

THE EFFECTS OF SELF-EFFICACY ON TEACHERS AND ON ELEMENTARY  
STUDENTS' ACADEMIC ACHIEVEMENT IN MATHEMATICS AND ENGLISH  
LANGUAGE ARTS

By

Chelsea Ottman

A Master's Thesis  
Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Science in Education  
Curriculum and Instruction in Inclusive Education  
Department of Curriculum and Instruction  
State University of New York at Fredonia  
Fredonia, New York

May 2017

State University of New York at Fredonia  
Department of Curriculum and Instruction

CERTIFICATION OF THESIS/PROJECT CAPSTONE WORK

We, the undersigned, certify that this project entitled THE EFFECTS OF SELF-EFFICACY ON TEACHERS AND ON ELEMENTARY STUDENTS' ACADEMIC ACHIEVEMENT IN MATHEMATICS AND ENGLISH LANGUAGE ARTS by Chelsea Ottman, 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.

  
\_\_\_\_\_  
Robert Dahlgren, PhD.  
Master's Capstone Advisor  
EDU 691 Course Instructor  
Department of Curriculum and Instruction

5/10/2017  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Robert Dahlgren, PhD.  
Department Chair  
Department of Curriculum and Instruction

5/10/2017  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Dean Christine Givner, PhD.  
College of Education  
State University of New York at Fredonia

5/15/17  
\_\_\_\_\_  
Date

## **ABSTRACT**

The topic of self-efficacy and academic achievement have been studied for many years, since the term perceived self-efficacy was coined by Albert Bandura in 1994. This research focuses on how self-efficacy beliefs affects the academic achievement of students in the upper elementary grades, as well as how their teachers' self-efficacy beliefs affects the academic achievement of their students. A mixed-methods approach was used in the form of a 20 question survey and interviews based on the answers to the survey. Interviews were also conducted with the classroom teachers. The questionnaires were analyzed by placing questions into groups based on the topic of the question, and the overall answers from the students were graphed to show any similarities in those answers that led to a conclusion. The results of the surveys showed that self-efficacy had an effect on the student's academic achievement, and that students who were more confident in their abilities did better in school.

Keywords: self-efficacy, academic achievement, questionnaire, interview, mixed-methods

## Table of Contents

Introduction.....	1
Literature Review.....	5
Methodology.....	12
Results.....	20
Discussion.....	39
References.....	45
Appendix A: Citi Training.....	48
Appendix B: Approval Letter.....	50
Appendix C: Parental Consent Form.....	51
Appendix D: Parent Letter.....	55
Appendix E: Child Assent.....	57
Appendix F: Questionnaire.....	59
Appendix G: Tennessee Self-Concept Scale.....	63

## **LIST OF TABLES AND FIGURES**

Figure 1: Self-Efficacy Beliefs.....	21
Figure 2: Opinions of Others.....	23
Figure 3: Confidence.....	24
Figure 4: Support for Students.....	26
Figure 5: How Easy Learning Is.....	28
Figure 6: How Well a Student Thinks They Do in School.....	29

## Introduction

Over the years, new curriculum and standards have been implemented in schools across the nation, which have a set of goals and expectations for the skills and knowledge that students need to have in mathematics and English Language Arts throughout each grade level, so that they will be prepared for college, career, and life. Adams-Otis, Chapman, and McShane (2014) reported that, “in 2014, three city schools had not a single third-grader pass the state math test. More incredibly, 11 schools citywide did not pass a single third-grader in reading. At another 89 schools with more diverse student bodies, no black or Hispanic students passed the standardized tests in 2014” (p. 2). Amrein & Berliner (2003) stated that,

The evidence shows that such tests actually decrease student motivation and increase the proportion of students who leave school early... Researchers have found that when rewards and sanctions are attached to performance on tests, students become less intrinsically motivated to learn and less likely to engage in critical thinking. In addition, they have found that high-stakes tests cause teachers to take greater control of the learning experiences of their students, denying their students opportunities to direct their own learning. When the stakes get high, teachers no longer encourage students to explore the concepts and subjects that interest them. (p. 32)

When teachers have to teach students how to be prepared for the test, students lose their motivation. School is no longer fun or interesting for them because there is so much pressure to do well for the test.

Self-efficacy has shown to be a predictor of student’s academic achievement, and self-efficacy can have many meanings. The definition of self-efficacy that will guide my research is

the one created by Albert Bandura. Bandura (1994) coined the term “perceived self-efficacy,” and defines it as “people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine the ways in which people feel, think, motivate themselves, and behave” (Bandura, 1994, p. 1). Self-efficacy is a major factor in a student’s well-being in a classroom. If a student does not feel as though they are good enough, smart enough, or if they feel that their teacher does not believe in them, that can affect how they view themselves. It can also affect their motivation to do well in school. If a student struggles in school already, and then it feels as though they are not cared about; when they begin to struggle more with a topic, they can begin to think that something is wrong with them. They might start to think that they are stupid or inadequate, and that they can’t do the work in front of them. There are many factors that can have an effect on a student’s self-efficacy and their achievement in school, which can cause problems for that student later on in their academic careers.

I have also noticed through my experiences in the classroom, whether it be through field placements, student teaching, or substitute teaching, that the ways in which students feel about themselves and the degree of confidence they have has an impact on their achievement in school, as well as how willing they are to ask questions when they are struggling or to answer questions in class. If students are embarrassed that they are having difficulty with something while it seems to them that their classmates are succeeding, it may be difficult for them to admit that they need help. It may be difficult for them to ask their teacher for help because they don’t want to be embarrassed in front of their classmates. Therefore, the topic that I have chosen to study, based on what I have been noticing, is the impact of elementary students’ self-efficacy on their

academic achievement in mathematics and ELA. I believe that this topic is important to research because students are struggling, and I believe that there is a correlation between their levels of achievement in mathematics and ELA and their self-efficacy. My first step was to look at the New York State Department of Education's (NYSED) data from the ELA and mathematics examinations that students in Grades 3 through 8 take. (NYSED, n.d.) This was to gain insight into any problem areas that there may be, whether it be with a certain ethnic group, grade level, gender, type of student (general education, students with disabilities, ELLs), etc. I also made the decision to exclude the 2016 results from my data, because "due to changes in the 2016 exams, the proficiency rates from exams prior to 2016 are not directly compatible to the 2016 proficiency rates" (NYSED, n.d, paragraph 4).

I chose to study the issue of self-efficacy and academic achievement in the upper elementary grades because of things I have seen in the classroom as a teacher, as well as my own personal experiences. Throughout school, while I would always try my best, I have noticed that I would not do well in classes in which I was not confident in myself or my abilities with that particular subject. For example, I have never been great with mathematics. During my junior year of high school, I had a tutor for my Algebra 2/Trigonometry class, and I barely passed the class. I passed the NYS Regents with a 68 and the class with a 70. Mathematics was never my best subject, but I firmly believe that, if I had been more confident in myself in math class, I would have done better. I also believe that if I had had more mathematics teachers that had believed in me, I would have also done better in my mathematics classes. I think that it is not only important for students to be confident in themselves, but also for them to know that their teachers believe in their abilities. My own experiences in math classes have sparked my interest

in this topic, as well as what I have seen in the classroom.

When I student taught in a 4th grade classroom, I did a short poetry unit with my students. At the end of the unit, students were asked to create a poetry book with one of each type of poem that they had learned about throughout the unit. One student in particular, who was one of the brightest students in my class, was extremely nervous about creating the poetry book, and started to shut down and tell me that he couldn't do it. He did not believe in himself that he was able to complete the task. I pulled him aside and told him that I knew how smart he was, and told him that I knew he could do the assignment extremely well. I let him know that I believed in him, and that I was extremely proud of him no matter how well he did on the assignment. When he had completed his poetry book and I had graded the assignment, the students all knew that they would be allowed to edit their books for a better grade, if they would like to. I called each student to the front of the classroom to talk to them individually about their poetry books and about the grade that they received. I called this student to the front of the room first, and let him know again how proud I was of him. When I turned his poetry book over to reveal his grade to him, the biggest smile came across his face. He received a perfect 100% on the assignment, and was the only one to do so on the first try. Now, I do not expect perfection, as poetry was very new to these students and the unit was only one week long, but I was extremely proud of this student. He proved to himself that he was capable of doing very well, and I think that him knowing that I believed in his abilities gave him the confidence to do well on that assignment.

Due to some of the research that I have come across on this topic, I have chosen to add more research to what I originally chose to do. I will be focusing my research on how a student's self-efficacy beliefs affect their academic achievement, as well as how the teacher's self-efficacy

beliefs about their teaching skills affects their students' academic achievement. I believe that this topic is important to study because we see how often students are struggling with school, and I want to know if there is a correlation between that ways that students perceive themselves and their academic abilities and the degree to which they perform on assignments and standardized tests that they are required to take. I would also like to know if the ways in which their classroom teachers perceive them and, if they know that their teacher believes in them, has any effect on their academic achievement as well.

My purpose for studying this issue is to hopefully find a way to help the students in my future classrooms with their self-efficacy beliefs. I want all of the students that I come across in my years as a teacher to become well-rounded, confident individuals in the years after they leave my classroom. I want them to learn how to be more confident in their abilities academically, and I believe that this research will be the start to understanding what things may cause a student to have low self-efficacy. If I can understand what is going on in a student's mind when they are struggling with something academically and pinpoint a problem, I can find a solution to help a student become more confident in their academic abilities, which will help them to become a better student in my classroom and in their future studies.

### **Review of the Literature**

In the introductory section, I discussed the impact that the new curriculum and standards have had on students in all grades and schools across the United States, and the way that affects a student's motivation to learn and how the students perceive themselves as learners. I also discussed the definition of self-efficacy that will be used throughout my research and the way that it affects students. I discussed my own personal experiences with self-efficacy, whether they

be my thoughts about myself as a student, or the manner that I have seen students be affected by their own self-efficacy beliefs in a classroom that I have taught in. Lastly, I discussed my purpose for choosing the topic and the reason that I want to research it.

In the following section, I will discuss the relevant literature on the topic of self-efficacy and the ways in which it affects a student's academic achievement, as well as the relevant literature on the topic of a teacher's self-efficacy and its effect on a student's academic achievement.

### **Self-Efficacy**

Albert Bandura (1994) coined the term "perceived self-efficacy", and defined it as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine the ways in which people feel, think, motivate themselves, and behave" (p. 1). I hope to investigate if there is a correlation between an elementary school students' perceived self-efficacy and their academic achievement.

#### *Self-efficacy in mathematics*

Self-efficacy in mathematics is a well-researched topic, and the research has found that students who believe that they will do well in mathematics actually do well, and the students who have negative feelings about mathematics struggle with the concepts. In a study of 1,163 upper elementary school students in the fourth, fifth, and sixth grades at a southern California suburban school district, Fast, Lewis, Bryant, Bocian, Cardullo, Rettig, & Hammond (2010) "examined the effect of the perceived classroom environment on math self-efficacy and the effect of math self-efficacy on standardized math test performance" (p. 729). The students

involved in the study provided self-reports of their perceived self-efficacy and the degree to which the environment in their math classroom was mastery oriented, challenging, and caring. Their individual scores on the California Standards Test for Mathematics were also collected during the study. Overall, the authors found that the students who considered their classrooms to be more caring, challenging, and mastery oriented had higher levels of mathematics self-efficacy than those who felt differently about their classroom environments. They also found that higher levels of self-efficacy in mathematics positively affected the students' performance in mathematics. Their results suggested that "student perceptions of the classroom environment do not directly impact math performance on standardized tests, but they do impact math performance indirectly via the mediating, albeit small, effect of math self-efficacy" (p. 736). In summary, students who had positive feelings towards mathematics had higher performance levels in mathematics, and students who had more negative feelings towards mathematics had lower performance levels in mathematics, showing that self-efficacy did have an effect on their ability to do well in that subject.

Another study by Joët, Usher, & Bressoux studied 395 third grade students from 21 classes in 19 schools in towns near Grenoble, France. The study aimed to assess the sources of third-grade elementary school students' self-efficacy in mathematics and French and to examine whether these reports differ as a function of sex, to examine whether classroom context might explain a significant portion of the variation in students' academic and self-regulatory efficacy beliefs, and to investigate the relationship between the hypothesized sources of self-efficacy and students' academic and self-regulatory efficacy beliefs in the areas of mathematics and French. They found that girls perceived fewer mastery experiences in mathematics than did boys, and

that girls reported receiving fewer positive messages about their performance in mathematics than boys did. They found that:

Girls in our study reported receiving fewer positive social messages about their mathematics performance than did boys, and they reported greater feelings of anxiety in their mathematics classes... Girls reported lower self-efficacy than did boys in mathematics... Girls also reported lower confidence in their ability to self-regulate their mathematics learning. (p. 656- 657)

Again, we found that students who thought they would do well in mathematics did, and students who had more negative feelings did not do as well in mathematics as their peers did.

