

**THE IMPACT OF HOMEWORK INCENTIVES ON STUDENT HOMEWORK
COMPLETION IN A SECONDARY MATHEMATICS CLASSROOM**

by

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A Master's Thesis/Project Capstone
Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science in Education
Curriculum and Instruction in Inclusive Education
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Fredonia, New York

May 2017

State University of New York at Fredonia
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CERTIFICATION OF THESIS/PROJECT CAPSTONE WORK

We, the undersigned, certify that this project entitled THE IMPACT OF HOMEWORK INCENTIVES ON STUDENT HOMEWORK COMPLETION IN A SECONDARY MATHEMATICS CLASSROOM by Brianna Garland, Candidate for the Degree of Master of Science in Education, Curriculum and Instruction in Inclusive Education, is acceptable in form and content and demonstrates a satisfactory knowledge of the field covered by this project.



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ABSTRACT

Assigning homework to secondary school students has been a highly discussed topic among educational researchers, as well as the general public, for several years. Several aspects of homework have been researched in depth; however, there are still significant gaps in research regarding the impact of homework incentives. The purpose of this study was to determine the impact of homework incentives on student homework completion in a secondary mathematics classroom. Mixed methods research was conducted in a suburban middle school in Western New York in order to address this research topic. Quantitative data was collected in the form of student homework completion grades, and qualitative data was collected in the form of student surveys. The results of this study indicated that implementing a homework incentive in a 7th grade mathematics classroom improves the majority of students' homework completion grades. These findings have significant implications that will give secondary teachers new insight on whether to implement a homework incentive in their classroom.

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THE IMPACT OF HOMEWORK INCENTIVES ON STUDENT HOMEWORK COMPLETION IN A SECONDARY MATHEMATICS CLASSROOM

Introduction

American education researchers have been interested in assessing the strengths and weaknesses of homework for the past 70 years (Cooper, Robinson, & Patall, 2006). Even though students all over the world are completing homework assignments every night, there is still a great deal of controversy over many components of homework (Gill & Schlossman, 2000). Fernández-Alonso, Suárez-Álvarez, and Muñiz (2015) believe that homework should be systematic and regular in the classroom. These researchers note that, “It is not necessary to assign huge quantities of homework, but it is important that assignment is systematic and regular, with the aim of instilling work habits and promoting autonomous, self-directed learning” (p. 1083). Alternatively, Marzano and Pickering (2007) argued that inappropriately assigned homework may be of little to no benefit to students, and could possibly decrease student achievement. The problem related to this topic is whether assigning homework produces a positive impact on secondary mathematics students.

Students are already spending the majority of their day at school, and then for most classes are given additional assignments that need to be completed outside of class time. Some secondary students may also have to attend extracurricular activities or work for their part-time job after school hours. However, Sparks (2012) remarked that, “From 1990 to 2010, the percentage of students age 16 and older who were employed while in school dropped from 32 percent to 16 percent” (p. 8). Even so, these other obligations that secondary students have may leave them with very little time to work on their homework assignments for multiple classes. Additionally, Crain (2007) noted that, “Adults need to relax after a full day of work. What does it say about our view of children that they should have to be constructively occupied until they

fall asleep” (p. 7)? It is still unclear whether assignments that are to be completed at home are helping or hurting today’s secondary students.

Several negative effects of homework have been studied and are well known. Kohn (2007) described some of the negative effects on students as: possible declined interest in learning, frustration towards homework, exhaustion, and less time for other activities. In regards to frustration towards homework, Kohn commented:

Parents who watch a torrent of busywork spill out of their children's backpacks wish they could help teachers understand how the cons overwhelmingly outweigh the pros. And teachers who have long harbored doubts about the value of homework feel pressured by those parents who mistakenly believe that a lack of afterschool assignments reflects an insufficient commitment to academic achievement. (p. 1)

This idea may result in some teachers assigning homework simply because they feel they have to. Homework can also make it difficult for students to participate in leisure activities that teach essential life skills (Cooper & Valentine, 2001). Additionally, too much parent involvement in their child's homework can produce negative effects for the child. Cooper and Valentine emphasized that, “They can confuse children by using different instructional techniques than the educator or interfere with their child's sense of academic autonomy” (p. 151-152).

Research has also shown that assigning homework produces beneficial effects on students. These effects go beyond immediate achievement in a subject and the development of one's study skills. Cooper and Valentine (2001) noted that, “Homework can foster independent learning and responsible character traits. Homework can give parents an opportunity to see what's going on in school and express positive attitudes towards achievement” (p. 151). Essentially, there are four main positive effects of homework; these include: immediate

achievement and learning, long-term academic effects, nonacademic effects, and greater parental appreciation and involvement in their children's schooling (Cooper, 1989).

Improving the instructional quality of homework and making sure that the homework is appropriate for students has also been often discussed. Vatterott (2010) insists that there are five fundamental characteristics of homework that deepen student understanding and build essential skills. She describes these characteristics as “The Fundamental Five:”

First, the task has a clear academic purpose, such as practice, checking for understanding, or applying knowledge or skills. Second, the task efficiently demonstrates student learning. Third, the task promotes ownership by offering choices and being personally relevant. Fourth, the task instills a sense of competence – the student can successfully complete it without help. Last, the task is aesthetically pleasing – it appears enjoyable and interesting. (p. 10)

Several students may view their homework assignments to be irrelevant and have no purpose – it may even feel like a punishment to some. Similar to “The Fundamental Five” characteristics of good homework, Marzano and Pickering (2007) recommended teachers to assign purposeful homework, involve parents in their children's homework, design homework in ways that will increase student completion rates, and monitor the amount of homework that is assigned.

Cooper (1989) concluded that, “homework probably works best when the material is not too complex or completely unfamiliar” (p. 88). Grootenboer (2009) also agreed that students needed to be assigned quality homework in order for it to benefit their academic achievement. However, he argued that the quality of a student's homework experience also affects academic achievement. He stated:

...teachers need to consider the academic integrity and the affective consequences when

setting homework tasks. Homework needs to be accessible and engaging for students, but this does not necessarily mean simple or indeed, trivial. Furthermore, homework is an ideal place for students to explore mathematical ideas in their world outside the classroom. (p. 14)

If teachers take the time to construct quality homework assignments that will make a positive impact on their students' homework experience, these students will be more likely to complete their assignments with confidence. Student homework completion was also found to depend largely on individual student characteristics (e.g., gender, free lunch, parent education, self-reported grades) and experiences (e.g., family help and teacher feedback) (Xu, 2011).

