The Correlation Between Self-Efficacy and the Academic Success of Students

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Acceptance of Senior Honors Thesis

This Senior Honors Thesis is accepted in partial fulfillment of the requirements for graduation from the Honors Program of Liberty University.

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Abstract

Research reveals that gifted students at Springfield Middle School in Williamsport, Maryland possess stronger levels of self-efficacy than average students. For the purpose of this study, the term "gifted students" refers to students who are enrolled in above-grade-level classes at Springfield Middle School. Students must score high in tests and interviews in order to be placed in above-grade-level classes. According to Albert Bandura's social cognitive theory, increased levels of self-efficacy contribute to a person's ability to complete a task. Using the Children's Perceived Academic Self-Efficacy subscale from The Morgan-Jinks Student Efficacy Scale (MJSES), the study conducted at Springfield Middle School examined the correlation between students' self-efficacy level and their self-reported academic grades in English, math, science, and social studies. Also, the correlation between above-grade-level students' self-efficacy and their self-reported grades was compared to those of general students. The sample included 56 6^{th}, 7^{th}, and 8^{th} grade middle school students from a suburban area in Williamsport, Maryland. Through the use of a Chi Square Test of Independence, the results indicated that regardless of class level, students' self-efficacy in math and science are related to their grades in those subjects. Using independent *t* tests, no significant difference between the self-efficacy composite of grade-level and above-grade-level students was discovered.

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The Correlation between Self-Efficacy and the Academic Success of Students

Introduction

An empirical study concerning self-efficacy levels for the students of a middle school was conducted and examined against their class level (above-grade-level or grade level) and academic grades. For the intent of this study, students in magnet, merit, or honors classes were placed in the category of gifted students. Students in grade-level classes were also considered general education students. Studies revealed that students' self-efficacy levels act as a determinant of academic success.

Literature Review

Research indicates that intellectually gifted students possess a higher self-efficacy when compared with mainstreamed students. Laying the foundation of research concerning the social cognitive theory, Albert Bandura states, "students' beliefs about their capabilities to successfully perform tasks, or self-efficacy beliefs, are strong predictors of their capability to accomplish such tasks" (as cited in Pajares, 1996, p. 325). Therefore, intellectually gifted students tend to believe that they are competent to complete a task and this confidence is strong motivation for exceptional performance. According to a study completed by Fenning and May (2013), "correlation results indicated significant, positive correlations between general self-efficacy and high school GPA" (p.642). In turn, because gifted students have positive experiences with academics, these experiences further boost increase self-confidence. As students' self-efficacy levels increase, their independence and intrinsic motivation translate into greater success in the

classroom. “In order for students to maintain a high level of self-efficacy, they need to believe that they are equipped with the skills and talents for a specific task (Clickenbeard, 2012, p. 625). In order to improve students’ academic achievement, the school system should implement lessons or programs that strengthen students’ confidence. Because above-grade-level students specialize in academics, they are then confident of their success in school related endeavors. These students do not question their ability to the same extent as their peers. Emphasizing his social cognitive theory, Bandura (2002) states, “Factors that serve as motivators are rooted in the core belief that one has the power to produce desired effects by one’s actions, otherwise one has little incentive to act or to persevere in the face of difficulties” (p. 270).

Self-efficacy functions as the internal motivator for gifted students to endure challenges and achieve goals. Clickenbeard finds that “gifted students are more likely to attribute success to their own ability and effort and attribute failure to bad luck or inappropriate strategy choice” (p. 626). Even when gifted students experience failure, they do not relate the experience to a lack of intelligence or ability. Most likely, gifted students will not allow the experience to affect their self-efficacy for future challenges. Phillips and Lindsay convey that “the development of high abilities and high levels of achievement are all dependent on motivation in general but on intrinsic motivation in particular” (2006, p. 59). Research indicates that intellectually gifted students portray greater levels of intrinsic motivation. Intellectually talented students showed more intrinsic motivation for reading, writing, and solitude” when compared with average students (Clickenbeard, 2012, p. 624). Whereas students’ self-efficacy acts as an intrinsic motivator, average students may question their ability to achieve and rely upon extrinsic

motivation to succeed. As educators prompt students to take ownership of their learning, the students will be able to monitor their academics by using intrinsic motivation. In a practical sense, educators can create personal checklists for students or model the process of thinking aloud. As students learn to take responsibility for their education, they are more likely to exhibit a greater belief in their academic abilities. Extrinsic motivation is not to be forgotten either, as it is an important component to goals and achievements. However, a classroom where intrinsic motivation is cultivated will have positive long-lasting effects on the students' metacognition. Intrinsic motivation seems to be a more powerful indicator for success rather than the extrinsic model which is produced by point systems or treasure box rewards.

In addition, above-grade-level students are less likely to doubt their competence for achievement when they determine goals. Siegle and McCoach report that "goals that include specific performance standards are more likely to increase self-efficacy than more general goals because progress is easier to evaluate" (2007, p. 284). Educators can teach specific goal setting to encourage students to monitor their individual academic achievement. Students' academic goals are also impacted by the level of self-efficacy they obtain. For example, according to Bandura, Barbaranelli, Caprara, and Pastorelli (1996), "The stronger the perceived self-efficacy, the higher the goal aspirations people adopt and the firmer their commitment is to them" (p. 1208). Others' opinions can influence a student and their goals. People's level of self-efficacy will also determine goals and decisions that they make in the future. The choice of education and career will be greatly affected by the students' previous experiences and if they think they are competent for the chosen profession. Research indicates, "The higher people's perceived

efficacy to fulfill educational requirements and occupational roles, the wider the career options they consider pursuing, the better they prepare themselves educationally for different occupational careers, and the greater their staying power in challenging career pursuits" (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001, p. 188). Because gifted students tend to portray higher levels of self-efficacy, their college and career decisions are possibly more rigorous, which may provide a more advantageous and privileged lifestyle in the future years.