Skaalvik & Skaalvik (2011) completed two studies, each with one sample of participants. The first study sample was made up of 246 middle school students attending 10th grade at four middle schools in Norway. For reference, these students were approximately age 14. In this study, self-concept in mathematics, mathematics self-efficacy, and intrinsic motivation were the things being researched, along with two dimensions of goal orientation, which were task orientation and performance-approach orientation. Overall, the results showed that

Self-perception was positively related to both dimensions of goal orientation and to interest in working with mathematics. Prior achievement was indirectly and positively related to the same variables, through math self-perception. Neither the two dimensions of goal orientation nor interest in working with mathematics predicted subsequent grades... The impact of self-perception on subsequent achievement was not mediated through goal orientation or interest. (p. 254-255)

The second study sample was made up of 484 students attending 11th grade at 6 high

schools in Norway, where the mean age was 16½. In the second study, self-concept, mathematics self-efficacy, and self-esteem were being researched. Along with task orientation and performance-approach orientation, the researchers added performance-avoidance orientation as well. The results found that, as expected, math self-perception did positively relate to self-esteem, task orientation, and performance-approach orientation, but it was not significantly related to performance-avoidance orientation. They also found that “self-esteem was positively related to task orientation and negatively related to performance-avoidance orientation” (p. 256), but that self-esteem was not significantly related to performance-approach orientation. Overall, both studies concluded that self-concept and self-efficacy are important mediators of academic achievement, and that students’ self-perceptions have significant effects on their learning and achievement.

#### *Self-efficacy in mathematics and English Language Arts*

The two main subjects that are taught in schools today under the Common Core Standards are Mathematics and English Language Arts. These two subjects have the most weight for a student’s academic achievement, as they are the two subjects where there are standardized tests. These studies focused on the both mathematics and English Language Arts to find the effects that self-efficacy has on students in those subjects, and if there is a correlation between the student’s self-efficacy and their academic achievement.

In 2012, Bong, Cho, Ahn and Kim “examined whether self-concept, self-efficacy, and self-esteem show differential predictive utility for academic achievement across age groups and domains. More specifically, the relationships of 3 self-constructs with achievement were examined in mathematics for elementary school students and mathematics and language arts for

middle school students” (p. 336). The researchers hypothesized task value and test anxiety to mediate these relationships. The participants were 234 elementary and 512 middle school students in or around Seoul, South Korea. Students were given surveys during regular classroom hours within the middle of the semester, about two months into the school year, and students were told that participation was voluntary and only the researchers would have access to their responses. The surveys that elementary school students filled out asked about their motivation and learning in mathematics, while middle school students responded about mathematics and language arts. The study confirmed that there was a strong correlation between a student’s self-efficacy and their academic achievement in the subjects that were researched.

In another study, Phan (2012) studied 339 elementary school students in grades 3 and 4 attending three local government schools in Sydney, Australia. The data collected for this research was part of a larger, longitudinal study. Each participant was given an information booklet that had two questionnaires with items descriptive of the four sources of information and self-efficacy. The four sources of information are enactive performance accomplishments, vicarious experiences, verbal persuasion, and emotional states. Participants responded on a 7-point Likert-type scale that ranged from 1 (strongly disagree) to 7 (strongly agree). In the two multivariate growth curve analyses, their findings showed that children’s English and mathematics self-efficacy beliefs increased over time, which differs from previous research that had shown that self-efficacy beliefs decreased as a student got older. The multivariate growth curve analyses also showed a negative association between emotional and physiological states and mathematics self-efficacy, but not English self-efficacy.

*Classroom teacher’s self-efficacy and its effects on students’ academic achievement*

Teachers can also have an effect on the achievement of their students if they are not confident in their teaching abilities. Students will pick up on the teacher's insecurities and lack of confidence, which may affect the student's ability to do well in the classroom. If a student feels as though their teacher is not confident in their abilities as a teacher, students might not be confident in their abilities as a student.

In another study completed by Chang (2015), the purpose was to examine the effects of fifth-grade mathematics teachers' efficacy on their students' mathematics self-efficacy and their achievement in mathematics classes. For this study, 58 fifth-grade mathematics teachers in 58 classrooms were included in the study, which reached 1,244 students across those classrooms. The classrooms and teachers were selected using stratified random sampling from elementary schools in two regions in southern Taiwan. To study the teachers' self-efficacy beliefs, Chang used the Elementary Mathematics Teacher Efficacy Instrument (Chinese version). "The EMTEI consists of Personal Mathematics Teaching Efficacy (13 items) and Mathematics Teaching Outcome Expectancy (8 items) rated on a 5-point Likert scale; five items were written in a positive orientation and 16 items were written negatively" (p. 1312). To assess the students' mathematics self-efficacy, two subscales were used: the General Self-Efficacy-Related Mathematics (24 items) and the Self-Efficacy for Mathematical Learning (23 items), which are rated on a 100-point scale. The author found that, on average, the 58 fifth-grade mathematics teachers had approximately 74% confidence in their mathematics teaching capabilities. It was also found that, on average, the 1,244 fifth-graders had nearly 70% confidence in their own mathematics learning capabilities, and that their self-efficacy beliefs did have an effect on their mathematics achievement. Overall, the research showed that the classroom teachers who had

more confidence in their ability to teach mathematics produced more confident students in mathematics, and that the student's self-efficacy beliefs did affect their academic achievement.

There is somewhat of a significant gap in the literature. As I have reviewed the research that I have found, I have noticed that there is not much information out there about the effects of the classroom teachers' self-efficacy beliefs and the effect that it has on their students' academic achievement in mathematics and ELA. Through my research, I am looking to find more insight into how teachers' confidence levels in their teaching abilities affects their students' achievement in the subjects of mathematics and ELA.

The two questions that will be guiding my research are:

- 1) What is the effect of self-efficacy beliefs on an elementary student's academic achievement in mathematics and ELA?
- 2) What is the effect of the classroom teacher's self-efficacy beliefs on the academic achievement of their students?

In the next section, I will discuss the methods that I will be using to complete my research in the schools, as well as the selection criteria for choosing the classrooms and the students that I want to participate in the research study. I will also discuss the research methods that will be used to gather my data and the reasons I have for choosing the topic of self-efficacy and academic achievement.

### **Methodology**

In the previous section, I discussed the relevant literature on the topic of self-efficacy and the ways in which it affects a student's academic achievement, as well as the relevant literature on the topic of a teacher's self-efficacy and its effect on a student's academic achievement. I also

discussed the gap in the literature and what I hope to learn and discover from this research.

In this section, I will discuss the rationale for completing the study, the methods that I used to complete my research in the schools, and the manner with which the participants and school setting were chosen for the research that I completed. I will also discuss how I collected and analyzed the data received from the research study.

### **Research Frameworks**

My research to find a connection between self-efficacy and academic achievement in elementary school students used a mixed-methods approach in order to gather the data needed to complete the research. “The term ‘mixed methods’ refers to an emergent methodology of research that advances the systematic integration, or ‘mixing’ of quantitative and qualitative data within a single investigation or sustained program of inquiry” (Wisdom & Creswell, 2013, p. 1). I chose to use a mixed-methods approach to my research because I felt that this design would allow me to be able to gather more insight into how self-efficacy affects a student’s academic achievement in mathematics and ELA. By using a mixed-methods approach, I will be gathering quantitative data in the form of a questionnaire, which will give me insight into a student’s level of confidence in the classroom and the way that they feel that their confidence affects their learning abilities. I will also be gathering qualitative data by conducting interviews with some of the students based on their responses on the questionnaires to gather more insight into how they think their self-efficacy beliefs affect how well they do in their mathematics and ELA classes. In their review of the research on the use of the mixed-methods approach, Cohen, Manion and Morrison stated that:

Reams and Twale (2008) argue that mixed methods are necessary to uncover

information and perspective, increase corroboration of the data, and render less biased and more accurate conclusions... Descombe suggests that mixed methods research can: (a) increase the accuracy of data; (b) provide a more complete picture of the phenomenon and under study that would be yielded by a single approach, thereby overcoming the weaknesses and biases of single approaches; (c) enable the researcher to develop the analysis and build on the original data; and (d) aid sampling. (p. 22)

I chose to use a mixed-methods approach in my research because I believe that it will give me the most amount of data to reach a conclusion to my research questions. I think that by using a questionnaire with the children who participated in the research study, then interviewing them about their responses on the questionnaire was going to give me the most insight into any possible connections between self-efficacy and academic achievement.

### **Research Settings and Subjects**

The setting where my research took place is a city located in Western New York, where there is a majority population of Hispanic people. The two majority languages spoken are English and Spanish, and Spanish is often the first language of many of the students in the district. The city has a very low socioeconomic status, with more than 65% of the students in the district receiving free or reduced lunch. The participants in the study consisted of students in the third, fourth, and fifth grades at one of the four elementary schools in the district, as well as the teachers, who have been assigned pseudonyms to protect their identities. Participating in the study were two third-grade teachers: Mrs. Smith and Mrs. White; one fourth-grade teacher; Mrs. Blackwell, and one fifth-grade teacher; Mr. Johnson. Mrs. Smith is approximately 40-45 years of age and has been teaching for 15-20 years. Mrs. White is approximately 45-50 years of age and

has been teaching for 20-25 years. Mrs. Blackwell is approximately 30-35 years of age and has been teaching for 5-10 years. Mr. Johnson is approximately 25-30 years of age and has been teaching for 5 years. I chose to complete my research in the upper elementary grades because I felt as though students in grades K-2 were too young to have opinions about the topic of self-efficacy, and they have never taken a state standardized mathematics or ELA exam before. I also chose to exclude any sixth grade classes from my sample because sixth grade is in middle school in this district, and I wanted to focus on elementary school students.

The school that I will be completing my research in is a public school in the Central Lake School District in Western New York. The subjects that will be participating in the research study will be in the third grade, fourth grade, and fifth grade classes in this school, and their ages will range from approximately 8 years old to 12 years old.

### **Sampling Procedure**

After receiving approval from the Human Subjects Review Committee (see Appendix B), I contacted schools in the Central Lake School District to receive approval to complete the research in the school. From there, I emailed the teachers of the third, fourth, and fifth grades to ask them if they would like to have their classroom participate in the research study. The criteria that I used to select the participants in this study was to have all students be in any of the third, fourth, or fifth grade classrooms in one of the schools in the Central Lake School District, and students were chosen to participate in the study based on whether or not they received permission from their parent or guardian to participate. If a student was not given permission from a parent or guardian, they are to be excluded from the study, and will not participate in any way to respect the wishes of their parent or guardian and to protect their privacy. Participants

were selected for interviews based on parent or guardian permission as well from a letter sent home asking permission to interview the children based on their answers on the questionnaire.

### **Data Collection**

In order to gather the quantitative data, I chose to use questionnaires because they “allow the researcher to collect large amounts of data in a relatively short amount of time” (Gay, Mills, & Airasian, p. 420). I created a questionnaire with 20 questions for the students to complete, in which they answered questions about their confidence levels in school, what they believed their strengths and weaknesses are, and how they felt they were doing academically (see Appendix F). The questionnaire has a three-point Likert-type scale, with ‘one’ meaning that participants “completely agree” with the statement, ‘two’ meaning they “neither agree nor disagree” with the statement, and ‘three’ meaning they “completely disagree” with the statement.

This survey was based on the Tennessee Self-Concept Scale (see Appendix G). This scale was created by William H. Fitts in 1965 and the Second Edition was published by Western Psychological Services in 1996. It consists of 100 self-descriptive items by means of which an individual portrays what he or she is, does, likes, and feels, and is intended to summarize an individual’s feeling of self-worth, the degree to which the self-image is realistic, and whether or not that self-image is a deviant one. The Tennessee Self-Concept Scale (TSCS) takes approximately 10-20 minutes to complete. I originally wanted to use the entire TSCS, but after further thought, I decided not to use this scale, because it was simply too long (100 questions) for third, fourth, and fifth graders to answer, and focused on areas of self-concept and self-efficacy that were not relevant to my research, such as the questions about physical self-concept that were not relevant to academic self-efficacy.

In order to gather the qualitative data for my study, I interviewed students whose parents gave consent for them to be interviewed about their answers on the surveys to gain more rich insight into self-efficacy and academic achievement. As well as interviewing the students, I also interviewed the classroom teachers to gain insight into how their confidence as teachers of mathematics and English Language Arts affects how their students' academic achievement. Interviews are effective to use in research because they "can produce in-depth data not possible with a questionnaire; the interview is most appropriate for asking questions that cannot effectively be structured into multiple-choice format; the interview is flexible, and the interviewer can adapt the questions to fit each participant," (Gay, Mills, & Airasian, p. 173).