Additionally, Xu found male students to have statistically significant lower homework completion scores than did female students. Since homework goes home with students at the end of the day, teachers need to consider the differing environments that their students go home to at the end of each day (Cooper, 1989). Cooper discovered that a student's out-of-school environment could also determine the degree to which a student values and completes his or her homework assignments.

Another greatly debated issue about homework is the amount that should be assigned on a daily basis. As a teacher, trying to figure out this seemingly “perfect” amount of homework to assign can be a challenge. In mathematics classes specifically, each student will need a specific amount of practice for each concept depending on the student’s mathematical proficiency. For example, some students may need to complete only five practice problems to master a concept, while others may need to complete 50. Furthermore, some mathematics teachers may agree that the students who need the least amount of extra practice, which are the A and B students, will complete homework when it is assigned. On the other hand, the students who need the greatest

amount of extra practice will most likely not complete their homework (Meyer, 2007).

Johnson (2016) emphasized that, as students move upward from middle school to high school, the amount of homework that is assigned generally increases. He noted:

One of the reasons for this would be that from Grades 8 through 12, depending on the way a school is organized, a student might meet with from four to six teachers each day. These teachers are not consulting with each other about how much homework each teacher assigns, and that becomes a problem for the student. (p. 1)

Kitsantas, Cheema, and Ware (2011) discovered that students who spend a great amount of time on their math homework are likely to receive low achievement scores in mathematics. These students were also found to have low self-efficacy beliefs and fewer homework support resources. Thus, students may significantly benefit from completing in-class assignments in which they have access to their teacher, peers, and other resources for additional help on these assignments. Many students are still very capable of performing at a high level even if they are not assigned any homework in a class. What matters is making the in-class instruction engaging and purposeful to students, so that homework is not needed.

I would like to further research the impact of homework on student achievement in mathematics classes for a few different reasons. On a personal level, this research will help me to decide whether I will assign homework to my students in my future classroom. Additionally, if I choose to assign homework this research will help me decide on an ideal amount of homework for a secondary mathematics classroom. The type of homework assignment will also need to be considered, since some types of homework assignments may prove to be more effective than others.

This issue also resonates with me since I have been employed as a tutor for a local

tutoring agency for the past five years. I have worked with several students in grades K-12 in a variety of settings, and have helped students with well over 1,000 homework assignments.

While working with students over these years, I have said to myself countless times, “Why do these kids have to do this?” and “Why do they have so much homework!” More often than not, I see homework assignments that I believe are too difficult for students to complete independently. I also have worked with several students who are unable to finish all of their homework during the two hours of after school help they receive. When homework assignments are too lengthy and difficult, students get frustrated in the process of completing their homework, and simply do not want to continue. Students also become overwhelmed by the amount of homework they have at times, and they do not know where to begin. I believe that these are all significant issues that need to be addressed in regards to assigning students homework.

Since the impact of homework on student achievement is still unclear, I would like to provide insight to other mathematics teachers on some of the benefits and drawbacks of assigning homework. Specifically, I would like to conduct a study on the impact of homework incentives on student homework completion in a secondary mathematics classroom. Most educators should agree that whatever the impact homework has on academic achievement, this impact should vary from student to student (Cooper, Robinson, & Patall, 2006). If teachers have a greater understanding of the benefits and drawbacks to assigning homework, they will then be able to make a more well-informed personal decision on whether or not they should assign homework in their classroom.

Literature Review

As we can see from the previous section, some researchers insist that homework is effective, while others insist that it is not (Cooper, 1989; Cooper, Robinson, & Patall, 2006;

Cooper & Valentine, 2001; Gill & Schlossman, 2000; Kohn, 2007; Vatterott, 2010).

Additionally, a few studies discussed in Chapter 1 look into the positive and negative effects of homework (Cooper & Valentine, 2001; Marzano & Pickering, 2007; Vatterott, 2010). For example, is there truly an advantage to assigning students homework, or is it a waste of both the teachers' and students' time? This research then delves into deeper issues, focusing on the types of homework that should be assigned, the amount of time that it should take for the students to complete, and the quality of the assignment. The outcomes of homework-related research will benefit teachers everywhere since nearly all teachers assign homework, no matter how much or how little. This research will hopefully give teachers answers to many questions that they are likely to have in regards to homework.

Type of Homework

In the 21st century, the seemingly old-fashioned paper-and-pencil method of solving mathematics problems still works, but it may be going out of style with the introduction of new technology in classrooms. Researchers such as Mendicino, Razzaq, and Heffernan (2009) noted that students retain significantly more information when given immediate computer feedback on their math homework as opposed to completing the same problems with the traditional paper-and-pencil method. Similarly, Wong (2001) discovered that students who received computer drill-and-practice homework retained more information and performed significantly better in achievement than those students who received computer-aided discovery homework or paper-based homework. This could possibly be due to the fact that an online help option is given in addition to immediate feedback once the student completes a problem. Wong stated:

Students involved with the computer drill-and-practice homework were able to immediately determine whether or not their answers were correct. This allowed them to

reattempt the problem if the answer was incorrect and ultimately increased the number of correctly answered problems. (p. 7)

It should be noted that the computer-aided discovery homework also provides immediate feedback, however it does not provide online assistance. Furthermore, neither immediate feedback nor online assistance was provided for paper-based homework in this study.

In the findings of these research articles it was significant that computer-based homework assignments were more effective than paper-and-pencil homework assignments (Mendicino, Razzaq, & Heffernan, 2009; Wong, 2001). Implementing computer-based homework in the classroom is a great idea, but schools need to have sufficient funding for the proper technology and teachers need to be adequately trained. Schools would also need to have computer labs open and available during after school hours so that students who do not have access to computers at home are able to complete their homework.

In an investigation by Zhu and Leung (2012), the relationship between classroom practices on homework and students' mathematics achievement was examined in three different ways: frequency and amount of homework, types of homework, and usage modes of homework. Four background questionnaires were used to gather data: a curriculum questionnaire, a school questionnaire, a teacher questionnaire, and a student questionnaire. Only three types of homework were investigated in this study, so more research needs to be done on different types of homework, such as homework that requires students to use their higher-order thinking skills. The results of this study showed that homework of problem/question type had a significantly positive impact on academic achievement. This indicates the importance for teachers to have a solid knowledge base on the ways in which different types of homework benefit students in order to make use of homework in a more effective way, and create more effective homework

assignments. The researchers discussed the common belief that mathematics is learned by doing problems, and therefore a strong and efficient problem solving ability is a guaranteed tool for student success in mathematics.