Whereas average students may question their ability to complete a task, intellectually gifted students typically do not question their ability regarding academics. Above-grade-level students are confident in academics and their high levels of self-efficacy serve as motivation to continue to excel in the classroom. They do not have to hurdle the obstacle of determining self-competence in order to excel in academics. Bandura et al. state, "Unless people believe that they can produce desired effects by their actions, they have little incentive to act" (1996, p. 1206). Therefore gifted students are competent in their abilities and are able to endure stressful periods, such as high stakes testing, in their academic career.

Gifted students are intrinsically motivated, but they are also affected by their environment. They should spend some time in a challenging environment in order to reach their academic potential. Gifted students should also be afforded the opportunity to explore concepts just below their frustration level, meaning they should be challenged to understand a new concept. Because gifted students display high levels of intrinsic motivation and self-efficacy, they need opportunities to take ownership of their education. They have the self-discipline required to work individually and effectively.

Projects which involve independent research provide the gifted student with the opportunity of investigating a topic which peaks the student's interest. Students can be held accountable for monitoring their education. If they have a question concerning the relation between topics, they should be prompted to search for the answers. Gifted students are more likely to succeed when they are challenged academically. On the other hand, the impact of an average curriculum on gifted students may decrease their levels of self-efficacy. Typically teachers assign gifted students with struggling students for group work; however, gifted students need the opportunity to learn at a higher scaffold. When gifted students are working with struggling students, they are often emphasizing concepts and skills which they already understand. Occasionally gifted students can be paired with struggling students because cooperative work is still beneficial. Research suggests that gifted students should partake in "problem solving, creativity, student-directed activities, and independent research" (Chan, 2011, p. 161).

Bandura et al. (1996) also reveal that "in social cognitive theory, personal efficacy operates within a broad network of sociostructural and psychosocial influences in which efficacy beliefs play an influential regulative function" (p. 1207). The classroom environment plays a larger role in education than many people may think. The students' social surroundings, including their teachers and peers, influence how the student will learn. For example, if students' peers are excelling in their academics and being recognized, other students will be more likely to believe in their own abilities (Siegle & McCoach, 2007, p. 285). Students are impressionable and teachers can choose to have a positive impact in their lives. According to the social learning theory, people react

similarly to the way that the surrounding people react. Moreover, educators should be mindful of their behavior toward children.

Educators acknowledge some precautions for teaching gifted students. If educated on the same level as other students, gifted students may become tempted to constantly perfect their schoolwork. The students may become dissatisfied with the work that they produce and unwilling to have it represent them academically. Rice, Ashby, and Gilman conclude that "although possessing high standards may be considered positive, perceiving higher discrepancy between one's perceived standards and performance has been identified as a core negative aspect of perfectionism associated with higher levels of depression, anxiety, and lower self-esteem" (as cited in Wang, Chu Chun, & Rice, 2012, p.97). If the gifted students do not earn a perfect score on their graded work, they may feel as though they are a failure (Wang et al., 2012, p. 96). This is more likely to negatively impact a gifted students' self-efficacy than previous failures. On the other hand, if intellectually gifted students are not challenged with their course work, some students will lose interest in the subject. Underachievement of the student is the probable outcome of an unchallenging environment (Wang et al., 2012, p. 96). In the cases that schools are unable to offer above-grade-level classes, educators should intentionally differentiate the instruction to provide a challenging curriculum. Interestingly, students are likely to show perfectionism qualities if those same qualities have been present in their parents. Wang et al. (2012) convey that "Perfectionistic discrepancy is characterized by a tendency to consistently feel that one is not meeting standards; it should be strongly associated with lower levels of self-efficacy" (p.99).

Studies indicate that “perceived self-efficacy occupies a central role in the causal structure of social cognitive theory because efficacy beliefs affect adaptation and change not only in their own right, but through their impact on other determinants” (Bandura et al., 2001, p. 188). Bandura stressed the fundamental usage of modeling. Children are impressionable and learn by watching others. For example, Bandura’s infamous Bobo doll experiment revealed how children’s actions were affected after watching an adult’s actions. Subconsciously, the children treated the doll in the same manner that the adult had treated it. The Bobo doll experiment should encourage teachers to increase the amount of modeling that is used in the classroom because it is highly effective. Siegle and McCoach emphasize that “teachers who capitalize on the influence of past performances, observation of others as models, and verbal persuasion produce more confident students” (2007, p. 279). Posting previous successful work on a bulletin board is a tangible way for students to remember that they have succeeded in the past and they are capable of another success. Gifted students will also benefit from modeling and may even learn more if they have the occasional opportunity to model concepts to their peers.

Additional research has been completed in the subjects of math and science with students’ self-efficacy. Mathematics seems to be a challenging subject and intimidates many students. In a study of seventh-grade students, Chen found that “self-efficacy played a direct role in predicting students’ math performance. The effects of prior math achievement on math performance were mediated largely through the students’ self-efficacy beliefs” (2003, p. 79). Therefore teachers should remind students of their previous successes in mathematics and use specific encouraging words. General reminders and phrases become redundant and meaningless in the classroom. Stevens,

Olivarez, and Hamman conclude that “self-efficacy and the sources of self-efficacy were stronger predictors of mathematics achievement than general mental ability” (as cited in Siegle & McCoach, 2007, p. 280). Educators should devote time to increasing students’ levels of self-efficacy in order to increase achievement in math. Siegle and McCoach encourage teacher training in strategies to increase students’ self-efficacy levels. The school system should offer training as a mode of professional development which provides an indirect method to increase the self-efficacy levels of students. In a study of high school science students, Bryan, Glynn, and Kittleson determine that “students’ intrinsic motivation, self-efficacy, self-determination, and achievement were related. Self-efficacy was the motivation factor most related to achievement” (2011, p. 1049). The study expands the correlation between students’ self-efficacy and academic achievement to the subject of science. The study encourages “science teachers to use social modeling and collaborative learning activities to foster students’ motivation and achievement” (Bryan, et al., 2011, p.1049). The study is consistent with Bandura’s social cognitive theory and emphasizes the importance of modeling in science.