At the outset of my study, I distributed the parent letter, parental consent form, child assent form and student questionnaire to each classroom teacher for them to distribute to the parents/guardians of their students. First, they were asked to send home the parent letter and parental consent form, and keep track of the students who were given permission to participate and who was not given permission to participate. They were also asked to hand out the assent forms to each student in their class so that the students would know the requirements of participation in the study. After one week, any forms that were not returned were marked as not allowed to participate in the research in order to have enough time to complete the research and analyze that data gathered, as well as to complete interviews with the teachers and students. If any parents or guardians sent back their forms after the recommended deadline with permission for their child to participate in the research, that child was then given a questionnaire to complete in order for me to have more data to analyze.

To collect all of the consent forms and questionnaires, I contacted the teachers again and

set up a date and time to visit their classroom and gather everything. I also took this opportunity to thank the students for taking the time to fill out the questionnaire, and that I may be interviewing some of them at a later date. Over the following week, I went through the questionnaires, and entered the answers for each questionnaire into a spreadsheet. Each class had their own spreadsheet for the data collected, which I then transferred into another spreadsheet to organize the data by grade level. I also used spreadsheets to organize the consent form data, such as the permission to collect data from their children and the permission to interview their children for the research. This was done to keep all of my data in one place that was easy to access, and easy to interpret until I analyzed the data further and completed a statistical analysis.

### **Data Analysis**

After all of the questionnaires were completed and every permission form and questionnaire was returned to me, I took a few days to analyze the data. From that point on, I made a list of the students who were given permission to be interviewed and chose the students that had responses on their questionnaires that I felt would give me the most insight into their self-efficacy beliefs and the ways in which they thought those beliefs affected their academic achievement in mathematics and English Language Arts.

In order to analyze the quantitative data, I placed all of the data from the questionnaires into spreadsheets to organize the data by grade level and by class, as well as by gender. Then, I placed the data into graphs to organize it into a visual representation. Gay, Mills, and Airasian (2006) stated that “which analysis technique should be selected depends on a number of factors, such as how the groups will be formed, how many different treatment groups will be involved, how many variables will be involved, and the kind of data to be collected” (p. 83). As stated

above, the data is organized into spreadsheets, which was then placed into graphs. Many different graphs were made, for grade level, for each class that participated in the research study, and one to show the overall data, which you will see below. Some questions were not answered by all participants, creating discrepancies in the data. One piece of data was missing from Question 7, as one student did not answer the question. There was also one piece of data missing from Question 8, as one student circled two answers. I chose to omit those results because I did not receive a clear response from that student. There is one piece of data missing from questions 11-19, as one student omitted those questions. I believe that this is because the student did not realize that the questionnaire was double-sided. Question 20 was also omitted by that student, and another student circled two answers for the question, so those results were not factored into the data since I did not receive a clear response from that students. Therefore, questions 7, 8, and 11 through 19 received 29 responses, and Question 20 received 28 responses.

In order to analyze the qualitative data, I created transcripts of each interview that I conducted with students and teachers, and looked for similarities and patterns in their answers to the interview questions. Gay, Mills, and Airasian (2006) commented that “the researcher analyzes the qualitative data from interviews, field notes, observations, and the like by organizing and interpreting the data. Thus, in the research plan the qualitative researcher should describe the procedures for collating the various forms of data collected and the manner in which the data will be categorized” (p. 88). I used those similarities and patterns to draw a conclusion about how their self-efficacy beliefs affect their academic achievement or their confidence when teaching.

## **Conclusions**

In the next section, I will discuss the results of the data collected from the mixed-methods study that I conducted, including the results from the questionnaires, the findings from the interviews, and the overall consensus: does self-efficacy have an effect on elementary school student's academic achievement in mathematics and English Language Arts, and does a teacher's self-efficacy have an effect on their student's achievement in mathematics and English Language Arts?

### **Results**

In the previous section, I discussed the methods used to gain permission for this research study, as well as the methods used to gather the data needed to come to a conclusion and find answers to my research questions. I also discussed the sample size of the students, and the number of students that responded to the questionnaire.

In this section, I will discuss the results from the data that was collected to attempt to come to a conclusion for the research questions and find a link between self-efficacy and academic achievement in elementary students.

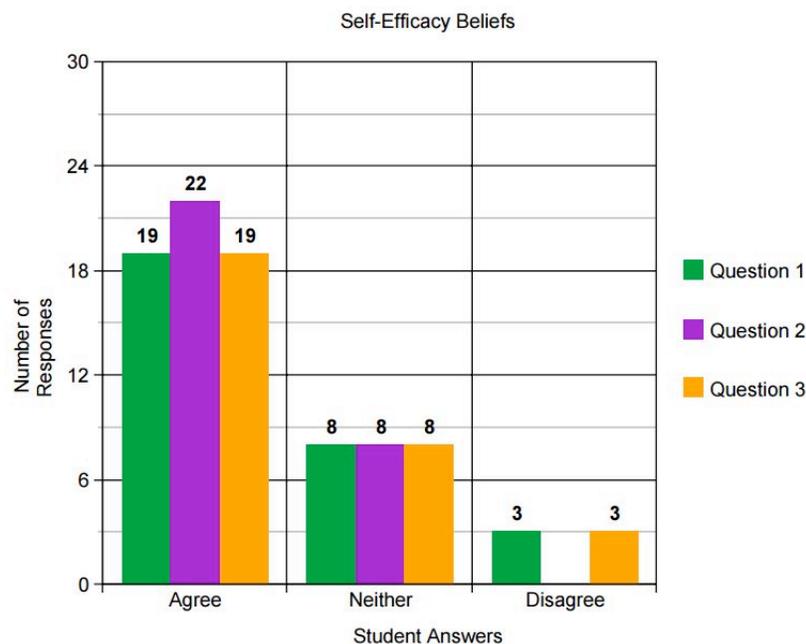
#### **Summary of the Survey Data**

Out of the 83 students in the two third-grade classes, one fourth-grade class, and one fifth-grade class, I received 30 responses from their parents or guardians, giving me a sample size of 30 students who were given permission to respond to the questionnaire. To analyze the data, I broke the questionnaire into sections based on the topic that the questions pertained to: self-efficacy beliefs (Figure 1), opinions of others (Figure 2), confidence (Figure 3), support for students (Figure 4), how easy learning is (Figure 5), and how well a student thinks they are at doing in a certain subject (Figure 6).

The next section consisted of three questions focused on the topic of self-efficacy beliefs: Question 1) “I believe that I am doing well in school right now; Question 2) “I believe that I am doing well in mathematics;” and Question 3) “I believe I am doing well in ELA.” There were no omissions on the questionnaire for any of these questions, meaning all of students who received the questionnaire answered each question. Figure 1 below shows the breakdown of the answers on the questionnaire for these three questions.

### Figure 1. Self-Efficacy Beliefs

Figure 1 below shows the data for Question 1, Question 2, and Question 3, which pertain to the students’ self-efficacy beliefs.



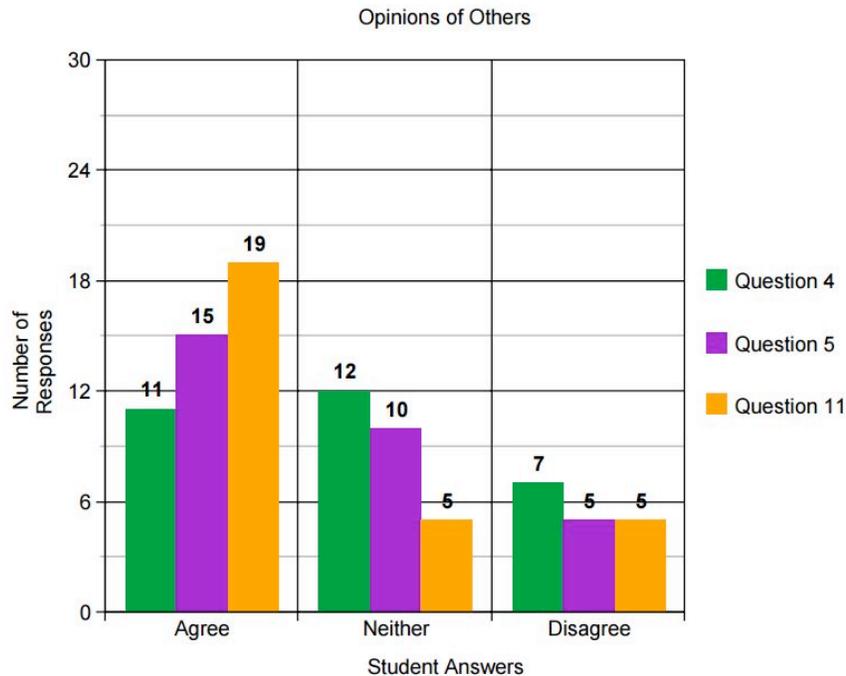
As is clear, the majority of the students (19 – 63.3%) who answered Question 1 believed that they are doing well in school at the moment. Eight of those students (26.7%) felt that they did not agree nor disagree with the statement, showing me that they are not sure of how well they are doing in school currently. Three students (10%) disagreed with the statement, telling me that

they believe they are not doing well in school. In Question 2, we see a similar pattern. Twenty-two students (73.3%) answered that they agreed that they are doing well in mathematics, 8 students (26.7%) were unsure about how they were doing in mathematics as they chose neither, and no students (0%) disagreed with the statement. Lastly, Question 3 also showed a similar pattern as the first two questions in this section. Nineteen students (63.3%) agreed that they believed they were doing well in ELA, 8 students (26.7%) answered neither agree nor disagree, and only 3 students (10%) completely disagreed with the statement, meaning that they did not believe they were doing well in ELA. My consensus for this section of questions is that, overall, the majority of students have high self-efficacy levels. The students who participated seem to have very high self-efficacy levels, which shows me that they are very confident in themselves at a young age.

The next section consisted of three questions focused on the topic of opinions of others: Question 4) “The opinions of my classmates affect how I feel about myself;” Question 5) “The opinions of my teacher affects how I feel about myself;” and Question 11) “I make friends easily.” I chose to include Question 11 in this group because the opinions of others about a certain classmate can affect whether they have a lot of friends, or if it is easy for them to make friends, especially as they get older. Figure 2 below shows the data collected for those three questions.

### **Figure 2. Opinions of Others**

Figure 2 below shows the data for Question 4, Question 5, and Question 11, which pertain to how the opinions of others affects students.



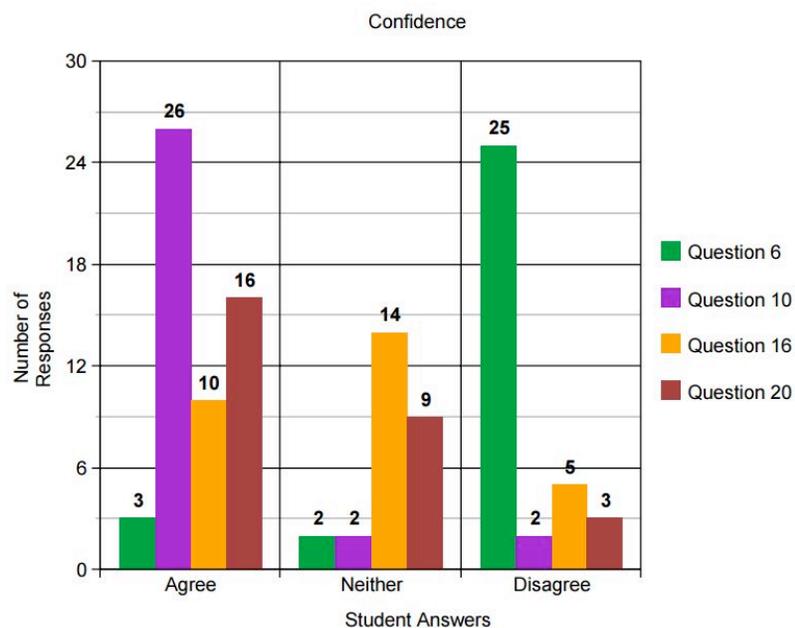
Question 4 shows that 11 students (36.7%) agreed that the opinions of their peers affect how they feel about themselves. Twelve students (40%) stated that they neither agree nor disagree with the statement, meaning that the opinions of their peers don't change how they feel about themselves in a positive or negative way. Seven students (23.3%) disagreed with the statement, meaning that the opinions of their peers do not affect how they feel about themselves. Question 5 also leans towards more students (15 students - 50%) agreeing with the statement than disagreeing with the statement, showing that their teachers opinions matter to students and can alter how they feel about themselves. Ten students (33.3%) neither agreed nor disagreed with the statement, and 5 students (16.7%) felt that their teachers' opinions did not change how they felt about themselves. The answers to Question 11 show that many students (19 students - 63.3%) felt that they made friends easily, while 5 students (16.7%) disagreed and 5 students (16.7%) did not agree nor disagree with the statement. One student (3.3%) did not answer this question. Overall, the consensus for this group of questions is that the opinions of others do

affect the ways that students think about themselves, whether it be academically or personally. The majority of students who responded to the questionnaire believed that the opinions of their peers and the opinions of their teachers mattered to them, and that those opinions affected the way that they feel about themselves. A majority of the students also felt that it was easy for them to make friends, while few students felt that making friends was not easy for them.

