet were placed in a single envelope for each student. These envelopes were then sent home with each student. Students were given two weeks to obtain parental consent, complete the survey, and return to their math teacher in the envelopes. Once teachers received the completed survey, they placed it in the designated envelope based on class. Teachers completed one survey per class section taught and placed their completed surveys with the corresponding surveys completed by students.

Data Analysis

Reliability analyses were conducted on the proposed factors to determine levels of internal consistency. Cronbach's alpha results for the three factors were .35 for purpose, .05 for self-efficacy, and .38 for support resources. Each of these was too low to be considered acceptable to use the proposed factors as scales. Therefore, no subscale calculations are presented, and only descriptive statistics by item were calculated. Responses to the questions regarding frequency of homework activities and level of enjoyment of math and math performance were also summarized. Descriptive statistics were examined by item, and then *t* tests and an ANOVA were used to compare groups by gender and by reported level of performance in mathematics class on particular items. A correlation analysis was also run to relate the degree to which students indicated that they liked math with the other items on the survey.

Limitations

There were a number of limitations to the study. The demographics of the sample are homogeneous and taken from only one school, so the conclusions based on the data are not

generalizable to other groups. A majority of the students are also from families with high socioeconomic levels, thus the survey data does not represent the average student. Sending the survey home with students had the possibility of lowering the return rate. It also had the possibility of producing more socially desirable responses related to homework context and resources. The survey was designed to focus on only mathematics homework, which provides a cleaner view of homework in math class but prevents generalizations to other subjects. Most students have a school-provided iPad, influencing questions asked about the use of support resources. The schedules of students also vary, possibly influencing questions discussing when and where homework is completed. The reliability analysis demonstrated weak results, suggesting that further development of the survey would be needed for stronger interpretation and exploration of the research questions; this report focuses on preliminary findings based on items, with recognition of the need for further survey development, and with recognition that item-level analysis increases error.

Results

. The means and standard deviations for each question are shown in Table 2, organized with the highest scoring items at the top of the table. For most items, higher scores represent more positive views of mathematics and mathematics homework or more desirable behaviors related to math homework. Questions indicated with a * reflect a more negative view of math homework; thus, lower scores on these items reflect more positive views. Overall, descriptive results indicated that students had positive perceptions of math homework.