Research conflicts regarding the existence of a gender disparity in levels of self-efficacy for mathematics and science. Minimal research indicates gender disparity of self-efficacy in other school subjects. Researchers conclude that girls feel discouraged to pursue education in math and science because it is not the societal norm (Rice, Barth, Guadango, Smith, & McCallum, 2012, p. 1029). Boys pursuing degrees in math are deemed more socially acceptable. Self-efficacy regarding mathematics also declines as the student ages. This trend is true for both boys and girls alike (p. 1029). The research correlating students’ achievements and self-efficacy in mathematics is extensive. The

amount of research has increased due to the encouragement of science, technology, math, and engineering in the classroom.

Albert Bandura's social cognitive theory has impacted the education system immensely. Research reveals that gifted students have the potential to succeed because they exhibit high levels of self-efficacy. Some research also correlates a gifted student's academic achievement with the parent's efficacy of the child's academic ability. Gifted students have the capability to succeed academically, but they must be presented with the opportunity to continuously develop intellectually. Academic grades have also been a topic of consideration concerning students' self-efficacy levels.

Research Questions

The study was conducted at Springfield Middle School to answer the following questions:

1. Does a significant correlation exist between students' self-efficacy levels and whether or not they are enrolled in an above-grade-level class?
2. Does a significant correlation exist between the students' self-efficacy level toward an academic subject and the students' self-reported grade in that subject?

Methods

A research study was implemented to provide answers concerning the aforementioned questions.

Participants

Samples of students from both above-grade-level and grade-level classes were chosen to participate in the study. The students all attended a public school, Springfield Middle School, and were in sixth, seventh, or eighth grade. The category of above-grade-

level students included students enrolled in honors, merit, or magnet classes. Honors math classes are available to students who take high school algebra in eighth grade. Merit classes are above-grade-level English, math, science, or social studies classes. Magnet classes are offered to students who meet application and testing requirements in order to be accepted into the program. Due to the nature of this program, students who live outside of the school district are also able to apply. For the convenience of this study, the category of gifted students includes participating students in magnet, merit, or honors classes. Students in general education courses were also included in the study. A convenience sample was taken because the principal chose two homeroom classes per grade to be given the opportunity to participate in the research study. Of the 148 students contacted, fifty six male and female students participated by completing the scale. Information concerning the students' gender or race was not collected to ensure the anonymity of the study.

Instrumentation

The Children's Perceived Academic Self-Efficacy subscale from The Morgan-Jinks Student Efficacy Scale (MJSES) was used for the study. Morgan and Jinks created the MJSES in 1999 to calculate the correlation between students' self-efficacy and their self reported grades, especially in the subject area of science. The four point Likert scale was designed to provide answer choices using informal words that mirror the style of language which children use. The researchers compared results of student populations in urban and suburban areas, which also influenced the variety of races involved. The scale, which included subcategory questions concerning students' talents, efforts, context, and subject difficulty, was administered to 570 students from two different schools. The

correlation between the students' science grade and the overall scale was 0.4, which portrays a significant relationship. Interestingly, little difference was discovered between the urban and suburban populations. Rather, there was a greater influence on grades when referring to the students' self-efficacy as opposed to other factors such as the school's location or the students' race.

Data Collection

The research study was approved by the Institutional Review Board at Liberty University. The principal at Springfield Middle school consented to the research study being conducted. Approval was also received from Washington County Public Schools Office of Testing and Administration with the following conditions: students remain anonymous, permission is received from parent and child, students may opt out of the study, and results of the study are sent to the office. The forms and scales were given to the principal to distribute to participating students. Because minors were involved in the study, the students were required to return parent consent forms and child assent forms. A master list of code numbers was created and the principal matched each participating student with a code number. The scales entitled the Children's Perceived Academic Self-Efficacy subscale from The Morgan-Jinks Student Efficacy Scale (MJSES) were labeled with a specific code, so that information regarding the students' classes could be gathered. The master list identified which students, according to code number, were enrolled in above-grade-level or grade-level English, math, science, and social studies classes. All students remained anonymous throughout the study and they always had an opportunity to discontinue their participation. During homeroom, the students were allotted approximately fifteen minutes to complete the scale. Then the homeroom

teachers returned the scales to the principal who collected all of the paperwork. The homerooms are organized by grade-level and alphabetized by the students' last names. All types of class levels, including magnet, merit, honors, and general class students, were involved. Researchers did not have contact with students nor did they administer the scale. The principal compiled the completed scales according to grade-level and the results were given to the researcher. The only other person who had access to the scales was a local statistician who interpreted the results of the middle school students' self-efficacy levels. Therefore the conditions of my Institutional Review Board application were upheld. Only people who were specifically mentioned in the application were given permission to review the results.

Results

Reseach Question 1: Does a significant correlation exist between students' self-efficacy levels and whether or not they are enrolled in an above-grade-level class?