Time Spent on Homework

The effects of the amount of time spent on homework and student academic achievement is a widely researched topic, which resulted in a variety of different findings (Aksoy & Link, 2000; Azina & Halimah, 2012; Dettmers, Trautwein, Lüdtke, Kunter, & Baumert, 2010; Kitsantas, Cheema, & Ware, 2011; Maltese, Tai, & Xitao, 2012; Skouras, 2014; Zhu & Leung, 2012). Zhu and Leung (2012) found that the more time students spent working on homework, the higher the scores they received on mathematics assessments. This finding is consistent with that of Azina and Halimah (2012) who discovered that the more time students spent on their mathematics homework, the higher their mathematic achievement was. However, when students frequently began their homework during class, the more likely the students achieved lower mathematics test scores (Zhu & Leung, 2012). Since these students are using valuable instructional time to work on their homework, this could possibly explain why these students are receiving lower test scores. However, having students start their homework in class could be a useful strategy for low-achieving students since they can receive extra help during this time. More research needs to be conducted on the role of this homework practice for those specific students.

Teachers are often looking for ways to modify their classroom techniques and instruction in order to improve their students' achievement. Thus, Aksoy and Link (2000) decided to investigate several different factors that may affect student achievement in mathematics. The participants in this longitudinal study were from a nationally representative sample of students

from 1,374 high schools. Beginning in 1988, the researchers followed a cohort of eighth graders at two-year intervals as this group went through high school. Data was collected at four separate times: the base year (1988), the first follow-up (1990), the second follow-up (1992), and a third follow-up, as these students moved on beyond high school (1994). The students in this study completed quantitative tests administered by the National Center for Education Statistics (NCES). Test items included word problems, graphs, equations, quantitative comparisons, and geometric figures. The students' test scores were the dependent variable in this study, while the independent variables were measures of the school environment, family environment, and the individual student. The results of this study indicated that the length of the daily math class, the amount of time spent doing homework during the week, and the amount of time spent watching television each day all affected student achievement in mathematics – increased time spent doing homework had a positive effect while increased time spent watching television had a negative effect. Longer mathematics class periods that a student attends on a daily basis were also found to be associated with higher mathematics achievement.

The homework that a teacher assigns could take some students 15 minutes to complete, while other students spend over an hour working on the same assignment. Maltese, Tai, and Xitao (2012) looked into the relationship between time spent on homework and student grades, as well as time spent on homework and standardized test performance. These researchers found no consistent significant relationship between the amount of time spent on homework and student grades. However, there was a consistently positive significant relationship between time spent on homework and standardized test performance. One reason for this could be that the form of homework questions prepares students for similar problems on standardized tests, which then leads to higher test scores. When discussing student performance on standardized

mathematics test questions, researchers Maltese, Tai, and Xitao (2012) note that, “A math question may involve numbers or variables unfamiliar to students, as long as they know how to manipulate basic equations, they can answer most of the problems” (p. 67). Since students are often practicing how to manipulate different types of equations on their homework assignments, this further improves their algebraic skills which in turn prepares them for standardized tests. Therefore, students who were assigned more homework earned higher standardized test scores, while those who were assigned less homework received lower scores.

On the other hand, a significant amount of time spent on homework was found to negatively predict student achievement - long homework times may reflect motivation or concentration problems (Dettmers, Trautwein, Lüdtke, Kunter, & Baumert, 2010). In addition, students who spend a relatively high amount of time on their mathematics homework are likely to have low achievement scores, minimal homework support resources, and low self-efficacy beliefs (Kitsantas, Cheema, & Ware, 2011). Skouras (2014) took this a step further and looked deeper into specific amounts of time that students spent on their homework. Students who took 15-30 minutes or 31-60 minutes to complete their homework had a significantly more positive attitude towards mathematics than did students who took 1-15 minutes to complete homework (Skouras, 2014). Furthermore, students' mathematics attitude was found to be a significant predictor of mathematics achievement. Thus, it is important for teachers to know how students develop positive and negative attitudes towards mathematics if these attitudes are known to affect student success.

Quality of Homework

The quality of a homework assignment is an aspect of homework that has not been widely researched, but studies have indicated that homework quality matters (Dettmers,

Trautwein, Lüdtke, Goetz, Frenzel, & Pekrun, 2011; Dettmers, Trautwein, Lüdtke, Kunter, & Baumert, 2010). The effects of homework quality on 9th and 10th grade students' learning and homework behavior was analyzed in a study by Dettmers, Trautwein, Lüdtke, Kunter, and Baumert (2010). The students in this study were surveyed one time in 9th grade, and one time the following year in 10th grade. They were surveyed on their homework behavior, homework motivation, homework quality, and several other control variables. One limitation of this study was that student self-reported values were the only source of data. The findings of this study indicate that students who were in classes that were given challenging homework assignments demonstrated lower achievement gains than their peers in other classes. The researchers note that, "Students who perceived their homework assignments to be demanding had less belief in being able to complete them than did other students" (p. 475). As for the students who were confident in their ability to successfully complete their homework, these "Students who did their best to complete their assignments scored higher in the mathematics achievement test than did other students" (p. 477). It is also strongly recommended that teachers, schools, and districts re-evaluate the way homework is used in the classroom. This re-evaluation should include the goals of homework and the nature of the homework currently being assigned in mathematics classes (Maltese et al., 2012). Students who perceived their homework to be well-selected by the teacher reported that they had a lesser degree of unpleasant homework-related emotions, and also put more effort into their homework than did other students (Dettmers, Trautwein, Lüdtke, Goetz, Frenzel, & Pekrun, 2011). Furthermore, students who perceived their homework to be challenging reported higher amounts of negative homework-related emotions, put less effort into their homework, and demonstrated lower achievement gains than did other students. It is

recommended that teachers should develop homework assignments that interest their students, are not extremely challenging, and reinforce what was learned during class.

Teachers of mathematics should focus on developing well thought out and quality homework assignments, rather than simply assigning students as many problems as possible. As stated, it is also strongly recommended that teachers, schools, and districts re-evaluate the way homework is used in the classroom. This re-evaluation should include the goals of homework and the quality of the homework currently being assigned in mathematics classes. An important question for teachers to discuss is: “How should homework assignments be designed to enhance homework motivation, homework effort, and student achievement?”

Conclusions

Even though homework itself has been a highly debated and heavily researched topic for several years, there are still significant gaps in research regarding the impact of homework incentives on student homework completion. The lack of research on this topic suggests that homework incentives may not be widely used in secondary classrooms, even though teachers often have difficulty getting some of their students to complete homework assignments. I am eager to look further into more ways to motivate students to do their homework. Teachers want their students to succeed, and I believe that there are strategies that teachers can use that will result in higher rates of student homework completion.

The research questions that drive my study are:

- What is the impact on students when secondary mathematics teachers assign homework?
- What is the impact of homework incentives on student homework completion in a

secondary mathematics classroom?