Table 2

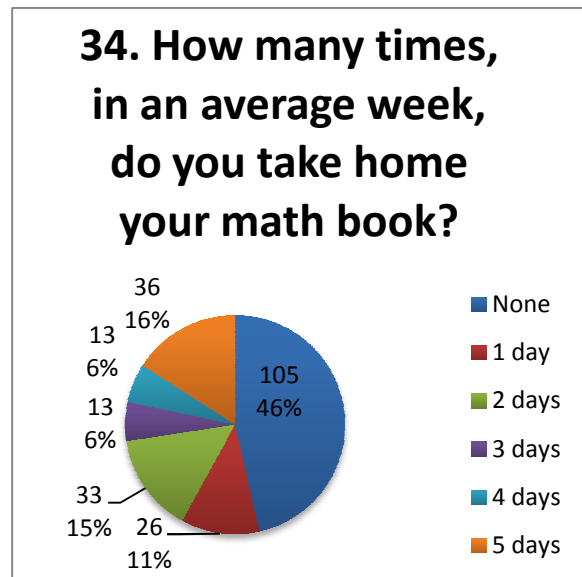
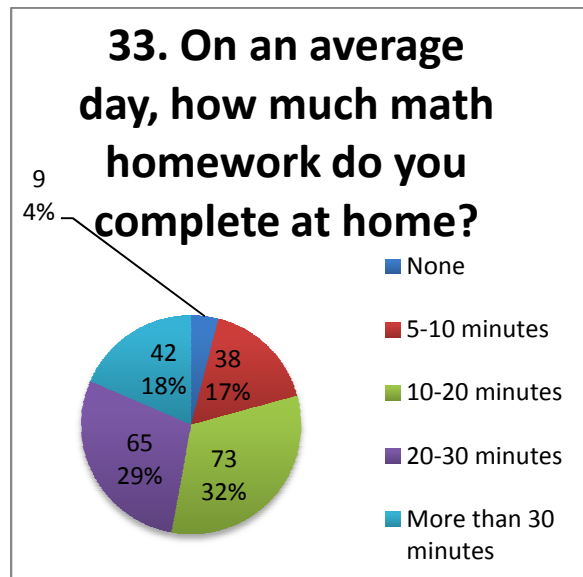
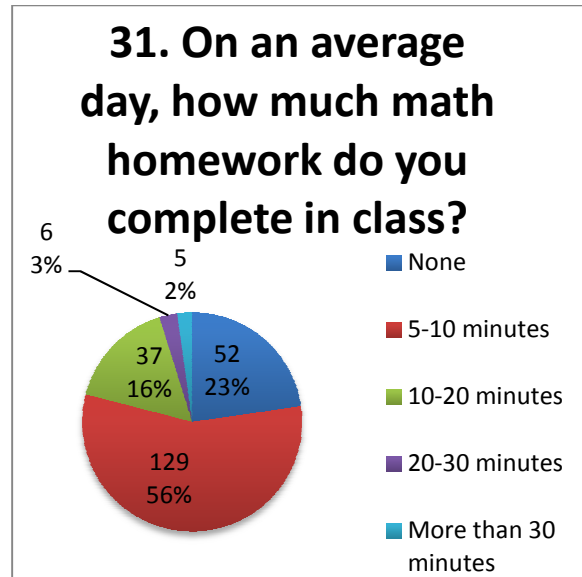
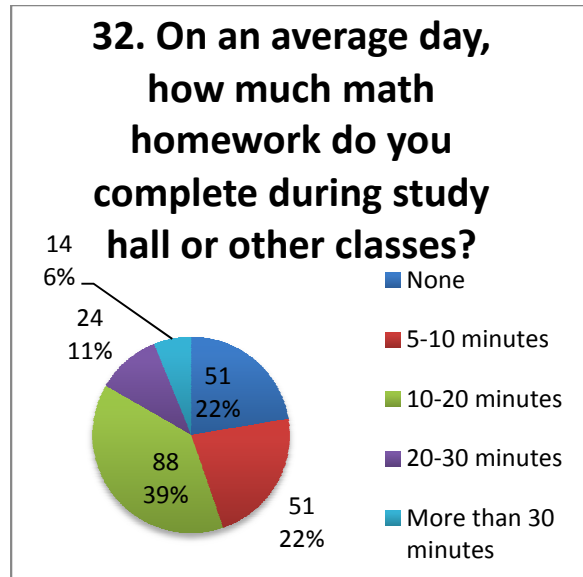
Survey Item Means and Standard Deviations