Prior to any statistical analyses, the Children's Perceived Academic Self-Efficacy Scale, CPASES, items were reverse coded so that a higher score reflects higher Self-Efficacy (except for items 5, 15, 19, 20, 23, and 28 as they were negative in characteristics). In order to gauge the reliability of this instrument, a Scale Reliability Analysis using Cronbach's Alphas was conducted on relevant items (items 6, 11, 18, and 25 were filtered out due to their stand-alone characteristic). Convention dictates that 0.7 is the minimum Alpha to be considered reliable. The result indicated that the CPASES in this study obtained an Alpha of 0.488. However, a point to take into consideration is that this study only sampled 56 middle school students. Therefore, an insufficient N could be

a source for this Alpha. Some scales returned were incomplete, so pairwise deletion was used in SPSS. Table 1 lists the amount of students in each category.

Table 1

Number of Students in each Course Type

	Magnet	Merit	Grade Level	Honors CC. Algebra
Math	10	15	22	8
Reading	0	35	20	0
Social Studies	0	32	23	0
Science	10	23	22	0

The data was collapsed into a binary variable, grade-level versus above-grade-level students, in order to ensure the statistics were easier to interpret. The variable of above-grade-level students was comprised of students enrolled in magnet, merit, or honors classes. Independent *t* tests were used for this portion of the study. No significant difference was evident between the self-efficacy composite between the students enrolled in above-grade-level math and students in grade-level math courses. Additionally, there was no significant difference found between students in above-grade-level and grade-level in the other subjects including English, social studies, or science. The independent *t* test concerning the math portion produced t(52)= -1.224, which is not significant. The English portion produced results of t(52)= -1.712, which is also not significant. The science statistics resulted in t(52)= -1.103. Finally, the social studies portion of the scale indicated results of t(52)= -0.715. Neither of the science or social studies results indicated a significant difference between the self-efficacy composite of above-grade-level and grade-level students. See tables two and three for a display of results.

Table 2

Group Statistics

	Math: Above grade level versus grade level	N	Mean	Std. Deviation	Std. Error Mean
CPASES_Composite	Grade Level	22	3.2013	.23129	.04931
	Above Grade Level	32	3.2822	.24365	.04307

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
CPASES_Composite	Equal variances assumed	**.040**	**.843**	**-1.224**	**52**	**.227**	**-.08090**	**.06612**	**-.21358**	**.05177**
	Equal variances not assumed			**-1.236**	**46.810**	**.223**	**-.08090**	**.06547**	**-.21263**	**.05083**

Group Statistics

	English: Above grade level versus grade level	N	Mean	Std. Deviation	Std. Error Mean
CPASES_Composite	Grade Level	**20**	**3.1777**	**.23465**	**.05247**
	Above Grade Level	**34**	**3.2914**	**.23615**	**.04050**

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
CPASES_Composite	Equal variances assumed	**.006**	**.939**	**-1.712**	**52**	**.093**	**-.11365**	**.06639**	**-.24688**	**.01957**
	Equal variances not assumed			**-1.715**	**40.173**	**.094**	**-.11365**	**.06628**	**-.24759**	**.02029**

Group Statistics

	Science: Above grade level versus grade level	N	Mean	Std. Deviation	Std. Error Mean
CPASES_Composite	Grade Level	**22**	**3.2059**	**.22857**	**.04873**
	Above Grade Level	**32**	**3.2791**	**.24640**	**.04356**

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
CPASES_Composite	Equal variances assumed	**.250**	**.619**	**-1.103**	**52**	**.275**	**-.07314**	**.06629**	**-.20617**	**.05989**
	Equal variances not assumed			**-1.119**	**47.445**	**.269**	**-.07314**	**.06536**	**-.20460**	**.05832**

Table 3

Group Statistics

	Social Studies: Above grade level versus grade level	N	Mean	Std. Deviation	Std. Error Mean
CPASES_Composite	Grade Level	23	3.2221	.23634	.04928
	Above Grade Level	31	3.2695	.24431	.04388

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CPASES_Composite	Equal variances assumed	**.100**	**.754**	**-.715**	**52**	**.478**	**-.04740**	**.06631**	**-.18047**	**.08567**
	Equal variances not assumed			**-.718**	**48.402**	**.476**	**-.04740**	**.06598**	**-.18004**	**.08524**

Research Question 2: Does a significant correlation exist between the students' self-efficacy level toward an academic subject and the students' self-reported grade in that subject?

Because the four-point Likert scale was treated as a categorical variable along with the subject grades, a Chi-Square Test of Independence was conducted to see if a relationship existed between the two. A Chi-Square Test of Independence was conducted to evaluate whether math self-efficacy is related to math grades in 56 middle school students. The results of the study were Pearson $X^2(6, N=56) = 23.50$, $p=0.001$, Cramer's $V=.50$ which indicate that a statistically significant relationship is existent between student's math self-efficacy with their math grades. Also, since Cramer's V is 0.5, this suggests a rather large effect size. A Chi-Square Test of Independence was conducted to evaluate whether science self-efficacy is related to science grades in 56 middle school students. The results were Pearson $X^2(9, N=56) = 18.605$, $p=0.029$, Cramer's $V=0.363$. The study indicates that a statistically significant relationship exists between student's science self-efficacy with their science grades. Also, since Cramer's V is around 0.3, this suggests a moderate effect size. A Chi-Square Test of Independence was also conducted to evaluate whether English or social studies self-efficacy is related to the respective English or social studies grades. Neither subjects produced significant results. The statistics for English included Pearson $X^2(6, N=56)=3.367$ and the social studies statistics were Pearson $X^2(4, N=56)=5.592$. See tables four through nine for additional statistics. Figure one and figure two display the math and science results respectfully.