The third section consisted of four questions focused on the topic of confidence: Question 6) “When I have trouble understanding a topic, I give up on trying;” Question 10) “I feel confident that I can do well in school;” Question 16) “I work better when I am working in a group;” and Question 20) “I am confident when answering questions in class.” Figure 3 below shows the data collected for those four questions.

### Figure 3. Confidence

Figure 3 below shows the data for Question 6, Question 10, and Question 16, and Question 20, which pertain to the students’ confidence levels.



Question 6 saw a majority of students (25 students - 83.3%) who disagreed with the

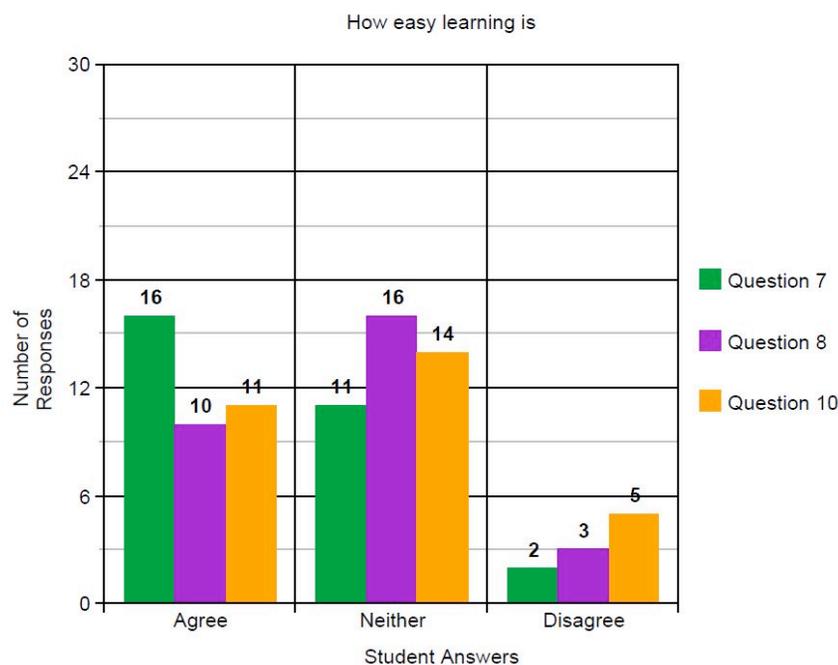
statement, showing that they would rarely or never give up on trying to understand a difficult topic. This shows that the majority of respondents to the questionnaire are extremely confident in their abilities. Two students (6.7%) answered that they neither agree nor disagree with the statement, and three students (10%) agreed with the statements, showing that they did give up when a topic became too difficult for them to understand. Question 10 showed that a majority of the students (26 students - 86.7%) agree that they feel confident in their abilities to do well in school, while two students (6.7%) responded that they neither agree nor disagree, and two students (6.7%) completely disagreed, stating that they do not feel confident in their abilities to do well in school. Question 16 shows that the data is scattered across all answers. 10 students (33.3%) agreed that they work better when they are working in a group, which shows that they are not as confident in their abilities to do well on their own, whereas 14 students (46.7%) neither agreed nor disagreed with the statement, showing that they could work well in a group or as an individual, and 5 students (16.7%) disagreed with the statement. One student (3.3%) did not answer this question. Lastly, Question 20 showed that 16 students (53.3%) were confident when they answered questions in class, 9 students (30%) neither agreed nor disagreed with the statement, and three students (10%) disagreed with the statement, showing that they were not confident when answering questions in class. Two students (6.7%) did not answer this question. Overall, the data for this group of questions shows that very few students had low levels of confidence in their abilities, and that the majority of students were confident in their abilities to do well in school.

The next section consisted of four questions focused on the topic of how easy learning is for students: Question 7) "I can learn and understand new mathematics topics easily;" Question

8) “I can learn and understand new ELA topics easily;” and Question 9) “Taking tests is easy for me. Again, there are discrepancies in some of the data.” Figure 4 shows the data collected for those three questions.

#### Figure 4. How Easy Learning Is

Figure 4 shows the data for Question 7, Question 8, and Question 10, which pertain to how easy learning is for students.



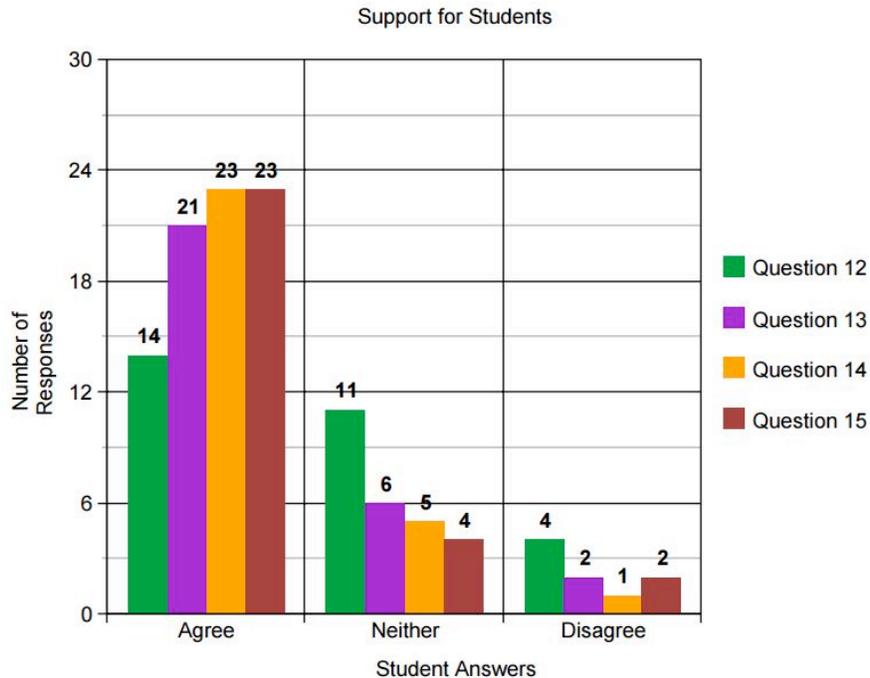
Again, we see that the majority of the students (16 students - 53.3%) who answered Question 7 believe that they were able to learn new mathematics topics easily, while 11 students (36.7%) neither agreed nor disagreed with the statement, and two students (6.7%) felt that learning new mathematics topics was difficult for them. One student (3.3%) did not answer the question. Question 8 showed that the majority of students (16 students - 53.3%) neither agreed nor disagreed with the statement that learning new ELA topics was easy for them, while 10 students (33.3%) agreed that learning and understanding new topics was easy for them and three

students (10%) answered that they disagreed with the statement. One student (3.3%) circled two answers for this question, so those results were omitted from the data. Question 10 showed that 11 students (36.7%) agreed that taking tests was easy for them, 14 students (46.6%) neither agreed nor disagreed with the statement, and 5 students (16.7%) disagreed, meaning that taking tests was difficult for them. Overall, the data shows that students felt that they can learn and understand new mathematics topics easily, while the majority of students felt that they did not agree or disagree that ELA was easy for them, more students did believe that ELA was easy for them than did students who thought it was difficult for them, and that more students felt that test taking was easy for them than did students who felt that test taking was difficult for them.

The next section consisted of four questions focused on the topic of support for students: Question 12) “My friends help me when I struggle in class;” Question 13) “My teacher is always available to help me when I need it;” Question 14) “I have the support at home that I need to do well in school;” and Question 15) “I have the support at home that I need to be confident in myself.” Figure 5 shows the data collected for those four questions.

### **Figure 5. Support for Students**

Figure 5 below shows the data for Question 12, Question 13, and Question 14, and Question 15, which pertain to how much support the students feel that they have.



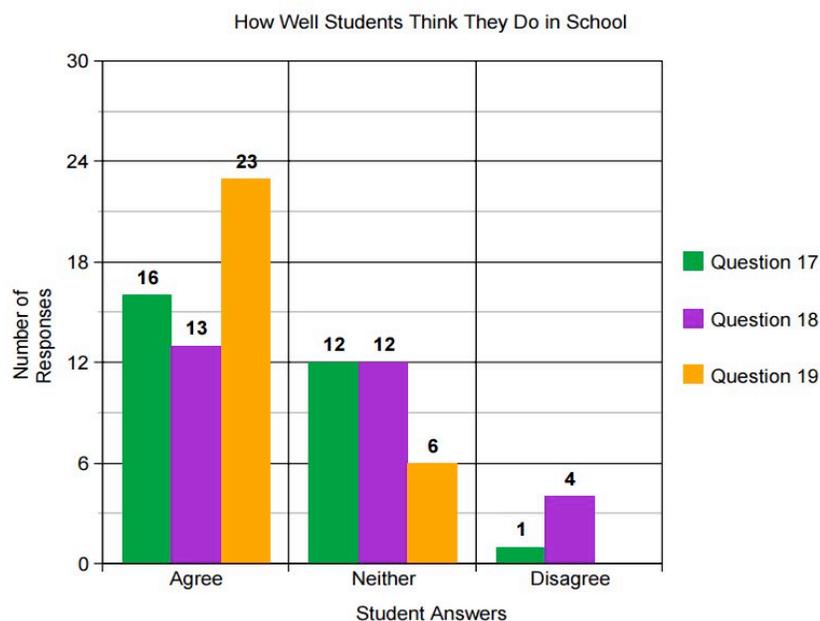
The answers to Question 12 show that the majority of the students (14 students - 46.7%) agreed that their friends helped them when they struggled in class, 11 students (36.7%) chose that they neither agreed nor disagreed with the statement, and 4 students (13.3%) disagreed, meaning that they felt that their friends did not help them when they struggled in class. One student (3.3%) did not answer this question. Question 13 showed that 21 students (70%) agreed that their teacher was always available to help them when they need it, 6 students (20%) did not agree or disagree with the statement, and two students (6.7%) disagreed, meaning that they do not feel that their teacher is available to help them when they need help. One student (3.3%) did not answer this question. The data from Question 14 shows that 23 students (76.7%) felt that they have the support at home that they need to do well in school, five students (16.7%) neither agreed nor disagreed with the statement, and one student (3.3%) disagreed with the statement, showing that they did not feel that they have the support at home needed to do well in school. One student (3.3%) did not answer this question. Lastly, the data collected for Question 15 show

that 23 students (76.7%) believe they have the support at home that they need to be confident in myself, four students (13.3%) neither agreed nor disagreed, and two students (6.7%) disagreed that they had the support at home that they needed to be confident in themselves. One student (3.3%) did not answer this question. Overall, the data shows that the majority of students who answered each question felt as though they had the support they needed from their peers, teachers, and at home to do well at school, while a very few of the respondents felt that they did not feel they had the support that they needed.

The next section consisted of three questions focused on the topic of how well students think they do in school: Question 17) “I am good at solving mathematical problems;” Question 18) “I am good at writing;” and Question 19) “I am good at reading.” Figure 6 shows the data that was collected for those three questions.

### Figure 6. How Well Students Think They Do in School

Figure 6 below shows the data for Question 17, Question 18, and Question 19, which pertain to how well the students think that they do in school.



The data collected for Question 17 shows that 16 students (53.3%) agreed that they do well when solving mathematical problems, 12 students (40%) said that they neither agreed nor disagreed, and one student (3.3%) disagreed that they did well when solving mathematical problems. One student (3.3%) did not answer this question. The data for Question 18 shows that 13 students (43.3%) believed that they were good at writing, 12 students (40%) did not agree or disagree with the statement, and four students (13.3%) disagreed that they were good at writing. One student (3.3%) did not answer this question. Lastly, the data for Question 19 showed that 23 students (76.7%) believed that they were good at reading, 6 students (20%) neither agreed nor disagreed with the statement, and no students (0%) disagreed with the statement. One student (3.3%) did not answer the question. Overall, this data shows that for each question, the majority of the students who responded to the question felt that they were able to do well in the subjects of mathematics and ELA, including reading and writing.