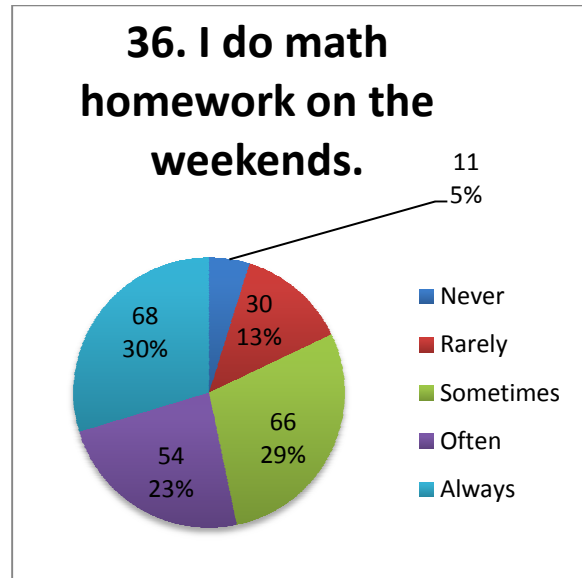
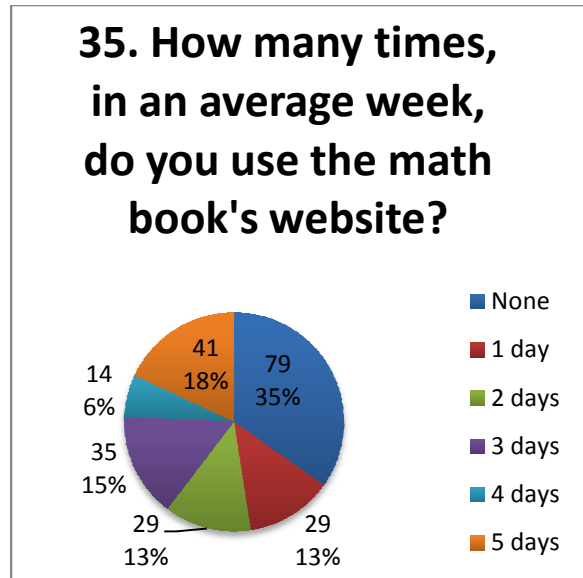
Question	Mean	SD	<i>n</i>
Math homework is easier if I understood the lesson in class.	4.58	.591	230
Math homework is hard when I don't understand the lesson in class.	4.44	.823	229
I have access to a computer if I need it to complete my math homework.	4.43	.842	230
My math teacher assigns homework for me to practice what we learned in class.	4.39	.684	227
I do better on math homework when I feel more confident.	4.20	.852	228
Math homework is harder when I am not confident in my ability.	3.92	.961	229
I understand why teachers assign math homework.	3.89	.987	229
I am willing to continue to work on a problem I get stuck on.	3.86	.840	230
I feel confident in my math ability.	3.80	.950	230
Math homework helps me understand the lessons from the day's class.	3.75	.894	230
I feel confident when I work on math homework.	3.73	.847	228
I have a quiet spot to do math homework after school.	3.73	1.112	230
I do better on tests and quizzes when I do my math homework.	3.59	1.170	230
Math homework helps teach me things for the future.	3.52	1.018	230
I like when other people help me on my math homework.	3.43	1.107	230

People help me with my math homework at home.	3.37	1.220	229
I use my math homework to help me study.	3.30	.968	229
I am very focused when I do my math homework.	3.29	.994	229
Math homework makes me frustrated. *	3.18	1.197	230
My parents make me more confused when they try to help me on my math homework. *	3.02	1.235	229
Doing my math homework allows me to study less.	2.97	1.144	230
I get help on my math homework outside of school.	2.97	1.211	230
Math homework is just busywork. *	2.90	1.090	229
My math teacher assigns too much homework. *	2.89	1.233	230
I use online resources to help me complete my math homework.	2.84	1.168	230
I am easily distracted when I do my math homework. *	2.80	1.222	230
If I get stuck on a math problem, I just skip it. *	2.69	1.170	230
It is hard to do my math homework at home. *	2.32	1.060	229
If I don't understand the math homework, I give up on it. *	2.02	1.068	229
Math homework doesn't help me learn. *	2.01	.962	229