Figure 1

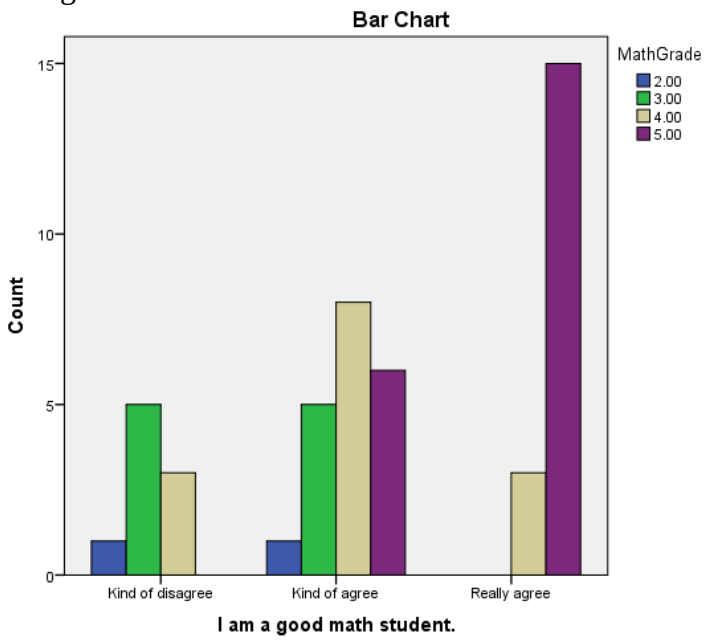

Table 4

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.707	.001
	Cramer's V	.500	.001
N of Valid Cases		47	

Table 5

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.500[a]	6	.001
Likelihood Ratio	29.279	6	.000
Linear-by-Linear Association	20.464	1	.000
N of Valid Cases	47		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .38.

Table 6

I am a good math student. * MathGrade Crosstabulation

			MathGrade				
			2.00	3.00	4.00	5.00	Total
I am a good math student.	Kind of disagree	Count	**1**	**5**	**3**	**0**	**9**
		Expected Count	**.4**	**1.9**	**2.7**	**4.0**	**9.0**
		% within I am a good math student.	**11.1%**	**55.6%**	**33.3%**	**0.0%**	**100.0%**
		% within MathGrade	**50.0%**	**50.0%**	**21.4%**	**0.0%**	**19.1%**
	Kind of agree	Count	**1**	**5**	**8**	**6**	**20**
		Expected Count	**.9**	**4.3**	**6.0**	**8.9**	**20.0**
		% within I am a good math student.	**5.0%**	**25.0%**	**40.0%**	**30.0%**	**100.0%**
		% within MathGrade	**50.0%**	**50.0%**	**57.1%**	**28.6%**	**42.6%**
	Really agree	Count	**0**	**0**	**3**	**15**	**18**
		Expected Count	**.8**	**3.8**	**5.4**	**8.0**	**18.0**
		% within I am a good math student.	**0.0%**	**0.0%**	**16.7%**	**83.3%**	**100.0%**
		% within MathGrade	**0.0%**	**0.0%**	**21.4%**	**71.4%**	**38.3%**
Total		Count	**2**	**10**	**14**	**21**	**47**
		Expected Count	**2.0**	**10.0**	**14.0**	**21.0**	**47.0**
		% within I am a good math student.	**4.3%**	**21.3%**	**29.8%**	**44.7%**	**100.0%**
		% within MathGrade	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table 7

I am a good science student. * ScienceGrade Crosstabulation

			ScienceGrade				
			2.00	3.00	4.00	5.00	Total
I am a good science student.	Really Disagree	Count	**0**	**2**	**0**	**1**	**3**
		Expected Count	**.1**	**.5**	**.7**	**1.7**	**3.0**
		% within I am a good science student.	**0.0%**	**66.7%**	**0.0%**	**33.3%**	**100.0%**
		% within ScienceGrade	**0.0%**	**25.0%**	**0.0%**	**3.8%**	**6.4%**
	Kind of disagree	Count	**0**	**3**	**1**	**1**	**5**
		Expected Count	**.2**	**.9**	**1.2**	**2.8**	**5.0**
		% within I am a good science student.	**0.0%**	**60.0%**	**20.0%**	**20.0%**	**100.0%**
		% within ScienceGrade	**0.0%**	**37.5%**	**9.1%**	**3.8%**	**10.6%**
	Kind of agree	Count	**2**	**2**	**7**	**11**	**22**
		Expected Count	**.9**	**3.7**	**5.1**	**12.2**	**22.0**
		% within I am a good science student.	**9.1%**	**9.1%**	**31.8%**	**50.0%**	**100.0%**
		% within ScienceGrade	**100.0%**	**25.0%**	**63.6%**	**42.3%**	**46.8%**
	Really agree	Count	**0**	**1**	**3**	**13**	**17**
		Expected Count	**.7**	**2.9**	**4.0**	**9.4**	**17.0**
		% within I am a good science student.	**0.0%**	**5.9%**	**17.6%**	**76.5%**	**100.0%**
		% within ScienceGrade	**0.0%**	**12.5%**	**27.3%**	**50.0%**	**36.2%**
Total		Count	**2**	**8**	**11**	**26**	**47**
		Expected Count	**2.0**	**8.0**	**11.0**	**26.0**	**47.0**
		% within I am a good science student.	**4.3%**	**17.0%**	**23.4%**	**55.3%**	**100.0%**
		% within ScienceGrade	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Figure 2