### **Summary of Interview Data**

#### *Teacher Interviews*

As for the interviews, I received information that was helpful to the research questions. The teachers were asked 10 questions about the ways in which they promote confidence in their students, the ways that they assist students when they have a problem, the degree to which they are confident in their teaching abilities, the means with which they communicate with families, and the manner that they work through student disagreements. The third-grade teacher that I interviewed, Mrs. Smith, stated that she tries to build a community of self-confident learners in her classroom. In order to do that, the class does positive affirmations each day, they do character education throughout the school year, and she also uses a lot of peer learning and peer tutoring.

For example, Mrs. Smith said that, “in the past, I’ve created a book where each kid writes a page, it helps to create a sense of accomplishment for them, and helps them to feel good about what they were able to create.” She teaches her students how to help one another, and has the attitude that they are all in this together, and they can assist each other through the difficult times. When students struggle with a new topic, Mrs. Smith tries to first build their background knowledge, and then to scaffold that knowledge into smaller, more attainable steps. She also uses multi-modal forms of delivering the new information in order to reach all students, such as visual, auditory, and kinesthetic models. She feels that, “Math is easier for me to teach because I have a better understanding of the curriculum, and that the topics are more concrete. It is easier to present and easier for me to evaluate their answers. ELA is more difficult for me to teach, the writing piece is frustrating and the curriculum is not teacher friendly. It takes a lot more of trying to figure out how to teach the curriculum and what you’re supposed to be doing.” Lastly, she also does not put a lot of emphasis on test preparation for the New York State Mathematics and ELA examinations in order to keep students’ confidence levels up and their stress levels down. She stated that, “I incorporate the skills and techniques they need [for the test] starting on day one, for example, showing their work and explaining their work when it comes to math, so they know what to do on the test because they’ve done it all year. I don’t make a big deal about the test, and some students are surprised to find out there’s a test coming up. I try to keep the stress level low for the kids.” I really enjoyed the interview with Mrs. Smith, as I learned a lot from her about how to help young students gain more confidence in themselves, and how to prepare them along the way for their future in school. I like that she tries to keep the stress level low for her students, because in third grade, you should not have to feel stressed out about school in any way.

In the interview with third-grade teacher Mrs. White, she states that she tries to build the self-confidence of her students by rewarding them with a “paw,” which is something that is used district-wide as a behavior reward system and a hard work reward system. She also tries to be there for her students when they come to her with academic problems, and will show them the process that they need to use for the problem, walk them through the problem step by step, and give them examples to help them learn how to do the problem on their own. When it comes to personal problems, she talks with the student and tries to figure out what happened, and tries to relate to their problem and help them through it in an understanding way. When it comes to her teaching abilities, she believes that her best subject to teach is “Math, probably because the [Common Core] Modules are so clearly written and I become more confident in teaching it each time I do,” and that the subject that is more difficult for her to teach is “ELA, because the Modules aren’t as clear. I like to have an answer key so I can base my teaching off of their examples and what they’re looking for.” Lastly, when it comes to preparing her students for the New York State Mathematics and ELA exams, she states that “We do practice tests, I look at the things that they’re struggling with and go over them again, or I’ll go over concepts that I know are difficult and we will do those again.” I learned from this interview that it varies from teacher to teacher how they prepare their students for the tests, one teacher starts from the beginning of the year teaching those skills and reviews them constantly throughout the year without doing practice tests, and the other will use practice tests to reinforce the topics that the students will see on the test. It is interesting to see how their views are different, even though they teach the same grade level in the same school.

The final teacher interview was with Mr. Johnson, the fifth-grade teacher. When students

are struggling with an academic problem, he works with that student one-on-one, and will often develop individual morning work for that student in the area that they are struggling in. If the student is struggling with a personal problem, he will speak with them one-on-one about the situation, and if necessary, send them to the school counselor. Mr. Johnson also stated that he promotes self-confidence in his classroom by using “a lot of motivational talking.” He will also “talk to them individually and tell them that I’m proud of them to make them feel good about themselves, and by focusing on the positives rather than the negatives.” Just as the other teachers who were interviewed, he felt that he was best at teaching math, and ELA was more difficult for him to teach. He stated that “I love [math], because the students have better foundational skills for math. They have been taught those from an earlier age and it’s easier for them. ELA and writing [are harder], it’s hard to get students motivated because they don’t have those foundational skills from an earlier age. They don’t get how to re-read and proofread and edit their work on their own.” He also stated that he prepares them for the NYS Mathematics and ELA exams “throughout the year, we just do normal year learning and review sheets before the test. I teach them throughout the year what they’ll need to know for the test and make it as basic as possible.”

Overall, there was a consensus between the three teachers who were interviewed that their best subject to teach was mathematics, and the most difficult subject to teach was ELA. Two of the three teachers agreed that their opinions and beliefs about how well they can teach a subject has an effect on how well their students do. Mr. Johnson stated that “If they see that I’m not motivated to teach it, they’re not motivated to learn it.” Mrs. Smith agreed also, and stated that she also feels that her students enjoy math more because “Math is at the beginning of the

day, so it's easier for them to focus on math, and ELA is after lunch and they are just ready to go home at that point in the day." All three teachers promoted self-confidence in their classrooms in different ways, but tried to create a classroom of confident learners who will grow up to be confident with themselves as they get older. I think that is the most important thing that a teacher can do, because if a student is not confident, they will not be motivated to try if they know they are struggling with something in school.

### *Student Interviews*

Of the student interviews, I found that the students' confidence levels definitely have an effect on their academic achievement, and that the ways that their peers treat them also has an effect on their achievement as well. The fourth-grade student in Mrs. Blackwell's class that was interviewed stated that she "keeps talking to her classmates if they are being nice to her, but if they are mean to her, she chooses not to talk to them anymore and walks away." I think it is important to note that she knows how to handle that situation without getting too upset, but in another answer she stated that, "When another student bullies me, it is hard to work through the day. When she keeps being rude to me, I can't focus on other things besides her bullying me." That shows me that it is not always easy for this student in school, and that what happens between her and her classmates does affect how well she does in class. If she cannot focus on her work because she is being bullied, then that will affect her achievement levels. She also stated that her friends in class do help her when she is struggling with a new topic, and that they will "walk her through the steps of the problem without telling her exactly what to write down," and that her mom "helps me at home, we do a lot of breaking the problem down and she gives me extra examples. She also gives me time to rethink my answers if I made a mistake and helps me

work through the problem.” Her favorite subject in school is reading, although she dislikes reading out loud in class, and she likes math, but states that “sometimes math is confusing when there’s so many numbers, and I get frustrated when I get confused.” She likes the concepts that they learn about in ELA, but does not like the writing portion of ELA, stating that there is “too much writing.” She thinks that math and reading are her best subjects, and that she struggles with social studies the most.

The second interview that was completed was with a third grade student in Mrs. White’s class. She stated that she feels that she has the support that she needs from her teacher, her peers, and her family at home. Her teacher helps her by “putting [the problem] up on the board or she’ll write in down on a piece of paper and walk me through the steps.” Her friends help her by “telling me ways that you can do the problem, like walking me through the steps.” At home, her mom will use a homework helper to walk her through the steps, and her older brother will help her with her homework as well. She likes coming to school and seeing her friends, and she is very positive about how she feels that she does in school. She also stated that she “kind of likes [taking tests] because it’s easy to remember how to do the problem, but I like multiple choice questions more.” She also stated that she will keep trying when something is difficult for her. Her best subject is ELA, and she struggles with social studies and science the most. Her favorite subjects are math and ELA, and she likes learning about the history of things during ELA. In math, her favorite topic is multiplication.

The third student that I interviewed was another third grader in Mrs. White’s class. He stated that he “generally likes coming to school.” He feels that his best subject is reading, and that he doesn’t have a subject that he struggles with. When asked how his teacher and his peers

help him when he struggles with something in class, his response was that he never struggles. He did, however, state that “the teacher helps the students who do struggle.” He also stated that, regarding his family at home helping him, that “Homework is easy for me, but my mom checks over it when I’m done. She walks me through the steps when I make a mistake to fix it.” He also likes taking tests, but he stated that “I’m scared and I’m excited, because I don’t know what I’m gonna get on the test.” When something gets difficult for him, he keeps trying until it gets easier. From this interview, I learned that this particular student is very confident in himself and that he feels he is a strong student in all subject areas.

The fourth student that I interviewed was a third grader in Mrs. Smith’s class. She loves coming to school and her favorite subject is math, which she also feels is the subject that she is doing the best in. Her teacher helps her when she struggles in class by “helping me sound out words, telling me to count by using my hands, gives me objects to use to help me count, gives me examples, and walks me through the steps.” Her friends help her by “walking me through the steps and they show me how to do it.” Her family helps her by showing her how to work through the problem. She also stated that she keeps trying when something gets difficult, and that she feels good about taking tests. She also stated that she is “confident when taking a test and I feel that I will do well.” From this interview, I learned that her teacher, Mrs. Smith, does very well with creating confident learners.

The final student that I interviewed was also a third grader in Mrs. Smith’s class. He loves school, and feels that math is his best subject. When asked what his favorite thing about math was “everything” and that he “dislikes when there’s weird shapes and you have to do length times width.” His favorite part of ELA is when “we get in groups and we are allowed to share

ideas and thoughts, because it's more fun." He stated that his teacher will "most of the time help me by asking me if I need help, and then walks me through the steps of how to complete the problem," and that his friends "always try to help me when I need it." His mom and dad help him by looking at the question, thinking back to when they were in school, and helping him through the problem step-by-step. He feels great about taking tests, because he does well on them. When something is difficult for him, he stated that "sometimes I would give up, but later on I would try it again. I put it aside until I can get to it later on." From this interview, just as with the prior student, I learned that he is very confident, which shows that Mrs. Smith does a great job at instilling confidence in these young students.

### **Conclusions**

The data for all of the questions on the questionnaire show that the majority of students had high levels of self-efficacy beliefs, and that those students also had high confidence levels and seemed to think that they were doing well in school. A majority of the students also believed that they were able to do well in the subjects of mathematics and English Language Arts (ELA), showing that their self-efficacy beliefs did affect their academic achievement in those subjects. The students were confident in themselves and believed that they were going to do well in those subjects, so they did do well in those subjects.

There are some points of conflicting data that arose during the analysis process. Question 18) "I am good at writing," and Question 19) "I am good at reading," show somewhat conflicting data. Reading and writing are some of the main components of ELA instruction, and more students felt that they were good at reading (23 students - 76.7%) than did the ones who thought they were good at writing (13 students - 43.3%). Also, more students felt that they were not good

at writing (four students - 13.3%) than did students who thought they were not good at reading (zero students). From this data, I can discern that not all students who responded are completely confident in their abilities to do well in ELA, as shown in Question 8) "I can learn and understand new ELA topics easily," where 10 students (33.3%) agreed, 16 students (53.3%) stated that they neither agreed nor disagreed, and 2 students (6.7%) disagreed. Question 3) "I believe I am doing well in ELA," shows that 19 students (63.3%) felt that they were doing well in ELA, 8 students (26.6%) did not agree nor disagree, and 3 students (10%) felt they were not doing well in ELA. When the components of ELA are broken up into different data points, it shows that students have differing opinions and many students do not feel confident in ELA.

Of the interview data from the teachers, I found that all of them feel that they teach Mathematics best and that ELA is more difficult for them to teach, and they all agree that it is because of the way that the Common Core Modules are written. One teacher also added that writing is difficult for his students because they do not have the foundational skills to revise and proofread their work. Each teacher also tries to create an environment of confident students, which I believe is extremely important to do at such a young age. These students are still growing and shaping who they will be when they get older, and instilling confidence in these students early will only help them be confident adults. I think that is one of the most important things that a teacher can do. If a student is not confident in themselves from a young age, it will be harder for them to gain that confidence as an adult.

Lastly, as for the student interview data, the students who were interviewed agreed that they have the support system that they need at home and at school, from both their teacher and their peers, to be successful in school. Many of them also agreed that math was their best subject

and ELA was more difficult for them, which lines up with the teachers beliefs about their teaching abilities. The students, for the most part, also felt confident in their abilities to do well on their tests, their homework, and in school in general. I believe that the interviews were pertinent to the research, because they helped to back-up some of the evidence from the surveys, and the teacher interview data and student interview data had some similarities that helped as well.

In the final section, I will evaluate and interpret the implications of the results that emerged from the research study, discuss the inferences and conclusions that were made from the results, discuss the similarities and differences of the results from this study and the work of others, and discuss any limitations of the study that have been found in the data analysis process.

### **Discussion**

In the previous section, I discussed the results of the data that was collected from the questionnaires and the interviews that emerged from my study of self-efficacy among students, and the ways in which those results relate to the research questions that made up the foundation of the study.