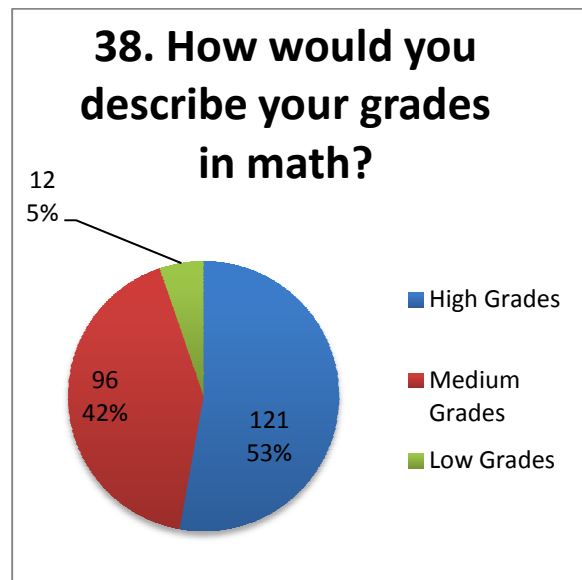
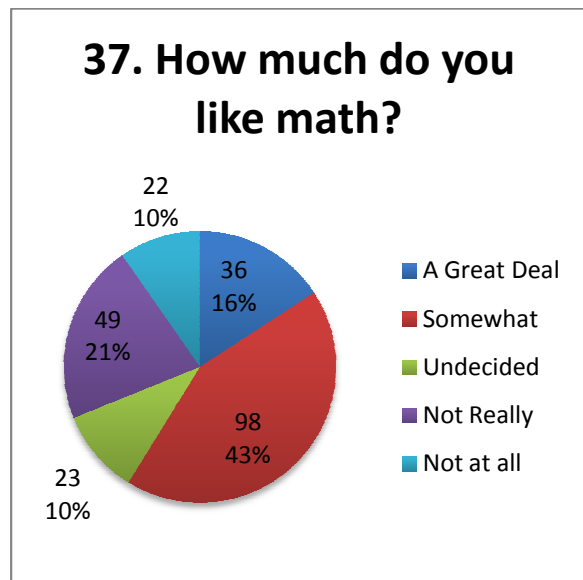
Responses to the general questions about homework habits are reported in the graphs below. In general, most students reported completing homework at some point during the day. 77% of students reported completing homework in math class, 78% reported completing homework in study hall or other classes, and 96% reported completing homework at home. This result may be influenced by the fact that some students do not have a study hall during schools.

About half the students surveyed (53%) reported regularly doing homework on the weekend. Only 54% of students reported bringing their math book home at least once a week, but 65% reported using the math book’s website at least once a week. Students may have reported using their math books less because most can access the math textbook on their iPad supplied by the school.





Overall, students reported positive feelings towards math with 59% responding that they like math a great deal or somewhat. They also had a positive outlook towards their own grades in math, as 53% reported high grades and 42% reported medium grades.



Results by Group

Survey results were examined within specific subgroups in the sample, with analyses determined based on predicted differences from the literature. With regard to gender differences,

no differences were evident between genders on the question of how much students liked math ($t[226]=.84, p=.40$). However, there was a significant difference between genders in the means of three key items: #3: “I feel confident when I work on math homework” ($t[225] = -2.87, p=.004$), #8: “If I get stuck on a math problem, I just skip it” ($t[227] = 4.01, p<.001$), and #27: “I feel confident in my math ability” ($t[227] = -3.60, p<.001$). The negative t -value indicates that male students, on average, responded higher for the questions #3 and 27. In contrast, female students responded higher on question #8.

There were also significant relationships connecting students’ overall attitudes about math and particular items. Strong positive correlations between Likert-scale items and the overall math attitude item emerged for item #3: “I feel confident when I work on math homework” ($r = .465, p<.001$), and #27: “I feel confident in my math ability” ($r=.544, p<.001$). For item #10: “Math homework makes me frustrated” ($r = -.455, p<.001$), a negative correlation emerged.

Further analysis compared students who reported earning high grades in math to students who reported earning medium or low grades on the item about how much they liked math, and a significant difference emerged in terms of how much students reported liking math ($F(2)=19.00, p<.001$). Follow-up tests indicated that the difference emerged between the group reporting high grades ($M=3.78, n=120$) and the groups reporting low ($M=2.42, n=12$) and medium grades ($M=2.91, n=96$). The low grades and medium grades groups did not differ from each other on how much they liked math.

Teacher Survey Results

The teacher survey was completed by four math teachers. On average, teachers assigned 20-30 minutes of homework, four to five days a week. All of the teachers graded homework

based on completion, while half also graded based on accuracy. Every teacher discussed using homework as a means to practice what was taught during the lesson that day. This is in agreement to the statement from the student survey, which stated “My math teacher assigns homework for me to practice what we learned in class,” and with which students showed a high rate of agreement (mean=4.39). Other purposes for homework included introducing a new topic, enrichment for advanced students, and practice of general math skills. Based on the students’ mean response (3.89) to the statement “I understand why teachers assign math homework,” the teachers have accurately communicated the purpose of homework in their classroom to their students. Teacher responses to the survey were similar enough that no analysis was conducted to compare student responses based on teacher.