In the next section, I am going to discuss how I will analyze the impact of homework incentives on student homework completion in a secondary mathematics classroom. I have conducted mixed methods research in two 7th grade math classrooms in order to analyze my research questions. This research consisted of an eight-week experiment in two 7th grade mathematics classes, both taught by the same teacher. My particular research study will add to the research on the impact of a homework incentive in a secondary mathematics classroom.

Methodology

Research Frameworks

In order to investigate the research questions listed in the previous section, I conducted mixed methods research in two 7th grade mathematics classrooms. McMillan (2012) states that, “By using multiple methods in a single study, the researcher is better able to match the approach to gathering and analyzing data with the research questions” (p. 15). Similarly, Creswell (2009) believes the mixed methods model is attractive for a few reasons: “A researcher is able to collect two types of data simultaneously, during a single data collection phase. It provides a study with the advantages of both quantitative and qualitative data” (p. 215). By using mixed methods research, the researcher can gain perspectives from these two different types of data. Driscoll, Appiah-Yeboah, Salib, and Rupert (2007) describe the mixed methods design as “most appropriate for research that does not require either extensive, deep analysis of qualitative data or multivariate analysis of quantitative data” (p. 26). Using qualitative data can provide a deeper understanding of survey responses, while analyzing quantitative data can provide a statistical analysis of response patterns. In my particular study, quantitative data was collected on rates of student homework completion over an eight-week period. Qualitative data was collected by

having each participant complete a survey in class the day after the experimental period concluded. This project aimed to provide further information to teachers on whether assigning homework produces a positive impact on secondary math students. Specifically, this project analyzed the impact of homework incentives on student homework completion in a secondary mathematics classroom.

Subjects and Settings

The research setting in which the investigator conducted this study is a suburban school district in Western New York State. This school district consists of an elementary, middle, and high school. The K-12 enrollment is approximately 1,455 students, with 84% being of Caucasian descent. This study's data was collected specifically in the middle school, which consists of 432 students. Additionally, 2% of the school's K-12 population consists of English language learners, 11% consists of students with an identified disability, and 39% consists of students who are economically disadvantaged.

The participants in this study were 7th grade students from the middle school of this school district. Thirty-five students participated in this study, all of which were enrolled in a Math 7 class which meets for a 40 minute period every day. There were 20 students in the 3rd period section of the classroom teacher's Math 7 class and 15 students in the teacher's 4th period section of Math 7. Altogether, there were four male participants and 13 female participants. One participant was of Hispanic descent, another participant was of African American descent, and the rest of the participants were of Caucasian descent. The Hispanic student who participated in this study is also an English Language Learner.

Students who are enrolled in a Math 7 course are all 7th grade students who either did not qualify for or chose not to enroll in the school's accelerated mathematics program, which begins

in 7th grade. Students who are recommended for the accelerated mathematics program at the end of their 6th grade year are given the option to either enroll in the Accelerated Math 7 course or decline this invitation. Those who choose not to take the accelerated track are placed in a traditional Math 7 course. The students in this Math 7 class were selected for this study because they are considered to be average 7th grade students who are not enrolled in an accelerated mathematics course. Thus, some of these students were those who typically need additional motivation in order to complete their mathematics homework assignments.

After approval was received from the SUNY Fredonia Human Subjects Review Committee, a student consent form to participate in this study was distributed in both Math 7 classes (see Appendix A). The majority of the students signed and handed in their consent forms during class, unless they wanted to take the form home and discuss the study with their parents. On the same day that the student consent form was distributed, a parental consent form was sent home with every student. Both the student and their parent or legal guardian were required to sign and return both consent forms in order to participate in the experiment. The investigator of this study is committed to the ethical requirements common to the field of social research, including the protection of study participants' confidentiality. The data that was collected during this study was privately and safely stored on the investigator's external hard drive and USB flash drive. This study was voluntary, and the participants were able to withdraw from this study at any time.

Dependent Variable

The dependent variable in this study was the homework completion grade that each student received. A typical homework assignment in this class consists of about 15 math problems, in the form of a one-sided worksheet created by the teacher. Each student's

homework assignment is checked at the beginning of class by the teacher, and the student receives a completion score of either “0,” “2,” or “4.” A completion score of “zero” indicates that the student either did not bring the assignment to class or he or she did not attempt the assignment. A completion score of “two” indicates that the student attempted roughly 50-75% of the homework problems. A completion score of “four” – i.e., full credit – indicates that the student attempted all of the problems on his or her homework assignment. If a student missed a homework assignment because of an absence, he or she was able to receive full credit on this assignment if it was shown to the classroom teacher before the end of the unit. If a student received a completion score of “zero” for missing a homework assignment, they were still able to improve their grade on this assignment if they chose to complete it. A student could receive up to a completion score of “two” on this assignment if it was completed and shown to the classroom teacher before the end of the unit. Although small, these point values are factored into each student’s quarterly grade for the class.

The length of this experiment was 8 weeks: the first four weeks consisted of the control setup, and the second four weeks consisted of the experimental setup. The classroom teacher recorded the students’ homework completion scores on a daily basis over the course of this eight-week period. During this entire experiment, homework was assigned to the participants on an almost-nightly basis. There were only a few occasions when the participants were not assigned homework: the day before a unit test and the day of a unit test. Additionally, students were not graded on homework completion when their homework was to work on a project. Projects are turned in for a project grade and are not given a homework completion score.

Independent Variable

The independent variable in this study was the intervention, which was the implementation of a homework incentive in the classroom. For the control setup, the students were not provided with any incentives to complete their homework. For the experimental setup, the students received an incentive for completing their homework, which was a pizza party that occurred at the culmination of the experimental phase. All students who were present in both math classes at the time participated in a blind vote, where they put their heads down on their desks and voted for which type of party they wanted. The students were given three different choices for their reward: a pizza party, donut party, or ice cream party. The purpose of having a blind vote was so that the students could not be influenced by the way their friends were voting. Pizza party won by an overwhelming number of votes in both classes, so the students received a combined class pizza party. The results of the student votes for which type of party they wanted are shown in Figure 1 below.

Figure 1: Number of student votes for which type of party they wanted to receive, broken down by class period.

3rd Period		4th Period	
Type of Party	Number of Votes	Type of Party	Number of Votes
Pizza	15	Pizza	10
Ice Cream	2	Ice Cream	0
Donuts	2	Donuts	1

The students who had a homework completion grade of 90% or higher over the course of the experimental setup, which was four weeks, received an invitation to this pizza party. If a student met the requirements to attend this party, he or she could choose whether to attend. On the first day of the experimental setup, the students in each Math 7 class voted on what type of

party they would like to have: a pizza party, ice cream party, or donut party. In both classes, the pizza party option won the majority of the student votes. This pizza party was held during 9th period, homebase, and 10th period. The majority of the students were able to attend the party during 9th period, since this is when most students have a study hall period. If a student was not able to attend during 9th period, he or she came during either homebase, which takes place at the end of the regular school day, or 10th period, which takes place after school. Only four out of the 13 students who were invited to the pizza party did not attend. Some of these students were absent on this day, and others chose not to attend.