In this section, I will evaluate and interpret the implications of the results that emerged from the study, discuss the inferences and conclusions from the results including any theoretical and/or practical consequences, discuss the similarities and differences between the results from this study and the work of others, and discuss the limitations, if any, of the study.

### **Implications of the Results**

The findings from the questionnaires showed that students who have higher levels of self-efficacy are more confident in their abilities to do well in school, and that students who have

lower levels of self-efficacy are not as confident as are their peers. I have also found that the opinions of their peers do have an effect on how students feel about themselves, which can affect their confidence in school; however, more students (40%) felt that the opinions of their peers did not matter to them or affect them in any way. The majority of the students (70%) also agreed that the opinions of their teachers have an effect on the way that they feel about themselves. The questionnaire results also showed that students who have involved families at home have the ability to do better in school, and 76.7% of students agreed that they had the support that they needed at home in order to do well in school. 86.7% of students agreed that they feel confident in their abilities to do well in school, and 83.3% of students stated that they will not give up when something gets difficult for them. From the data, I found that these students are confident in themselves and they feel that they have a lot of support that they need from the people in their lives, which is important in building positive self-efficacy beliefs that they will need to be confident for the rest of their lives.

The interviews with the teachers and students gave information that correlates with the questionnaire data. Each teacher promotes self-confidence in their classrooms in a different way, which would explain the 86.7% of students who feel confident in their abilities to do well in school. The data suggests that it is extremely important for teachers to promote confidence in their classrooms. As the data shows, confident students will do better in school and will have higher levels of self-efficacy. The interview data also shows that the teachers enjoy teaching mathematics more than they like teaching English Language Arts (ELA), and many of the students feel that they do better in math than they do in ELA. They feel that math class is easier, and that ELA is more difficult for them. The interviews also show that the majority of teachers

believe that the way that they feel about teaching a certain subject can affect the degree to which their students do well in that subject, which in turn, may affect their self-efficacy beliefs. If they feel that their teachers don't care about the topic they are teaching, students will feel like they do not need to care about that subject.

### **Inferences and Conclusions**

From the data that have been collected, I can conclude that self-efficacy beliefs do indeed affect the performance of students in school. If students have the confidence in themselves, and the support from their teachers, peers, and families at home, they feel that they do better in school. If students do not have confidence in themselves, or do not have the support that they need from their teachers, peers, and families at home, they feel that they struggle more in school. I can also conclude that students are more confident in themselves if their teachers promote self-confidence in the classroom, which in turn seems to have a positive effect on the students' self-efficacy beliefs.

### **Similarities and Differences**

When comparing the research that I have completed to the other research that has been done on the topic of self-efficacy and academic achievement, there are many similarities. Fast, Lewis, Bryant, Bocian, Cardullo, Rettig, & Hammond (2010) examined how the classroom environment affected math self-efficacy and the effect that math self-efficacy had on the student's performance on standardized math tests and found that "evidence suggests that students who perceive their teachers as more caring have significantly higher academic self-efficacy" (p. 730). The authors found that the students who considered their classrooms to be more caring, challenging, and mastery oriented had higher levels of mathematics self-efficacy than those who

felt differently about their classroom environments. They also found that higher levels of self-efficacy in mathematics positively affected the students' performance in mathematics.

This coincides with the data gathered from the research study that I conducted. When the teachers promoted self-confidence in their students, and showed their students that they cared about their academic achievement by helping them when they were struggling, they created a caring environment where students were doing well in class. The more confidence a student had, the higher levels of self-efficacy they had, and the better they did in mathematics.

At the same time, the students felt that they struggled more with ELA, as their teachers also felt that ELA was more difficult to teach. This could have an effect on the students' self-efficacy levels in ELA, and in turn, could affect how well they do in ELA.

### **Limitations**

Although the findings coincide with the goals for this research study, it is important to note the limitations of the study. First, it is important to note that the research study consisted of a small sample size of third, fourth and fifth graders (N=30) in a small school district in Western New York State, and only focused on two facets of the academic curriculum that is taught in schools, mathematics and English Language Arts. The research on self-efficacy, while proven to affect academic achievement based on this study, might not have the same results if the study were to be completed elsewhere in the United States, or elsewhere in the world. The same results also might not have been gathered if the sample size had been larger.

Other grade levels might also have different results than the results gathered here. I chose to omit the younger grade levels because of the fact that they do not take the New York State Common Core tests in mathematics and ELA, but the data could have been different had those

grade levels been included. The same could be said if students in Grades 6 through 12 had been included in the research study in some way. For this research study, those grade levels were not pertinent to the investigation, because I wanted to focus on elementary school students. In the district that the research was completed in, middle school instruction begins at grade 6, so it was not important to include that data, as they are not elementary school students.

Secondly, the data was conducted over a short period. From the time that the school district was contacted for permission to complete the research there to the time that the final interview was complete, only 3 months elapsed. If the research study had been completed over a longer period of time, the data might have been more concrete. If a longitudinal study had been completed, more data would have been collected, and I would have been able to see the ways in which the students' self-efficacy beliefs and confidence levels develop and change over time as they get older.

Lastly, since I was the only investigator in this study, there may be some bias in any discrepancies in the data. I tried my best to avoid this. For example, some students omitted questions on the questionnaire, and some students circled two answers for one question. As seen in Chapter 4, the discussion of the results, I stated each question that had discrepancies in the data, such as where a student circled more than one answer for a question, or where the student omitted the question, whether on accident or on purpose. Given the chance, I could have chosen one of their answers that they circled, or I could have circled an answer on the questions that they omitted to give myself more data that would help to come to a conclusion that I would have wanted to find in order to make my research more concrete. Instead of doing that, which would not have been honest of me to do, I chose to omit those results from the data, because it would

have skewed the data to fit the outcome that I wanted to see from the research study. It would have been wrong to do that, and I wanted to have concrete data from the questionnaires, not data that I had fabricated. I tried my absolute best to keep the data true to what I actually found, and did not fabricate the data to fit the outcome that I wanted the research study to have.

### **Conclusions**

In summary, the research study was successful. I found that self-efficacy does indeed have an effect on elementary students' academic achievement, and that a teacher's self-efficacy beliefs about their ability to teach mathematics and ELA to their students affects their performance in those subjects. Students feel that, if their teacher is struggling to teach the content, then the teacher is not confident in the subject that they are teaching. That will lead the student to under confident in their ability to complete the tasks or the work necessary in that subject because their teachers struggle with it as well. The findings also showed that the students who have a high level of confidence in their abilities also perform at a higher rate in school, and that the students whose teachers promote self-confidence in their classrooms also succeed in those subjects. In the future, I would like to replicate this study on a larger scale, and possibly try a longitudinal study in order to investigate the ways in which self-efficacy beliefs develop and change over a long period of time in the same students. I would also like to focus on more than one school in a district to gather more concrete data, and to possibly focus in a more diverse area with a larger population to see if that changes the outcome of the research. I have learned much about self-efficacy and academic achievement throughout my time working on this research, and I hope I get the chance to look into the topic in the future. I would like to see the long-term effects of self-efficacy someday.

### References

- Adams Otis, G., Chapman, B., & McShane, L. (2015, March 14). New York City is rife with underperforming schools, including nearly two-thirds of students missing state standards. *The New York Daily News*. Retrieved from <http://www.nydailynews.com/new-york/education/2-in-3-city-Students-not-meeting-math-state-standards-article-1.2148748>.
- Amrein, A. L., & Berliner, D. C. (2003). A research report: The effects of high-stakes testing on student motivation and learning. *Educational Leadership*, 60(5), 32-38. ISSN: 0013-1784
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press, 1998).
- Bong, M., Cho, C., Ahn, H., & Kim, H. (2012). Comparison of self-beliefs for predicting student motivation and achievement. *The Journal of Educational Research*, 105, 336-352. doi: 10.1080/00220671.2011.627401
- Chang, Y-L. (2015). Examining relationships among elementary mathematics teachers' efficacy and their students' mathematics self-efficacy and achievement. *Eurasia Journal of Mathematics, Science & Technology Education*, 11(6), 1307-1320. Accession Number: EJ1078207
- Fast, L. A., Lewis, J. L., Bryant, M. J., Bocian, K. A., Cardullo, R. A., Rettig, M., & Hammond, K. A. (2010). Does math self-efficacy mediate the effect of the perceived classroom environment on standardized math test performance? *Journal of Educational Psychology*, 102(3), 729-740. doi:10.1037/a0018863.

- Gay, L. R., Mills, G. E., & Airasian, P. (2006). *Educational Research: Competencies for analysis and applications* (8th ed.). Upper Saddle River, NJ: Pearson.
- Joët, G., Usher, E. L., & Bressoux, P. (2011). Sources of self-efficacy: An investigation of elementary school students in France. *Journal of Educational Psychology, 103*(3), 649-663. doi:10.1037/a0024048
- NY State Grades 3-8 ELA Assessment Data. (n.d). [Graph illustration of the New York State test scores and assessment data on the 2015 and 2016 3rd through 8th grade ELA exams]. Retrieved from <https://data.nysed.gov/assessment38.php?subject=ELA&year=2016&state=yes>.
- Pajares, F. (1996). Self-efficacy beliefs and mathematical problem solving of gifted students. *Contemporary Educational Psychology, 21*(4), 325-344. doi:10.1006/ceps.1996.0025
- Pajares, F., & Miller, M. David. (1994). Role of self-efficacy and self-concept beliefs in mathematical problem solving: A path analysis. *Journal of Educational Psychology, 86*(2), 193-203. doi:10.1037/0022-0663.86.2.193
- Pajares, F., & Valiante, G. (1997). Influence of self-efficacy on elementary students' writing. *The Journal of Educational Research, 90*(6), 353-360. ISSN: 0022-0671
- Phan, H. P. (2012). The development of English and mathematics self-efficacy: A latent growth curve analysis. *The Journal of Educational Research, 105*, 196-209. doi: 10.1080/00220671.2011.552132
- Randhawa, B. S., Beamer, J. E., & Lundberg, I. (1993). Role of Mathematics Self-Efficacy in the Structural Model of Mathematics Achievement. *Journal of Educational Psychology,*

85(1), 41-48. doi:10.1037/0022-0663.85.1.41

Schunk, D. H., & Hanson, A. R. (1985). Peer models: Influence on children's self-efficacy and achievement. *Journal of Educational Psychology*, 77(3), 312-322. doi:10.1037/0022-0663.77.3.313

Skaalvik, E. M., & Skaalvik, S. (2011). Self-concept and self-efficacy in mathematics: Relation with mathematics motivation and achievement. *The Journal of Educational Research*, 5(3/4), 241-264. ISSN: 1935052X

Wisdom, J., and Creswell, J.W. (February 2013). Mixed methods: Integrating quantitative and qualitative data collection and analysis while studying patient-centered medical home models. Rockville, MD: Agency for Healthcare Research and Quality. AHRQ Publication No. 13-0028-EF.

**Appendix A: CITI Training Certificate**

**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:** Chelsea Ottman (ID: 5059352)
- **Institution Affiliation:** SUNY - College at Fredonia (ID: 273)
- **Institution Email:** ottm5553@fredonia.edu
- **Institution Unit:** Curriculum & Instruction
- **Phone:** 315-591-4125
  
- **Curriculum Group:** Social and Behavioral Responsible Conduct of Research
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 1 - RCR
- **Description:** This course is for investigators, staff and students with an interest or focus in **Social and Behavioral** research. This course contains text, embedded case studies AND quizzes.
  
- **Record ID:** 17223654
- **Completion Date:** 16-Sep-2015
- **Expiration Date:** N/A
- **Minimum Passing:** 75
- **Reported Score\*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Responsible Conduct of Research (RCR) Course Introduction (ID: 1522)	13-Sep-2015	No Quiz
Research Misconduct (RCR-Basic) (ID: 16604)	16-Sep-2015	5/5 (100%)
Data Management (RCR-Basic) (ID: 16600)	16-Sep-2015	5/5 (100%)
Authorship (RCR-Basic) (ID: 16597)	16-Sep-2015	5/5 (100%)
Peer Review (RCR-Basic) (ID: 16603)	16-Sep-2015	5/5 (100%)
Mentoring (RCR-Basic) (ID: 16602)	16-Sep-2015	5/5 (100%)
Using Animal Subjects in Research (RCR-Basic) (ID: 13301)	16-Sep-2015	5/5 (100%)
Conflicts of Interest (RCR-Basic) (ID: 16599)	16-Sep-2015	5/5 (100%)
Collaborative Research (RCR-Basic) (ID: 16598)	16-Sep-2015	5/5 (100%)
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	16-Sep-2015	5/5 (100%)
Responsible Conduct of Research (RCR) Course Conclusion (ID: 1043)	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.citiprogram.org/verify/?k02b16f4e-c876-42be-a016-aeafd26500ab-17223654](http://www.citiprogram.org/verify/?k02b16f4e-c876-42be-a016-aeafd26500ab-17223654)

**Collaborative Institutional Training Initiative (CITI Program)**  
 Email: [support@citiprogram.org](mailto:support@citiprogram.org)  
 Phone: 888-529-5929  
 Web: <https://www.citiprogram.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:** Chelsea Ottman (ID: 5059352)
- **Institution Affiliation:** SUNY - College at Fredonia (ID: 273)
- **Institution Email:** ottm5553@fredonia.edu
- **Institution Unit:** Curriculum & Instruction
- **Phone:** 315-591-4125
  
- **Curriculum Group:** Social and Behavioral Responsible Conduct of Research
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 1 - RCR
- **Description:** This course is for investigators, staff and students with an interest or focus in **Social and Behavioral** research. This course contains text, embedded case studies AND quizzes.
  