Discussion

Overall, the sample responded with positive attitudes towards math homework and math class. Most students reported completing their homework consistently regardless of their attitude towards math or homework.

The instrument was designed to measure students’ feelings about homework in relation to purpose of homework, students’ self-efficacy, and students’ support resources. However, the survey did not hold for any of these constructs. Despite this, some important trends could still be gathered from the data. The high achievement in math reported by students relates to high self-efficacy and positive feelings held by students. Some questions related to self-efficacy also displayed general attitude differences between males and females, showing males with potentially higher self-efficacy than females in math, regardless of actual ability or performance. The survey also showed positive perceptions of parental support during homework. However, as

seen in past studies, parents are often not instructed on how to help their students during homework. Providing parents with guidelines to help students complete homework could increase the effectiveness of homework, thus affecting student achievement.

The study's results implicating a relationship between students' achievement and attitudes towards math, in particular their self-efficacy, support the relationship between achievement and self-efficacy found by Kitsantas et al. (2011). The current study was inconclusive, however, in determining if there is a correlation between the concepts, because of the limited internal consistency of the proposed self-efficacy scale. Students responded positively ($m=3.89$) to item #4 "I understand why teachers assign math homework." This is in line with the results found by Corno and Xu (2004) in which students reported homework as their job: a necessary part of school even if they did not want to do it. The lower mean response to item #29, "My parents make me more confused when they try to help me on my math homework," indicates a pattern similar to that found by Corno and Xu (2004). The researchers saw that while some students had positive relationships with their parents during homework, other parents provided too much or not enough assistance during homework, therefore confusing the student. The lower self-efficacy reported by females for items #3, 8, and 27 is in agreement with the results from the study performed by Kitsantas et al. (2004) where girls reported lower self-efficacy than boys in math. Therefore, although the proposed scales for the survey did not demonstrate adequate reliability, the study showed some consistency with other findings in the literature about attitudes in mathematics and aspects of homework.

Implications for Further Research

In the future, further research could be gathered from a survey better designed to study the constructs of homework. This survey focused on math homework, yet did not specify the

types of homework that are assigned by teachers, as evidenced by the teacher survey. A more in-depth survey could be given discussing students' feelings towards various types of math homework. Also, homework has been historically designed to serve as practice of the day's lesson. However, a new trend in education called a flipped classroom uses homework to introduce a new topic to students (Lage, Platt, & Treglia, 2000). Future studies could be performed researching students' attitudes and perceptions towards homework used to introduce a new topic. While the survey asked students how long they spent on math homework on a given day, it did not adjust for the type of learner. Some students, despite their achievement in math, simply take longer to complete their homework. Future research could look at the relationship between the length of time spent on homework and the type of student more closely.

Another aspect that could be further analyzed is the type of student surveyed. The survey could be distributed to high school aged students to compare the attitudes towards homework. The survey could also be distributed to a wider sample which features a different demographic than the one represented in the original survey.

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Appendix A

Student Survey

Homework Survey

This survey will ask you questions about your feelings about math homework and your math homework habits. You will also be asked a few background questions at the end of the survey. This survey may help teachers understand more about how students think about homework. If you are willing to participate in the survey, please read and answer the questions thoughtfully and truthfully, focusing on the way you think and feel about math homework. If you do not wish to answer a question, just skip it and move on to the next question. There will be no penalty for not completing the survey. When you are done, please return the survey and the parent permission form in the envelope to your teacher. Please do not put your name on the survey. Take your time and circle the response that best describes you.