Data Collection Procedures

For this research project, both quantitative and qualitative data was gathered and analyzed. The quantitative data in this study were the student homework completion grades, while the qualitative data consisted of students' responses to a survey (see Appendix C). Each student's completion grade for every homework assignment completed over the course of this study was obtained from the classroom teacher's grade book. These homework completion grades for each student were copied over to an Excel spreadsheet so that the investigator could organize this data by each day of the study. A total of 25 homework assignments were assigned over the duration of this study. During the control setup the students were assigned 12 homework assignments, and during the experimental setup they were assigned 13 homework assignments. The control setup went from February 6th, 2017 to March 6th, 2017, and the experimental setup went from March 7th, 2017 to March 31st, 2017.

For the survey given at the culmination of the experimental phase, the students were to answer five different questions of various types. The types of questions on this survey included were: check all answers that apply, Likert scale, and open-ended. According to Fowler (2013),

“Surveys are designed to produce statistics about a target population. The process by which this is done rests on inferring the characteristics of the target population from the answers provided by a sample of respondents” (p. 8). When participants in a study are asked to complete a survey, they are essentially describing their experiences and personal opinions (Fowler). The participants in this study were first asked what motivates them to do their math homework, and they had a list of predetermined statements to check off if the statement applied. The Likert scale questions on the survey related to how often the students completed their math homework and how much time they spent completing their math homework. Finally, they were asked to answer a couple of open-ended questions. Bourque and Fielder (2003) stated that, “Although open-ended questions are much easier to write than closed-ended items, they generally are more difficult to answer, code, and analyze” (p. 64). Then in contrast, Bourque and Fielder (2003) described closed-ended questions as “much more difficult to design, but if designed carefully and with sufficient pretesting, they result in much more efficient data collection, processing, and analysis” (p. 64). The first open-ended question related to the reasons that the students did not complete their homework. The second and final open-ended question asked students if their homework incentive, the pizza party, encouraged them to complete their math homework more often. They were also required to explain their reasoning behind their answers.

Data Analysis

Both quantitative and qualitative data were used in this study – quantitative data was collected from the classroom teacher’s grade book, whereas qualitative data was collected from student surveys. The investigator used the data from the classroom teacher’s grade book in order to individually calculate each student’s homework completion grade. These grades were calculated by adding up the number of points the student received on his or her homework

assignments, and dividing this number by the total number of possible points the student was able to receive. The students' homework completion grades were calculated separately for the control and experimental setup. This is so that the investigator could calculate the percent change between the students' control setup grades to their experimental setup grades. In order to prevent any errors in calculation, the investigator along with someone not affiliated with this study calculated each student's homework completion grade on two separate occasions. This data helped the investigator to determine if using the intervention made an impact on student homework completion grades.

In order to analyze the data from the student surveys, the investigator manually went through each student survey and transferred the responses for each question into an Excel spreadsheet. For questions 1-3 on the survey, the number of participants that selected each response was calculated. Since questions 4 and 5 were open-ended, the student responses to each of these questions were copied verbatim into a Word document. The investigator was then able to analyze any commonalities or differences in the students' responses to these questions. These student responses to the survey questions were used to assist the investigator in making conclusions about the effectiveness of the homework incentive.

Conclusions

Before I decided to focus on the impact of homework incentives on student homework completion, I had a few other approaches in mind. Originally, I focused on the impact of homework on the academic achievement of secondary mathematics students. Specifically, I wanted to see if the length of a homework assignment has an impact on student academic achievement. One idea that I had for a study was to slowly decrease the amount of homework that students have from their regular number of homework problems down to zero homework

problems. I also thought about comparing the lengths of homework assignments from two 7th grade math classes taught by different teachers. In this design, one of the teachers would assign lengthy homework assignments, while the other teacher would assign very little homework. I believe that the approach I chose for my study was superior to my other ideas because, as I discussed in Chapter 2, there is very little research on homework incentives in the secondary mathematics classroom. Many studies on homework already focus on the ways in which homework affects student academic achievement, so that is why I decided to not go that route for my project. This investigation will add to the ever-growing research on homework. The investigation could also provide new insights on homework incentives to the mathematics teachers in this district.

In the next section I will discuss the results of this research study. The data I have collected for this study shows whether the use of a homework incentive made an impact on student homework completion in a secondary mathematics classroom.

Results

The quantitative and qualitative approaches that were used in order to conduct this 8-week study in two 7th grade mathematics classes have been discussed in Chapter 3. These methods were used to determine the impact of homework incentives on student homework completion in a secondary mathematics classroom. This chapter will provide an overview of the results that became apparent from the students' homework completion grades and surveys. After collecting and analyzing the data from this study, the following results emerged:

- Students who completed their homework every day continued with this trend when the homework incentive was implemented.

- Students who sometimes completed their homework received a higher homework completion grade when the homework incentive was implemented.
- Students who rarely completed their homework received a higher homework completion grade when the homework incentive was implemented.
- Survey results indicated that all of the students want to get good grades in math class, as well as get on the merit or honor roll.
- Survey results indicated that the majority of the students were motivated to complete their math homework because of the pizza party homework incentive.

It was evident from the student homework data that implementing a homework incentive in these two 7th grade mathematics classes resulted in higher rates of student homework completion. Out of the 17 participants in this study, 16 received a higher homework completion score when the homework incentive was put into practice. Figure 1 shows each student's homework average for the control and experimental setup. The percent change between these two averages was also calculated. The green fill color in the percent change column indicates a percent increase, the red fill color indicates a percent decrease, and the yellow fill color indicates no percent change.

Figure 1: Student homework averages for the control and experimental setup.