- **Record ID:** 17223654
- **Report Date:** 27-Apr-2017
- **Current Score\*\*:** 100

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Responsible Conduct of Research (RCR) Course Introduction (ID: 1522)	13-Sep-2015	No Quiz
Using Animal Subjects in Research (RCR-Basic) (ID: 13301)	16-Sep-2015	5/5 (100%)
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	16-Sep-2015	5/5 (100%)
Authorship (RCR-Basic) (ID: 16597)	16-Sep-2015	5/5 (100%)
Collaborative Research (RCR-Basic) (ID: 16598)	16-Sep-2015	5/5 (100%)
Conflicts of Interest (RCR-Basic) (ID: 16599)	16-Sep-2015	5/5 (100%)
Data Management (RCR-Basic) (ID: 16600)	16-Sep-2015	5/5 (100%)
Mentoring (RCR-Basic) (ID: 16602)	16-Sep-2015	5/5 (100%)
Peer Review (RCR-Basic) (ID: 16603)	16-Sep-2015	5/5 (100%)
Research Misconduct (RCR-Basic) (ID: 16604)	16-Sep-2015	5/5 (100%)
Responsible Conduct of Research (RCR) Course Conclusion (ID: 1043)	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.citiprogram.org/verify?k02b16f4e-c876-42be-a016-aefcd26500ab-17223654](http://www.citiprogram.org/verify?k02b16f4e-c876-42be-a016-aefcd26500ab-17223654)

#### Collaborative Institutional Training Initiative (CITI Program)

Email: [support@citiprogram.org](mailto:support@citiprogram.org)  
 Phone: 888-529-5929  
 Web: <https://www.citiprogram.org>

**Appendix B: HSR Approval Letter**

13 March 2017

Chelsea Ottman  
c/o Robert Dahlgren, Ph.D.  
Curriculum and Instruction  
College of Education  
Thompson Hall  
The State University of New York at Fredonia

Re: Chelsea Ottman—The Effects of Self-Efficacy on Teachers and on Elementary Students' Academic Achievement in Mathematics and English Language Arts

Your research project using human subjects has been determined Category 1, Exempt, under the United States Department of Health and Human Services Code of Federal Regulations Title 45 Public Welfare, Part 46 Protection of Human Subjects, 46.101, Subpart A (b) (1) and/or (2). This document is your approval and your study titled "The Effects of Self-Efficacy on Teachers and on Elementary Students' Academic Achievement in Mathematics and English Language Arts" may proceed as described, beginning on **March 13, 2017 and ending on June 1, 2017.**

Thank you for keeping the high standards relating to research and the protection of human subjects under the auspices of the State University of New York at Fredonia.

Sincerely,

A handwritten signature in blue ink that reads "Judith M. Horowitz".

Judith M. Horowitz, Ph.D.  
Associate Provost, Graduate Studies, Sponsored Programs  
and Faculty Development  
Human Subjects Administrator

## Appendix C: Parental Consent Form - English and Spanish

### Parental Consent Form

**Protocol Title:** The Effects of Self-Efficacy on Teachers and on Elementary Students' Academic Achievement in Mathematics and English Language Arts

*Please read this consent document carefully before you decide to participate in this study.*

**Purpose of the research study:** To study the possible connections between a student's self-efficacy beliefs and how it affects their academic achievement in Mathematics and English Language Arts, as well as how a classroom teacher's self-efficacy beliefs about their ability to teach Mathematics and English Language Arts affect their student's academic achievement, and to see what possible steps can be taken to help students and teachers build their self-efficacy and self-esteem.

**What your child will be asked to do in the study:** To respond to a questionnaire that includes scale style questions and to respond to in-person interview questions.

**Time Required:** Participants will be given three weeks to complete their questionnaire from the date that they are given the questionnaire, and then interviews will be conducted after all of the data from the questionnaires is reviewed. Data analysis may take one to two weeks, and interviews will be conducted over the span of one to two weeks.

**Compensation:** There is no compensation for participating in the study.

**Confidentiality:** Your child's identity will be kept confidential, and no identifiable information will be published in the final report of the research study. Their responses from the questionnaire and comments from the interview may be included in the final report of the research study, but their name will not be associated with their responses in any way. The data will be secured in password protected documents on my personal computer, which is also password protected. The password to my computer is only known by myself, and no one else will have access to my computer or the files.

**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:** You have the right to withdraw your child from the study at any time without consequence. You do not have to answer any questions you do not want to answer.

**Potential Benefits and Risks:** This investigation will add to the current research that has been done about self-efficacy beliefs and their effects on a student's academic achievement. It could be possible that this research study could be used to further the research in this area and help students who do struggle with their self-efficacy in school and their self-esteem. Following this investigation, participants and families will be allowed to read the research if they wish to discover how their child's responses helped form a conclusion on the possible connections between self-efficacy and academic achievement in elementary school students. Only responses to the questionnaire and responses to the interview questions that are relevant to the research question will be used in the final research paper. No personally identifiable information about the participants, such as their names, their age, their grade level, the school that they attend, or the district that they attend school in will be released to the public. The school name and the district name will be identified only by a pseudonym in the research study, no pseudonyms will be created for any of the student or teacher participants in the study. Comments about any personally identifiable information that is obtained during any questionnaire or any interview will not be a part of the final research paper.

**Whom to contact if you have questions about the study:**

Chelsea Ottman, Graduate Student  
Email: [cottman@fredonia.edu](mailto:cottman@fredonia.edu)

**Whom to contact about your 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](mailto:Judith.horowitz@fredonia.edu)  
(716) 673-4708

**I have read the procedure outlined above. I voluntarily agree to participate in this study and have received a copy of this description.**

---

*Participant's signature*

---

*Date*

---

*Principal investigator's signature*

---

*Date*

### **Formulario de consentimiento parental**

**El título del protocolo:** Los efectos de la autoeficacia en el éxito académico en las matemáticas y el inglés para los profesores y los estudiantes primarias

*Por favor lee este formulario de consentimiento con cuidado antes de decidir a participar en este estudio.*

**El propósito del estudio:** Para observar las conexiones posibles entre las opiniones sobre la autoeficacia de un estudiante y como afectan su éxito académico en las matemáticas y el inglés, además de como las opiniones de la autoeficacia de un profesor sobre su habilidad enseñar las matemáticas y el inglés afectan al éxito académico de sus estudiantes, y para ver cuáles pasos posibles se pueden tomar para ayudar a los estudiantes y los profesores a aumentar su autoeficacia y autoconfianza.

**Lo que su criatura hará en el estudio:** Responder a un cuestionario que incluye preguntas del estilo escala y responder a preguntas en persona de una entrevista.

**Tiempo obligado:** Los participantes tendrán tres semanas para terminar su cuestionario desde la fecha de la que se lo recibe. Entonces las entrevistas se llevará a cabo después de toda la información de los cuestionarios está analizada. Puede que el análisis de los datos dure uno a dos semanas, y las entrevistas se llevaría a cabo entre este periodo de uno a dos semanas.

**La compensación:** No hay compensación por participar en el estudio.

**La confidencialidad:** La identidad de su criatura será confidencial, y nada información identificable estará publicado en la reseña final del estudio. Puede que sus respuestas del cuestionario y los comentarios de la entrevista estén incluidos en la reseña final del estudio, pero sus nombres no estarán asociados con sus respuestas en ninguna manera. Los datos estarán asegurados dentro documentos protegidos por contraseña en mi portátil personal, que también está protegida con contraseña. Soy la única persona que sabe la contraseña y nadie tendrá acceso ni a mi portátil ni los archivos.

**La participación voluntaria:** La participación de su criatura en este estudio es completamente voluntaria. No hay castigo por no participar.

**El derecho a dejar del estudio:** Usted tiene el derecho sacar a su criatura del estudio en cualquier momento sin consecuencia. Usted no tiene que contestar ninguna pregunta que no quiere contestar.

**Los beneficios y los riesgos potenciales:** Esta investigación añade a las presentes investigaciones que existen sobre las opiniones de la autoeficacia y los efectos que tiene en el éxito académico de un estudiante. Es posible que este estudio estará usado para continuar las investigaciones en este campo de estudio y para ayudar a los estudiantes que tienen dificultades con su autoeficacia en la escuela y con su autoconfianza. Siguiendo la investigación, los participantes y las familias estarán permitidos leer la investigación si quieren descubrir cómo las respuestas de su criatura ayudaron a formar una conclusión de las conexiones posibles entre la autoeficacia y el éxito académico en los estudiantes primarios. Solo las respuestas al cuestionario y las respuestas a las preguntas de la entrevista serán utilizados en la reseña final. Ninguna información identificable sobre los participantes, tal como sus nombres, sus edades, sus grados, las escuelas que asisten, o el distrito escolar en lo cual asisten escuela estará lanzada al público. El nombre de la escuela y el nombre del distrito escolar estarán identificados solo por un seudónimo en el estudio. Ningún seudónimo estará creado para los estudiantes o los profesores en el estudio. Comentarios sobre cualquier información identificable que se obtiene en cualquier cuestionario o entrevista no estarán incluidos en la reseña final.

**Con quién contactar si tiene preguntas sobre el estudio:**

Chelsea Ottman, Graduate Student  
Correo electrónico: [cottman@fredonia.edu](mailto:cottman@fredonia.edu)

**Con quién contactar en cuanto a sus derechos como un participante en el estudio:**

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

**He leído el procedimiento resumido arriba, acepto voluntariamente a participar en este estudio y he recibido una copia de esta descripción.**

---

*Firma del participante*

---

*Fecha*

---

*Firma del investigador principal*

---

*Fecha*

### **Appendix D: Parent Letter - English and Spanish**

Dear Parents/Guardians: I am a Graduate Student in the Curriculum and Instruction Department at SUNY Fredonia. In preparation for my final thesis project, I am gathering data on the effects of an elementary school student's self-efficacy beliefs and how those beliefs affect their academic achievement in Mathematics and English Language Arts. I am also gathering data from their classroom teachers about how the teacher's own self-efficacy beliefs affect their ability to confidently teach Mathematics and English Language Arts. I would like to ask you for permission to have your child participate in a questionnaire that will address questions on the student's beliefs about their self-efficacy and how they believe it affects their ability to do well in their Mathematics and English Language Arts classes. I would also like to ask for permission to interview your child based on their responses on the questionnaires in order to gain more information to be used in the research study. While the questionnaire may be filled out on your own time at your own convenience, I ask for them to be completed within two weeks of distribution. Your participation is strictly voluntary and you may withdraw from the project at any time for any reason. Additionally, no form of compensation for participation will be available. Your confidentiality during the project will be ensured. Please return all permission forms to your child's classroom teacher, who will pass them on to me, within one week. Please return all questionnaires to your child's classroom teacher within three weeks after allowing your child permission to participate.

Would you allow your child to participate in an interview after their questionnaire is reviewed and analyzed to collect more information to be used in the research study?

Circle one:                      Yes                                      No

If yes, please provide contact information so I may schedule an interview. You are allowed to be present at the interview.

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

If none of the forms of contact listed above work for you, please provide additional contact information so an interview can be scheduled.

---



---



---

Estimado Padre/Tutor: Soy una estudiante de postgrado en el Departamento de currículo e instrucción en SUNY Fredonia. Como preparación para la tesis final, yo junto datos sobre los efectos de la opinión que un estudiante de primaria tiene en cuanto a su autoeficacia y cómo esa opinión afecta su éxito académico en las matemáticas e inglés. Yo también junto datos de los profesores sobre sus propias opiniones de su autoeficacia y cómo afectan a su habilidad enseñar confiadamente las matemáticas e inglés. Yo quisiera pedirle permiso para la participación de su criatura en un cuestionario que abordará preguntas sobre las opiniones de la autoeficacia del estudiante y cómo cree que afecta a su habilidad tener éxito en las clases de matemáticas e inglés. Yo quisiera también pedirle permiso para entrevistar a su criatura basado en sus respuestas para juntar más información para usar en el estudio. Aunque el cuestionario se puede estar llenado a su conveniencia, le pido que lo termine dentro de dos semanas después de la distribución. Su participación es estrictamente voluntario y usted puede dejar del proyecto en cualquier momento por cualquiera razón. Además, ninguna forma de compensación estará disponible. Su confidencialidad durante el proyecto estará asegurada. Por favor devolver todos los formularios al profesor de su criatura, que me los dará, dentro de una semana. Por favor devolver todos los cuestionarios al profesor de su criatura dentro de tres semanas después de dar permiso para la participación de su criatura.