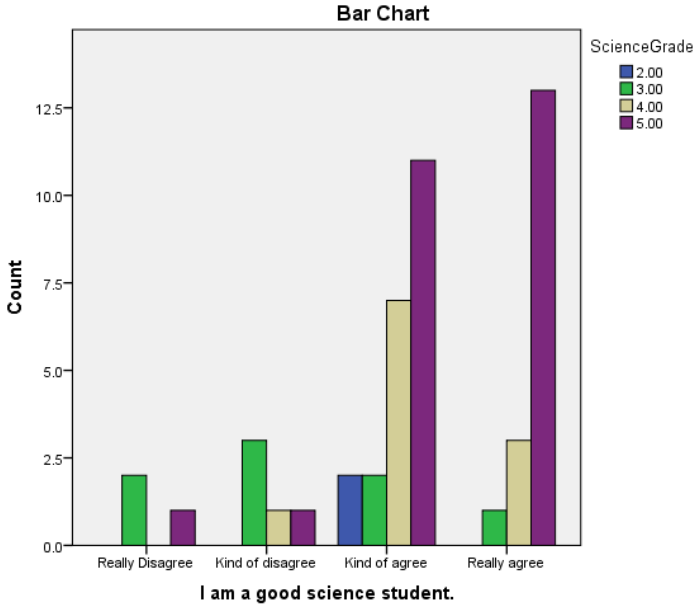

Table 8

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.629	.029
	Cramer's V	.363	.029
N of Valid Cases		47	

Table 9

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.605[a]	9	.029
Likelihood Ratio	16.861	9	.051
Linear-by-Linear Association	7.391	1	.007
N of Valid Cases	47		

a. 13 cells (81.3%) have expected count less than 5. The minimum expected count is .13.

Discussion

In this research study, students' perceptions of their academic self-efficacy were assessed using the Children's Perceived Academic Self-Efficacy subscale. The results were studied to indicate if there was a substantial difference between above-grade-level and grade-level students. The correlation between self-reported grades and academic self-efficacy, as they relate to a particular subject, was also calculated.

Many sources, as stated in the literature review, feature studies where gifted students indicate having higher levels of self-efficacy when compared to the students in general eduaction. Unfortunately, research question number one of this study did not produce significant results. A correlation between the students' self-efficacy levels and their class placement was not discovered. A lack of significant results is most likely due to the small number of participating students. The independent *t* test produced results of -0.715 or less for all subjects: math, English, science, and social studies. The study only involved an N of fifty-six middle school students. Results may have differed if a larger sample size of students participated. Because students were required to gain parental permission, the likelihood of students returning the required paperwork decreased. Also, other studies may define "gifted" differently than this study. I included honors, merit, and magnet students into one category deemed above-grade-level students. General education students were placed in the grade-level category. Possibly only considering the magnet students as the students who qualified for the gifted category may have produced significant results. Too few magnet students participated in the sample in order to create a separate category for them. The sample sizes were roughly equivalent due to combining the magnet, merit, and honors students and comparing them to the grade-level students.

Dividing the students into categories as such was beneficial for interpreting the statistics. Also, some students did not complete the scale in its entirety. The results may have been clearer if less students had returned incomplete scales. A stronger correlation between students' self-efficacy and academic grades may have been found if the students' actual grades were recorded. Students' self-reported grades were recorded to ensure that school records were kept secure and private. Inevitably the self-reported grades do not exactly represent the students' actual grades. However, Jinks and Morgan found that the self-reported grades were accurate enough to be able to draw conclusions from the study (1999, p. 225). Students are less likely to lie about their academic grades when the scales are anonymous. The insignifcant results found in this study are not intended for generalization. A significant correlation may be revealed if the study is conducted with a larger amount of participants.

Results from some of the second research question indicated as significant in the correlation between self-efficacy and self-reported grades of a particular academic subject. English and social studies results did not produce significant findings. However, a statistically significant relationship is revealed between students' math self-efficacy and their reported grades in math. The results were Pearson $X^2(6, N=56) = 23.50$. Similar results were found for the students' science self-efficacy as it relates to self-reported grades. The Chi Square Test for Independence revealed Pearson $X^2(9, N=56) = 18.605$. Possibly the relationships could be stronger if the students' actual grades were recorded. However, that was not ideal for this study because the students' anonymity was a priority. Finding significant relationships in the academic subjects of math and science is supported by research from other sources. The relationships possibly occur because

students tend to perceive math and science to be more difficult subjects. Therefore, if students believe that they have the capabilities to excel in mathematics and science, their self-reported grades are more likely to be higher. Also, students are less likely to develop anxiety toward the subject if they perceive themselves as excelling in the class. As mentioned in the literature review, a disparity among genders may occur in the math and science subject areas. However, the information regarding the students' genders was not collected for this study in order to ensure the absolute anonymity of the research. Previous studies have indicated that the disparity increases as students age, which indicates that middle school boys are more likely to exhibit higher levels of self-efficacy when compared to girls. Further research may indicate why English and social studies self-efficacies are unaffected by students' self-reported grades.

Conclusion

In conclusion, the study sought to bring attention to the correlation between academic self-efficacy and grades. Insight concerning students' responses was also gained according to the students' class level in the core subjects. Interestingly insignificant results were recorded regarding the difference in above-grade-level and grade-level students. Among others, this study revealed the inconnectedness between self-efficacy and students' grades. Educators can monitor the classroom for low achieving students. If a student's grades begin to decline, the educator or another person of guidance and authority could assess the student's self-efficacy to see if the issue is related. Reminding students of how they have progressed throughout the year may prove to be a motivating and empowering method to increase students' self-efficacy levels. One way this can be accomplished in the classroom is by keeping student-created portfolios.

As the semester goes on, students can visualize how their academic abililty has increased. As mentioned in the literature review, students need to be taught according to their class level, whether that is above-grade-level or grade-level. It is unnecessary to overwhelm general students with assignments they do not comprehend as well as assigning grade-level projects to gifted students. As the study reveals, grades and self-efficacy are intertwined. Educators can be informed on how the factors influence each other in order to practice effective teaching in the classroom. The classroom environment also effects the students' abilities to learn.