Student Number	Control Setup Average	Experimental Setup Average	Percent Change
1	96	100	4.2%
2	83	92	10.8%
3	92	100	8.7%
4	92	100	8.7%
5	92	100	8.7%
6	79	92	16.5%
7	75	85	13.3%
8	75	100	33.3%
9	79	92	16.5%
10	46	65	41.3%
11	92	77	16.3%
12	100	100	0%
13	100	100	0%
14	71	96	35.2%
15	63	69	9.5%
16	79	96	21.5%
17	92	100	8.7%

Many of these students made substantial improvements in their homework completion grades, as shown in Figure 1. The middle school's handbook considers any grade below 65% as failing, 65%-69% as below average achievement, 70%-79% as average achievement, 80%-89% as above average achievement, and 90%-100% as outstanding achievement. During the control setup, 12% of the homework completion grades were failing, 0% were of below average achievement, 35% were of average achievement, 6% were of above average achievement, and 47% were of outstanding achievement. Then during the experimental setup, 0% of the homework completion grades were failing, 12% were of below average achievement, 6% were of average achievement, 6% were of above average achievement, and 76% were of outstanding achievement. The percentage of students who received a homework completion grade of 90 or

higher increased from 47% in the control setup to 76% in the experimental setup. This 29% increase may be due to the fact that the students needed to achieve a math homework completion grade of 90% or higher during the experimental setup in order to attend the class pizza party.

It is also worth noting that the two students who received a failing grade during the control setup, Students 10 and 15, improved their homework completion grades by 19 and 6 points, respectively. Both of these students achieved a passing homework completion grade during the experimental setup in addition to the rest of the participants. It can also be seen from Figure 1 that Student 11's homework completion average decreased by 15% from the control setup to the experimental setup. When looking further into this particular student's homework data, the student was absent for three days and then did not turn in these homework assignments at a later time to receive full credit.

A total of 25 homework assignments were assigned over the duration of this study. During the control setup the students were assigned 12 homework assignments, and during the experimental setup they were assigned 13 homework assignments. A breakdown of how often each student received full credit, half credit, or no credit on their assignments is shown in Figure 2 below.

Figure 2: Number of homework assignments where each student received full credit, half credit, or no credit.

Student Number	Control Setup			Experimental Setup		
	Full Credit	Half Credit	No Credit	Full Credit	Half Credit	No Credit
1	11	1	0	13	0	0
2	8	4	0	12	0	1
3	10	2	0	13	0	0
4	10	2	0	13	0	0
5	10	2	0	13	0	0
6	8	3	1	11	2	0
7	7	4	1	10	2	1
8	7	4	1	13	0	0
9	8	3	1	11	2	0
10	3	5	4	7	3	3
11	10	2	0	10	0	3
12	12	0	0	13	0	0
13	12	0	0	13	0	0
14	6	5	1	12	1	0
15	7	1	4	8	2	3
16	7	5	0	12	1	0
17	10	2	0	13	0	0

The students who would complete their homework every night, or would have an incomplete assignment once or twice, are those who had homework completion averages at the outstanding achievement level. Two students had a homework completion average of 100 for both the control and experimental setup. Since these students completed all of their homework every night regardless of whether there was a homework incentive, they are likely to be motivated by other intrinsic and extrinsic factors. The students who sometimes completed their homework are those who had homework completion averages at the average or above average achievement level. Students who received a homework completion grade of 70-79 often had 3 to 5 incomplete homework assignments and also did not attempt an assignment once every few

weeks. Many of the students who received an 80-89 were not very consistent when completing their homework assignments, even though their homework completion average was fairly high. Often times many of these students would attempt several of the problems on their homework, but since the assignment was overall incomplete they did not receive full credit. Students who rarely completed their homework are those whose grades were at the failing or below average achievement levels. These students often had 3 to 4 missing homework assignments, as well as 3 to 5 incomplete homework assignments, which significantly brought down their homework completion average.

The survey was administered to all 17 students after the experiment was finished, and 15 students completed and turned in this survey during their math class. One of the questions that the students had to answer was, “What motivates you to do your math homework?” The students were given a list of statements, and then had to check off which statements applied to them. The results from this survey question are shown below in Figure 3.

Figure 3: Results for survey question #1. (n = 15)

Statement	Number of Students Who Agreed
I want to get good grades in math class.	15
I am aware that I need to practice what we learned in math class.	10
I will not do well in math class if I do not do my homework.	12
I want to get on the merit/honor roll.	15
I am invited to a pizza party in math class as a reward for completing homework.	10
Math homework is fun.	1
Math homework interests me.	2
My parents tell me I need to do my math homework.	9
My parents reward me for getting good grades.	6
My friends do well in school and I want to fit in with them.	0
My brothers/sisters do well in school and I want to be like them.	5

All of the students who completed this survey agreed that they want to get good grades in math class, as well as get on either the merit or honor roll. Many of these students also indicated that they are aware that they need to practice what they learned in math class, and that they will not do well in math class if they do not do their homework. Student grades for this class are calculated by adding all of the points earned during the quarter (from homework assignments, projects, quizzes, and tests) and then dividing by the total number of possible points. Consequently, if students choose not to complete their homework assignments, their overall math average will decline accordingly.

The results from survey question #1 also indicated that the majority of the students (10 out of 15) were motivated to complete their math homework because of the pizza party homework incentive. This survey response from the students aligned accurately with the homework completion averages when the homework incentive was carried out – thirteen out of the 17 total students achieved a homework completion average of 90 or above during this time. Some of the students whose average was 90 or higher may have also been motivated by factors other than the pizza party. For example, 40% of these students indicated that they are also rewarded by their parents for completing their homework. However, it is unknown what type of rewards these students receive from their parents.

Some students are also being pressured at home to complete their homework - 60% of the students indicated that their parents tell them they need to do their math homework. One-third of the students indicated that another motivating factor to performing well on their homework was their siblings also performing well in school. Thus, some students are likely being motivated to complete their homework because of their parents as well as their siblings' actions. Interestingly enough, 0 of the 15 students indicated that they were motivated to complete their homework

because their friends perform well in school.

Survey question #5 required students to elaborate on whether the pizza party reward motivated them to complete their homework. Specifically, this question was, “Did having a pizza party reward for completing your math homework encourage you to complete this homework more often? Explain why or why not.” The following responses were some of the students’ answers to this question:

1. “No, I do my math homework to get good grades.”
2. “A little but I want to get good grades anyway. The pizza party did not really motivate me to do my homework.”
3. “Yes, because it would be fun to have a party with everyone.”
4. “Yes, because I like pizza.”
5. “Yes, because having a reward always encourages me to do my best.”
6. “Yes, because I love food and it motivated me because I already knew I had to get good grades so it just made me look forward to something.”
7. “Yes because I like getting rewarded for doing things but at the same time we shouldn’t be rewarded because we should always do our HW.”

The student responses to this question had three different common themes. First, the pizza party did not motivate students because they do their homework anyway in order to get good grades. Second, the pizza party motivated students because they like pizza and thought that going to a class party would be fun. And last, the pizza party motivated students because having a reward for doing homework encouraged them to do their best on it.