Section 1

1. I use my math homework to help me study.

Strongly Agree Agree Undecided Disagree Strongly Disagree

2. Math homework is harder when I am not confident in my ability.

Strongly Agree Agree Undecided Disagree Strongly Disagree

3. I feel confident when I work on math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

4. I understand why teachers assign math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

5. Math homework is hard when I don't understand the lesson.

Strongly Agree Agree Undecided Disagree Strongly Disagree

6. People help me with my math homework at home.

Strongly Agree Agree Undecided Disagree Strongly Disagree

7. My math teacher assigns homework for me to practice what we learned in class.

Strongly Agree Agree Undecided Disagree Strongly Disagree

8. If I get stuck on a math problem, I just skip it.

Strongly Agree Agree Undecided Disagree Strongly Disagree

9. Math homework helps teach me things for the future.

Strongly Agree Agree Undecided Disagree Strongly Disagree

10. Math homework makes me frustrated.

Strongly Agree Agree Undecided Disagree Strongly Disagree

11. If I don't understand the math homework, I give up on it.

Strongly Agree Agree Undecided Disagree Strongly Disagree

12. Math homework helps me understand the lessons from the day's class.

Strongly Agree Agree Undecided Disagree Strongly Disagree

13. Math homework doesn't help me learn.

Strongly Agree Agree Undecided Disagree Strongly Disagree

14. It is hard to do my math homework at home.

Strongly Agree Agree Undecided Disagree Strongly Disagree

15. I am easily distracted when I do my math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

16. I do better on tests and quizzes when I do my math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

17. I use online resources to help me complete my math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

18. I am very focused when I do my math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

19. Doing my math homework allows me to study less.

Strongly Agree Agree Undecided Disagree Strongly Disagree

20. Math homework is just busy work.

Strongly Agree Agree Undecided Disagree Strongly Disagree

21. I do better on math homework when I feel more confident.

Strongly Agree Agree Undecided Disagree Strongly Disagree

22. Math homework is easier if I understood the lesson in class.

Strongly Agree Agree Undecided Disagree Strongly Disagree

23. I get help on my math homework outside of school.

Strongly Agree Agree Undecided Disagree Strongly Disagree

24. I have access to a computer if I need it to complete my math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

25. I have a quiet spot to do math homework after school.

Strongly Agree Agree Undecided Disagree Strongly Disagree

26. I like when other people help me on my math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

27. I feel confident in my math ability.

Strongly Agree Agree Undecided Disagree Strongly Disagree

28. My math teacher assigns too much homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

29. My parents make me more confused when they try to help me on my math homework.

Strongly Agree Agree Undecided Disagree Strongly Disagree

30. I am willing to continue to work on a problem I get stuck on.

Strongly Agree Agree Undecided Disagree Strongly Disagree

Section 2

31. On an average day, how much math homework do you complete in class?

None 5-10 minutes 10-20 minutes 20-30 minutes More than 30 minutes

32. On an average day, how much math homework do you complete during study hall or other classes?

None 5-10 minutes 10-20 minutes 20-30 minutes More than 30 minutes

33. On an average day, how much math homework do you complete at home?

None 5-10 minutes 10-20 minutes 20-30 minutes More than 30 minutes

34. How many times, in an average week, do you take home your math book?

None 1 day 2 days 3 days 4 days 5 days

35. How many times, in an average week, do you use the math book's website?

None 1 day 2 days 3 days 4 days 5 days

36. I do math homework on the weekends.

Never Rarely Sometimes Often Always

37. How much do you like math?

A Great Deal Somewhat Undecided Not really Not at all

38. How would you describe your grades in math?

High Grades Medium Grades Low Grades

39. What grade are you in?

6th Grade 7th Grade 8th Grade

40. Circle your gender.

Female Male

Thank you for finishing the survey! Please hand in the survey and permission letter to your teacher in the envelope provided.

Appendix B**Teacher Survey****Homework Survey- Teacher Edition**

This survey will ask you questions about the normal homework practices in your classroom. If you teach multiple courses and your answers would differ for those courses, please complete one copy of the survey per course.

1. On an average night, about how much homework do you give?

None 5-10 minutes 10-20 minutes 20-30 minutes More than 30 minutes

2. About how many days per week do you usually assign homework?

1 day 2 days 3 days 4 days 5 days

3. Do you usually grade homework?

Yes No

4. If yes, how is homework graded?

Completion Accuracy Both

5. In general, what is the purpose of the homework you assign? (e.g., review/practice previous material, complete challenge problems, introduce new topic, etc.)

Please place your survey in the envelope with your students' completed surveys. If you completed more than one survey, please put each survey with the relevant group of student surveys.