¿Dejarías a su criatura participar en una entrevista después del cuestionario está revisado y analizado para juntar más información para el estudio?

Dibuje un círculo alrededor de su respuesta:      Sí                      No

Si usted conteste que sí, por favor dar sus datos para que yo pueda concertar una entrevista. Usted está permitido asistir la entrevista.

Nombre: \_\_\_\_\_

Numero de teléfono: \_\_\_\_\_

Correo Electrónico: \_\_\_\_\_

Si ningunos de los tipos de comunicarse arriba están posibles, por favor dar datos adicionales para que se puede concertar una entrevista.

---

---

---

### **Appendix E: Child Assent Form - English and Spanish**

#### **Child Participant Assent Form**

I am doing a study to learn if there is a relationship between your beliefs about your strengths and weaknesses as a student, and how well you do in your classes in school. I am asking you to help me because I don't know much about how these two things are related, and I would like to know if they are related or not.

If you agree to be in this study, you will be filling out a short survey with 20 questions about your beliefs about how well you do in school and how confident you are in your classes. You will also have an opportunity to be interviewed about your answers on the survey if you wish to do so. For example, I may ask you how easy or how difficult math or reading is for you.

You can ask me questions about this study at any time. If you decide at any time that you do not want to participate any more, you can ask me to stop. Anything that we have talked about up to that point will be thrown away, and it will not be used in my study.

The questions that you will answer in the survey and during any interviews that you let me do with you are only about what you think. There are no right or wrong answers because this is not a test. I would like you to be honest with me about what you are thinking, so I can get the best information for my study from you.

Please read the questions carefully and answer them by putting a circle around your answer. When you have answered both questions, please sign your name at the bottom of the page. Remember, being in the study is up to you, and no one will be upset if you decide not to be in the study or if you change your mind about it later.

Would you like to participate in the study? (circle your answer below)

yes                      no

Would you like to be interviewed for the study? (circle your answer below)

yes                      no

Your signature: \_\_\_\_\_ Date \_\_\_\_\_

Your printed name: \_\_\_\_\_ Date \_\_\_\_\_

Signature of person obtaining consent: \_\_\_\_\_ Date \_\_\_\_\_

Printed name of person obtaining consent: \_\_\_\_\_ Date \_\_\_\_\_

### La Forma de Asentimiento de Niños

Estoy haciendo un estudio para aprender si hay una relación entre tus creencias sobre tus fortalezas y debilidades como un estudiante, y acerca de lo bien que lo hace en la escuela. Te estoy preguntando para tu ayuda porque no sé mucho cómo estas cosas están relacionadas y gustaría saber la relación.

Si aceptas para estar un parte del estudio, rellenarás una encuesta corta de veinte preguntas sobre tus creencias acerca de lo bien que lo hace en la escuela y si estas seguro en su clases. También tendrás la oportunidad para discutir sus respuestas a la encuesta después en una entrevista, si quieres hacerlo. Por ejemplo, puedo preguntarte, si piensas las matemáticas o la escritura estan fácil o difícil.

Puedes preguntarme sobre el estudio en cualquier momento. Si decides que no ya quieres participar, puedes preguntarme para parar. Las cosas que nosotros hemos discutido hasta ese momento arrojarán y las no utilizará en mi estudio.

Las preguntas que responderás en la encuesta y la entrevista solo son acerca de lo que piensas. Hay no repuestas correctas o incorrectas, porque este no es un examen. G gustaría que eres honesto sobre sus pensamientos así puedo tener la mejor información de tí por mi estudio

Por favor lea las preguntas con cuidadosamente y responda a las por marcando un círculo alrededor de tu respuesta. Después de has respondido a los dos preguntas, por favor firma tu nombre al fondo de la página. Recuerda que su participación es tu decisión, no hay un obligacio. También no persona será molesta si decides no participar en el estudio o si cambias su mente más tarde.

Te gustaría participar en el estudio? (marca tu respuesta con un círculo)

sí                      no

Te gustaría ser entrevistado para el estudio? (marca tu respuesta con un círculo)

sí                      no

Tu firma \_\_\_\_\_ Fecha \_\_\_\_\_

Tu nombre impreso \_\_\_\_\_ Fecha \_\_\_\_\_

Firma de la persona dar su consentimiento \_\_\_\_\_ Fecha \_\_\_\_\_

Nombre impreso de la persona dar su consentimiento \_\_\_\_\_ Fecha \_\_\_\_\_

**Appendix F: Questionnaire - English and Spanish****Does a student's own self-efficacy beliefs have any effect on their academic achievement in Mathematics and English Language Arts?**

*Directions: Please circle the response that best explains your opinion on the following.*

Circle '1' if you completely agree with the statement.

Circle '2' if you do not agree or disagree with the statement.

Circle '3' if you completely disagree with the statement.

1. I believe that I am doing well in school right now.

1                      2                      3

2. I believe that I am doing well in mathematics.

1                      2                      3

3. I believe that I am doing well in ELA.

1                      2                      3

4. The opinions of my classmates affect how I feel about myself.

1                      2                      3

5. The opinions of my teacher affects how I feel about myself.

1                      2                      3

6. When I have trouble understanding a topic, I give up on trying.

1                      2                      3

7. I can learn and understand new mathematics topics easily.

1                      2                      3

8. I can learn and understand new ELA topics easily.

1                      2                      3

9. Taking tests is easy for me.

1                      2                      3

10. I feel confident that I can do well in school.

1                      2                      3

11. I make friends easily.

1                      2                      3

12. My friends help me when I struggle in class.

1                      2                      3

13. My teacher is always available to help me when I need it.

1                      2                      3

14. I have the support at home that I need to do well in school.

1                      2                      3

15. I have the support at home that I need to be confident in myself.

1                      2                      3

16. I work better when I am working in a group.

1                      2                      3

17. I am good at solving mathematical problems.

1                      2                      3

18. I am good at writing.

1                      2                      3

19. I am good at reading.

1                      2                      3

20. I am confident when answering questions in class.

1                      2                      3

**¿La eficacia de uno mismo tiene un efecto en el rendimiento académico del estudiante en los sujetos de matemáticas y los artes de lenguaje inglés?**

Direcciones: Por favor, marque un círculo en la respuesta correcta que explica su opinión la mejor en lo siguiente.

Marque '1' si esta de acuerdo con la afirmación completamente

Marque '2' si ni de acuerdo o ni en desacuerdo con la afirmación

Marque '3' si no está de acuerdo con la afirmación completamente

1. Creo que estoy haciendo bien en escuela ahora.  
1                      2                      3
2. Creo que estoy haciendo bien en matemáticas.  
1                      2                      3
3. Creo que estoy haciendo bien en los artes de lenguaje inglés.  
1                      2                      3
4. Las opiniones de mis compañeros de clase afecta como me siento acerca mí.  
1                      2                      3
5. La opinión de mi profesor afecta como me siento acerca de mí.  
1                      2                      3
6. Cuando no comprendo un tópico, renuncio tratando.  
1                      2                      3
7. Puedo aprender y comprender temas de matemáticas de nuevo fácilmente.  
1                      2                      3
8. Puedo aprender y comprender temas de los artes de lenguaje inglés de nuevo fácilmente.  
1                      2                      3
9. Puedo hacer los exámenes fácilmente.  
1                      2                      3
10. Estoy seguro de mí mismo que puedo hacer bien en escuela.  
1                      2                      3

11. Puedo hacer amigos fácilmente.

1                    2                    3

12. A mis amigos me ayudan cuando no comprendo temas de la clase.

1                    2                    3

13. Mi profesor está disponible siempre para ayudarme cuando la necesito.

1                    2                    3

14. Tengo apoyo en casa que necesito para tener éxito en escuela.

1                    2                    3

15. Tengo apoyo en casa que necesito para sentir seguro de mí mismo.

1                    2                    3

16. Trabajo mejor en un grupo.

1                    2                    3

17. Soy bueno para resolver problemas de matemáticas.

1                    2                    3

18. Soy bueno en la escritura.

1                    2                    3

19. Soy bueno en la lectura.

1                    2                    3

20. Estoy seguro de mí mismo cuando estoy escribiendo.

1                    2                    3

**Appendix G: Tennessee Self-Concept Scale**

Categories	Item No.	Contents	Corrected item-total correlation	Cronbach's $\alpha$ if item deleted	Cronbach's $\alpha$
Academic self-concept	1	Studying is easy.	.65	.90	.91
	2	I am good at writing.	.43	.91	
	3	I am good at math.	.53	.90	
	4	Easier to study than friends.	.66	.90	
	5	Feel foolish sometimes.	.55	.90	
	6	Science is easy.	.55	.90	
	7	Teachers don't care about me.	.45	.91	
	8	Comfortable at school.	.45	.91	
	9	Good studying habit.	.60	.90	
	10	Study hard.	.60	.90	
	11	Lots of good ideas.	.46	.91	
	12	Most subjects are easy.	.71	.90	
	13	Well understanding on reading.	.51	.91	
	14	Proud of my grade.	.59	.90	
	15	Teacher estimates me well.	.57	.90	
	16	Usually prepared for class.	.40	.91	
	17	Fairly on test.	.70	.90	
	18	Friends want to study with me more.	.51	.91	
	19	Studying speed is fast.	.61	.90	
	20	Friends like my opinion.	.42	.91	
Physical self-concept	21	I am very attractive.	.55	.90	.90
	22	I like my image in the mirror.	.67	.89	
	23	Don't get tired easily.	.46	.90	
	24	Similar with other people.	.40	.90	
	25	My teeth are polished.	.36	.90	
	26	All clothes look good on me.	.58	.90	
	27	I am healthy.	.43	.90	
	28	My appearance is common.	.68	.90	
	29	Good at most sports	.50	.90	
	30	Popular in sports team.	.45	.90	
	31	My body is appropriate.	.60	.89	
	32	My hair looks nice.	.55	.90	
	33	My skin is attractive.	.56	.90	
	34	Look nice in swimsuit.	.53	.90	
	35	My weight is appropriate.	.45	.90	
	36	Want to keep my appearance.	.57	.90	
	37	Have lots of energy to work.	.47	.90	
	38	Feel shameful but don't try to hide.	.55	.90	
	39	I am handsome.	.69	.90	
	40	Common in fashion.	.59	.90	
Social self-concept	41	I am not shy.	.34	.90	.90
	42	Happy staying with other people.	.57	.90	
	43	People ignore me.	.62	.90	
	44	Have close friends.	.48	.90	
	45	Going school is happy.	.60	.90	
	46	Usually approved by people	.63	.89	
	47	People care about me.	.65	.89	
	48	Often feel being alone.	.60	.89	
	49	People like me.	.65	.89	
	50	Comfortable staying with strangers.	.42	.90	
	51	Get phone call from friends.	.45	.90	
	52	Friends know about me.	.54	.90	
	53	Parents and teachers know about me.	.45	.90	
	54	Have a sense of humor.	.46	.90	
	55	Express my thoughts to people	.62	.89	
	56	Make mistakes when I speak.	.45	.90	
	57	Friends bother me.	.44	.90	
	58	Fun to mingle with people.	.51	.90	
	59	People like to stay with me.	.65	.89	
	60	People estimate me right.	.61	.89	
Emotional Self-concept	61	I am happy.	.76	.95	.95
	62	Everything goes well.	.73	.95	
	63	Feel bad.	.74	.95	
	64	I am not afraid.	.62	.95	
	65	I am sad.	.61	.95	
	66	Have bad thoughts.	.59	.95	
	67	I am a good person.	.62	.95	
	68	I like myself.	.76	.95	
	69	I am proud of myself.	.75	.95	
	70	Feel lethargic.	.66	.95	
	71	I am not ashamed.	.72	.95	
	72	My feelings are normal.	.74	.95	
	73	My life is worthwhile.	.72	.95	
	74	Can control my feelings.	.59	.95	
	75	Have a courage.	.57	.95	
	76	My mind is comfortable.	.75	.95	
	77	Have energy to live on.	.65	.95	
	78	My mind is healthy.	.76	.95	
	79	I am positive.	.65	.95	
	80	Feel anxiety.	.73	.95	