Conclusions

Numerous encouraging outcomes occurred from analyzing the results of this study. It has

been found that the majority of the students in this study were motivated by the pizza party homework incentive that was implemented in their classroom. These students received higher homework completion grades when the incentive was present in their classroom as opposed to when there was no incentive. However, some students will always complete their homework regardless if there is an incentive since they want to get good grades and/or be on the honor or merit roll. The implications, limitations, and further research from these results will be discussed in the next and final section.

Discussion

The findings of this study stated in the previous section indicated that implementing a homework incentive in a 7th grade mathematics classroom improves the majority of students' homework completion grades. These students fully completed their homework assignments more often when the homework incentive was carried out. When this incentive was implemented, 76% of the participants achieved a homework completion average of 90% or above. Without a homework incentive put in place, only 47% of the participants achieved this average. This final section will discuss the implications, limitations, and further research from the results of this study.

Implications

The results that emerged from the data collected from the study indicates that, if teachers want a homework incentive to be successful in their classroom, they need to use a homework incentive(s) that will work for the majority of their students. Of course this is not an easy task, since all students have different likes and dislikes and are motivated by different things. For example, some of the participants in this study indicated on survey question #5 that they either did not like pizza or were not motivated by a pizza party for their homework incentive. As a

result, these students may not have performed as well on their homework assignments as did some of their other peers who were motivated by the homework incentive. Having students complete a survey at the beginning of the school year would be a good place to start discovering students' likes and dislikes and the elements that motivate them to complete their homework. The teacher can then analyze the results from these student surveys and have a class discussion about the types of rewards that the students will be working toward throughout the year.

Furthermore, some students are motivated to complete their homework without a class wide homework incentive. On survey question #5 the students were asked, "Did having a pizza party reward for completing your math homework encourage you to complete this homework more often? Explain why or why not." A few students answered this question by saying "no," they do their homework to get good grades. These students may have been motivated by other outside factors such as rewards from their parents, or they may have been intrinsically motivated to do their homework every day. Even though there is always a select group of students in every class who will complete their homework on a daily basis in order to get good grades, the majority of students will likely need additional motivators in order to complete their homework.

Depending on the age of the students that teachers are working with, different types of homework incentives will likely work better than others. Moreover, an incentive that worked one year for 7th grade students may not work as well the following year with a different group of 7th grade students. For this particular study, I knew I was going to focus on food as an incentive for these 7th grade students. From my previous experiences working with students this age in this same school district, I hypothesized that using food as a homework incentive was an appropriate choice. In addition, there has not been much research done thus far on using food as a homework incentive. All of the students who were present at the time in these two Math 7

classes voted for what type of party they wanted for their homework completion reward. The students were given three different choices for their reward: a pizza party, donut party, or ice cream party. The pizza party incentive option won by an overwhelming number of votes in both classes, so the students received a combined class pizza party. I believe that giving students choices on the types of rewards they want to receive is very important. For instance if I had decided on my own that the reward for achieving a homework average of 90% or higher was going to be an ice cream party instead of a pizza party, some of the students may not have been as motivated to complete their homework. If the type of party were to change the students' motivation levels, the results of my study would have likely been different as well.

Limitations and Further Research

To further strengthen the results of this study, additional research would need to be done in several different areas to address the following limitations. Since this study took place in a small suburban school district in Western New York, different results would likely occur in urban or rural school districts in different areas of the United States. This particular school district is also not very diverse, as 84% of the students in this district are of Caucasian descent. Furthermore, the sample size used in this study was very small – there were only 17 participants. If this study were to be completed with a much larger number of diverse participants, different results would likely occur. This study was also completed in a short time frame of only 8 weeks. Completing this study over a longer period of time, such as an entire school year, might yield differing results as well. Future research should also be expanded to other secondary grades and content areas since this study focused solely on the effectiveness of homework incentives in two 7th grade mathematics classrooms. This research could also be expanded by using different types

of homework incentives and finding out which incentives work best for different grade levels and content areas.

Conclusions

In summary, this study produced several helpful findings on using a homework incentive in 7th grade mathematics classrooms within a suburban school district in Western New York. The majority of the students who participated in this study appeared to be motivated by the homework incentive that was put into place in their math class. This finding is supported by student homework data as well as by student survey responses. When analyzing student data, it was found that 94% of the participants showed some significant improvement in their homework completion average when the homework incentive was implemented. The students were also required to achieve a homework completion average of 90% or above in order to attend the class pizza party. When this pizza party incentive was carried out, 76% of the students achieved a homework completion average of 90% or above. On the other hand, when there was not a class wide homework incentive only 47% of the students achieved this average. Student survey responses also indicated that the majority of the students were motivated by having this homework incentive in their math class. Certainly, the limitations of this study need to be taken into account as well. This study would need to be replicated in several different school districts across the country that have differing demographics. Carrying out this study over a longer period of time with a larger number of participants also needs to be done. Teachers of other secondary content areas are encouraged to try out homework incentives in their classrooms as well. Overall, teachers should consider using homework incentives in their secondary mathematics classrooms in order to discover whether their students positively benefit from them.

Using homework incentives may be a simple yet powerful way to improve student motivation, homework completion grades, and overall class grades.

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Appendices

Appendix A:

Student Informed Consent

My name is Ms. Garland and I am a graduate student from the State University of New York at Fredonia. I am asking you to take part in a research study because I am trying to learn more about ways to encourage students to do their math homework.

If you agree to participate in this voluntary study in Mrs. Mikula's math class, you will have the opportunity to attend a special party for completing your math homework. To be able to attend this party, you will need to achieve a homework grade of 90% or higher over the course of one month. This party is also voluntary, which means you can choose whether you want to attend it or not. At the end of this study, you will also be asked to complete a brief survey during class that includes five questions about math homework and your math classroom.

Please talk this over with your parents before you decide whether or not to participate. Your parents have given their permission for you to take part in this study. Even though your parents said "yes", you can still decide not to do this.

If you don't want to participate in this study, you don't have to. Remember, being in this study is up to you and no one will be upset if you don't want to participate or even if you change your mind later on. If you decide to drop out of this study at a later time, you will still be able to attend the class party if you meet the homework completion requirements. You can ask any questions that you have about the study at any time.

**Signing your name below means that you have read the above information
and agree to participate in this study.**

Participant's signature

Date

Printed name of participant

Principal investigator's signature

Date

Appendix B:**Parent Informed Consent****Dear Parent or Guardian:**

My name is Brianna Garland, a graduate student from the Education Department at The State University of New York at Fredonia. I am also currently a substitute teacher for the Fredonia Central School District. I am requesting permission for your child to participate in a research study to be used for my graduate thesis project. I am conducting research on the impact of homework incentives on student homework completion in a secondary mathematics classroom.

Please read this consent document carefully before you decide to have your child participate in this study.