Follow-up Studies

Other factors that may influence students' self-efficacy levels include cultural impact and parents' efficacy concerning their children. These factors were not assessed in the research study, but can be considered for additional research. Another study to consider is the relation between the parents' educational background and the academic expectations that they set for their children. The students' grades could also be measured to determine if there is a correlation between the parents' levels of expectations and the students' academic outcomes. Additional research can be conducted concerning the gender disparity in self-efficacy which occurs primarily in the math classroom. Students are impacted by countless deterrances; however, with the knowledge that they are more likely to succeed when they believe they are academically capable, educators can positively impact the students' learning process. Albert Bandura's social cognitive theory proves valid as the years progress. Possibly as students believe they are capable of completing academic tasks, they are more motivated to strive for higher academic grades.

References

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology,52*(1), 1.

Bandura, A. (2002). Social cognitive theory in cultural context. *Applied Psychology: An International Review, 51*(2), 269.

Bandura, A., Barbaranelli, C., Caprara, G., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Development, 72*(1), 187-206.

Bandura, A., & Barbaranelli, C., Caprara, G., & Pastorelli, C. (1996). Multifaceted impact of self-efficacy beliefs on academic functioning. *Child Development, 67*(3), 1206-1222.

Bryan, R., Glynn, S., & Kittleson, J. (2011), Motivation, achievement, and advanced placement intent of high school students learning science. Sci. Ed., 95: 1049–1065.

Burney, V. H. (2008). Applications of social cognitive theory to gifted education. *Roeper Review, 30*(2),130-139.

Chan, D. W. (2011). Characteristics and competencies of teachers of gifted learners: The Hong Kong student perspective. *Roeper Review, 33*(3), 160-169.

Chapman, C. (2009). A smoother acceleration. *Science Teacher, 76*(2), 42-45.

Chen, P. (2003). Exploring the accuracy and predictability of the self-efficacy beliefs of seventh-grade mathematics students. *Learning and Individual Differences, 14*(1), 77-90.

Clinkenbeard, P.R. (2012). Motivation and gifted students: Implications of theory and research. *Psychology in the Schools,* 49(7), 622-630.

Cross, J., & Cross, T. L. (2005). Social dominance, moral politics, and gifted education. *Roeper Review*, *28*(1), 21-29.

Fenning, B., & May, L. (2013). "Where there is a will, there is an A": Examining the roles of self-efficacy and self-concept in college students' current educational attainment and career planning. *Social Psychology of Education, 16*(4).

Flint, L. J., & Ritchotte, J. A. (2012). A commentary on "Differentiating low performance of the gifted learner: Achieving, underachieving, and selective consuming students." *Journal of Advanced Academics, 23*(2), 168-175.

Garn, A. C., Matthews, M. S., & Jolly, J. L. (2010). Parental influences on the academic motivation of gifted students: A self-determination theory perspective. *Gifted Child Quarterly, 54*(4), 263-272.

Garn, A. C., Matthews, M. S., & Jolly, J. L. (2012). Parents' role in the academic motivation of students with gifts and talents. *Psychology in The Schools, 49*(7), 656-667.

Gibbons, M. M., Pelchar, T. K., & Cochran, J. L. (2012). Gifted students from low-education backgrounds. *Roeper Review, 34*(2), 114-122.

Jinks, J., & Morgan, V. (1999). Children's perceived academic self-efficacy: An inventory scale. *The Clearing House, 72*(4), 224-230.

Jinks, J., & Morgan, M. (n.d.). Students' sense of academic efficacy and achievement in science: A useful new direction for research regarding scientific literacy? *EJSE V1 N2 - Jinks & Morgan: Students' Sense of Academic Efficacy and Achievement In Science*. Retrieved September 3, 2014, from http://wolfweb.unr.edu/homepage/jcannon/ejse/jinksmor.html.

Latz, A. O., Speirs Neumeister, K. L., Adams, C. M., & Pierce, R. L. (2009). Peer coaching to improve classroom differentiation: Perspectives from project CLUE. *Roeper Review, 31*(1), 27-39.

Malpass, J. R., O'Neil, J. F., & Hocevar, D. (1999). Self-regulation, goal orientation, self-efficacy, worry, and high-stakes math achievement for mathematically gifted high school students. *Roeper Review, 21*(4), 281.

Miedijensky, S., & Tal, T. (2009). Embedded assessment in project-based science courses for the gifted: Insights to inform teaching all students. *International Journal of Science Education, 31*(18), 2411-2435.

Pajares, F. (1996). Self-efficacy beliefs and mathematical problem-solving of gifted students. *Contemporary Educational Psychology, 21*(4), 325.

Rice, L., Barth, J., Guadagno, R., Smith, G., & McCallum, D. (2012). The role of social support in students' perceived abilities and attitudes toward math and science. *Journal of Youth and Adolescence,* 1028-1040.

Rubenstein, L., Siegle, D., Reis, S. M., Mccoach, D., & Burton, M. (2012). A complex quest: The development and research of underachievement interventions for gifted students. *Psychology in the Schools, 49*(7), 678-694.

Seeley, K. (2004). Gifted and talented students at risk. *Focus On Exceptional Children*, *37*(4), 1-8.

Siegle, D., & McCoach, D. B. (2007). Increasing student mathematics self-efficacy through teacher training. *Journal of Advanced Academics*, *18*(2), 278-312,330-331.

Wang, K. T., Chu-Chun, F., & Rice, K. G. (2012). Perfectionism in gifted students: Moderating effects of goal orientation and contingent self-worth. *School Psychology Quarterly*, *27*(2), 96-108.

Yoojung, C., & Gentry, M. (2011). Gifted and general high school students' perceptions of learning and motivational constructs in Korea and the United States. *High Ability Studies*, *22*(1), 103-118.

APPENDIX A
MORGAN-JINKS STUDENT EFFICACY SCALE (MJSES)

A sample of the scale can be found at the following website: http://www.jstor.org/stable/pdfplus/30189583.pdf?acceptTC=true&jpdConfirm=true.