Purpose of the research study:

To study the impact of homework incentives in a secondary mathematics classroom. I plan to execute an experiment involving homework incentives in your child's mathematics classroom that will span over the course of eight weeks. The goal of this study is to analyze the relationship between incentives and rates of student homework completion.

What your child will be asked to do in the study:

Your child will have the opportunity to attend a special party if he or she receives a homework grade of 90% or higher over the course of one month. Your child will also be required to respond to a questionnaire that includes both scale style and open ended questions, for a total of five questions. Your child does not have to answer any questions on the questionnaire that he or she does not want to answer.

Time Required:

Your child will have as much time as they need to complete the questionnaire. Questionnaires will be collected immediately following student completion.

Compensation:

There is no compensation for participating in the study.

Confidentiality:

Your child's identity will be kept confidential to the extent provided by the law.

Voluntary participation:

Your child's participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study:

Even if you give permission for your child to participate in this study, he or she is free to refuse to participate and in turn, can end participation at any time. If your child decides to drop out of this study at a later time, he or she will still be able to attend the class party if they achieve a homework grade of 90% or higher over the course of one month.

Potential Benefits and Risks:

This study will add to the growing research on homework. The study could also provide a new insight on homework incentives to the mathematics teachers in this district. It is possible that some children could potentially be put off by having a homework incentive experiment take place in their class.

Whom to contact if you have questions about the study:

Brianna Garland, Curriculum and Instruction Graduate Student
Garl6822@fredonia.edu

Whom to contact about your child's rights as a research participant in the study:

Dr. Judith Horowitz
Associate Provost for Graduate Studies, Sponsored Research and Faculty Development
Maytum Hall 805
Judith.horowitz@fredonia.edu
(716) 673-4708

I have read the procedure outlined above. I voluntarily agree to give permission for my child to participate in this study and have received a copy of this description.

Parent/guardian signature

Date

Printed name of child

Principal investigator's signature

Date

Appendix C:**The Impact of Homework Incentives on Student Homework Completion in a Secondary Mathematics Classroom**

Directions: Please check all answers that apply to you.

1. What motivates you to do your math homework?

I want to get good grades in math class.

I am aware that I need to practice what we learned in math class.

I will not do well in math class if I do not do my homework.

I want to get on the merit/honor roll.

I am invited to a pizza/donut party in math class as a reward for completing homework.

Math homework is fun.

Math homework interests me.

My parents tell me I need to do my math homework.

My parents reward me for getting good grades.

My friends do well in school and I want to fit in with them.

My brothers/sisters do well in school and I want to be like them.

Directions: Please circle your desired response.

2. When math homework is assigned, how often do you complete it?

Never

Not very often

Almost every day

Every day

3. About how much time do you spend on your math homework every night?

15 minutes or less

30 minutes

1 hour

More than 1 hour

Directions: Please answer the following open-ended questions.

4. If you ever come to math class without your homework completed, what are the reasons you give your teacher for not completing your homework?

5. Did having a pizza party reward for completing your math homework encourage you to complete this homework more often? Explain why or why not.

Appendix D:

**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS***

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- Name: Brianna Garland (ID: 5064793)
- Institution Affiliation: SUNY - College at Fredonia (ID: 273)
- Institution Email: garl6822@fredonia.edu
- Institution Unit: Curriculum & Instruction
- Phone: 7164671877

- Curriculum Group: Human Research
- Course Learner Group: Group 1.
- Stage: Stage 1 - Basic Course

- Record ID: 17240023
- Completion Date: 16-Sep-2015
- Expiration Date: 15-Sep-2017
- Minimum Passing: 80
- Reported Score*: 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction (ID: 1127)	10-Sep-2015	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	10-Sep-2015	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	16-Sep-2015	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	16-Sep-2015	5/5 (100%)
Assessing Risk - SBE (ID: 503)	16-Sep-2015	5/5 (100%)
Informed Consent - SBE (ID: 504)	16-Sep-2015	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	16-Sep-2015	5/5 (100%)
Research with Prisoners - SBE (ID: 506)	16-Sep-2015	5/5 (100%)
Research with Children - SBE (ID: 507)	16-Sep-2015	5/5 (100%)
Research in Public Elementary and Secondary Schools - SBE (ID: 508)	16-Sep-2015	5/5 (100%)
International Research - SBE (ID: 509)	16-Sep-2015	5/5 (100%)
Internet-Based Research - SBE (ID: 510)	16-Sep-2015	5/5 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	16-Sep-2015	3/3 (100%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	16-Sep-2015	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	16-Sep-2015	5/5 (100%)
SUNY Fredonia State College (ID: 587)	16-Sep-2015	No Quiz

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing Institution identified above or have been a paid Independent Learner.

Verify at: www.citiinprogram.org/verify/7k1f0d57b6-1188-41a2-99e7-9913c6d4d63b-17240023

Collaborative Institutional Training Initiative (CITI Program)
 Email: support@citiinprogram.org
 Phone: 888-529-5929
 Web: <https://www.citiinprogram.org>

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- Name: Brianna Garland (ID: 5064793)
- Institution Affiliation: SUNY - College at Fredonia (ID: 273)
- Institution Email: gar16822@fredonia.edu
- Institution Unit: Curriculum & Instruction
- Phone: 7164671877

- Curriculum Group: Human Research
- Course Learner Group: Group 1.
- Stage: Stage 1 - Basic Course

- Record ID: 17240023
- Report Date: 09-May-2017
- Current Score**: 100

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
History and Ethical Principles - SBE (ID: 490)	10-Sep-2015	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	15-Sep-2015	5/5 (100%)
Belmont Report and CITI Course Introduction (ID: 1127)	10-Sep-2015	3/3 (100%)
The Federal Regulations - SBE (ID: 502)	15-Sep-2015	5/5 (100%)
SUNY Fredonia State College (ID: 587)	16-Sep-2015	No Quiz
Assessing Risk - SBE (ID: 503)	15-Sep-2015	5/5 (100%)
Informed Consent - SBE (ID: 504)	16-Sep-2015	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	16-Sep-2015	5/5 (100%)
Research with Prisoners - SBE (ID: 506)	16-Sep-2015	5/5 (100%)
Research with Children - SBE (ID: 507)	16-Sep-2015	5/5 (100%)
Research in Public Elementary and Secondary Schools - SBE (ID: 508)	16-Sep-2015	5/5 (100%)
International Research - SBE (ID: 509)	16-Sep-2015	5/5 (100%)
Internet-Based Research - SBE (ID: 510)	16-Sep-2015	5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	16-Sep-2015	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	16-Sep-2015	5/5 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	16-Sep-2015	3/3 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

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