APPENDIX B
STUDENT RECRUITMENT LETTER

Date: 5/8/14

Springfield Middle School Students

Springfield Middle School

334 Sunset Avenue

Williamsport, MD 21795

Dear Students:

As an undergraduate student in the Honors Program at Liberty University, I am conducting research to better understand academic self-efficacy levels in middle school students. The purpose of my research is to determine your level of belief in your capabilities to complete schoolwork. I will compare the information with your class schedule and your self-reported grades. I am writing to invite you to participate in my study.

Because your homeroom has been selected by administration, and if you are willing to participate, you will be asked to complete a Children's Perceived Academic Self-Efficacy subscale from The Morgan-Jinks Student Efficacy Scale. The scale lists statements regarding your belief in the ability to complete academic assignments. You will simply circle whether you agree or disagree with the statement. It should take approximately fifteen minutes for you to complete the procedure listed. Your participation will be completely anonymous, and no personal, identifying information will be required.

A consent document will be sent home with you. The consent document contains additional information about my research; please give the document to your parent or guardian to read and sign, and then return the consent document to your homeroom teacher. You will also read and sign the child assent form before participating in the study.

Sincerely,

Emily Taylor

Liberty University Undergraduate Student

APPENDIX C
ASSENT OF CHILD FORM

Assent of Child to Participate in a Research Study

What is the name of the study and who is doing the study?
The study is Academic Self-Efficacy Levels among Middle School Students, and the researcher is Emily Taylor.

Why am I doing this study?
I am interested in studying the levels of self-efficacy among middle school students.

Why am I asking you to be in this study?
You are being asked to be in this research study because your class at Springfield Middle School was selected to participate.

If you agree, what will happen?
If you are in this study you will complete the Children's Perceived Academic Self-Efficacy subscales from The Morgan-Jinks Student Efficacy Scale. The scale is a list of statements, which you will rate from numbers one through four depending upon your agreement.

Do you have to be in this study?
No, you do not have to be in this study. If you want to be in this study, then tell the researcher. If you don't want to, it's OK to say no. The researcher will not be angry. You can say yes now and change your mind later. It's up to you. Whichever choice you make, your grades will not be hurt or helped.

Do you have any questions?
You can ask questions any time. You can ask now. You can ask later. You can talk to the researcher. If you do not understand something, please ask the researcher to explain it to you again.

Signing your name below means that you want to be in the study.

_____ _____
Signature of Child Date

Emily Taylor (etaylor52@liberty.edu)
Dr. Michelle Goodwin (mbgoodwin@liberty.edu)
Liberty University Institutional Review Board,
1971 University Blvd, Suite 1837, Lynchburg, VA 24515

or email at irb@liberty.edu.

APPENDIX D

PARENTAL CONSENT FORM

CONSENT FORM
Children's Academic Self-Efficacy
Emily Taylor
Liberty University
Honors Program

Your child is invited to be in a research study determining academic self-efficacy levels of students. Your child was selected as a possible participant because he or she is enrolled in a participating homeroom at Springfield Middle School. The homeroom was chosen by school administration. I ask that you read this form and ask any questions you may have before agreeing for your child to be in the study.

This study is being conducted by Emily Taylor, a student in the Honors Program at Liberty University.

Background Information:

The purpose of this study is to examine levels of academic self-efficacy among middle school students. The level of belief in their capabilities to complete schoolwork will be asked through a series of questions.

Procedures:

If you agree to allow your child to be in this study, I would ask your child to do the following things:
Your child will be given a Children's Perceived Academic Self-Efficacy subscale from The Morgan-Jinks Student Efficacy Scale, which lists statements regarding their belief in the ability to complete and excel in tasks at school. Your child will circle a number one through four, which will document if they agree or disagree with the statement. For example, a statement may be "I am a good student." Then your child will circle the number one if he or she really agrees, the number two if he or she kind of agrees, the number three if he or she kind of disagrees, or the number four if he or she really disagrees. Completion of the scale should require less than fifteen minutes.

Risks and Benefits of being in the Study:

Your child will encounter no more than minimal risks associated with everyday life.

Participating in the study would benefit society. A possible benefit of participation is awareness of self-efficacy levels among students in Springfield Middle School. The information could positively impact how educators teach their students. There are no direct benefits to the student participants.

Compensation:

Your child will not be compensated.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records. Students will read The Children's Perceived Academic Self-Efficacy subscales from The Morgan-Jinks Student Efficacy Scale, which will be given a code allowing the study to be anonymous. The school administration will have a master list of the students' names, which will each have a code. The students' names will not be associated with the scale. The researcher will not know the names of participants. Upon completion, the researcher will store the scales in a lockbox. After three years, the scales will be destroyed.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to allow your child to participate will not affect his or her current or future relations with Liberty University and Springfield Middle School. If you decide to allow your child to participate, he or she is free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Emily Taylor. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at etaylor52@liberty.edu. Her advisor is Dr. Michelle Goodwin who may also be contacted at mbgoodwin@liberty.edu or 434-582-2265.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24515 or email at irb@liberty.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to allow my child to participate in the study.

Signature of parent or guardian: _____ Date: _____
(If minors are involved)

Signature of Investigator:_____ Date: _____

IRB Code Numbers: 1848 **IRB Expiration Date:** 4/23/15

APPENDIX E

IRB APPROVAL

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

April 23, 2014

Emily Taylor
IRB Approval 1848.042314: Students' Academic Self-Efficacy

Dear Emily,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Please retain this letter for your records. Also, if you are conducting research as part of the requirements for a master's thesis or doctoral dissertation, this approval letter should be included as an appendix to your completed thesis or dissertation.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

Fernando Garzon, Psy.D.
Professor, IRB Chair
Counseling

(434) 592-4054

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