

CAUSAL-COMPARATIVE STUDY: DIFFERENCES IN ACADEMIC ACHIEVEMENT BY
LEVELS OF SOCIAL-EMOTIONAL SKILLS IN GRADE FIVE STUDENTS

by

David Frederick Salvatelli, Sr.

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University

2019

CAUSAL-COMPARATIVE STUDY: DIFFERENCES IN ACADEMIC ACHIEVEMENT BY
LEVELS OF SOCIAL-EMOTIONAL SKILLS IN GRADE FIVE STUDENTS

by David Frederick Salvatelli, Sr.

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University, Lynchburg, VA

2019

APPROVED BY:

Gary Kuhne, Ph.D., Committee Chair

Meredith Park, Ed.D., Committee Member

Jason Rachels, Ed.D., Committee Member

ABSTRACT

Students' social-emotional skills contribute to academic achievement and life success. This causal-comparative study examined differences in mathematics and English Language Arts (ELA) achievement test scores among grade five students by their levels of proficiency (low, moderate, or high) in particular social and emotional skills, namely, academic self-efficacy, persistence, self-control, mastery orientation, and social competence. Participants were 115 grade five students from Title I schools in a metropolitan school district in south Florida. Each social and emotional skill was assessed using the Child Trends Social and Emotional Skills Survey battery. Multivariate Analysis of Variance, Analysis of Variance, and post hoc tests were used to test null hypotheses that there were no statistically significant differences in Florida Standards Assessment mathematics and ELA achievement test scores among participants by their levels of proficiency in the social-emotional skills examined in the study. Statistically significant differences in math scores were found among participants from moderate to high levels of persistence, from moderate to high levels of academic self-efficacy, and from moderate to high levels of self-control. Statistically significant differences in ELA scores were found among participants from moderate to high levels of persistence, from moderate to high levels of social competence, from moderate to high levels of self-control, from moderate to high levels of academic self-efficacy, and from moderate to high levels of persistence combined with moderate to high levels of self-control. Recommendations for future research are presented.

Keywords: Emotional competence, emotional intelligence, Florida Standards Assessment, Social and Emotional Learning (SEL), social-emotional competence

Copyright Page

Dedication

Always

This work is dedicated to three special people and the Lord Jesus Christ. There is no doubt that without the first three I would not be on the cusp of completing these doctoral studies. My father, Geno Salvatelli, was a career educator, the youngest of seven siblings born to Italian immigrants and the only to graduate college. Pop graduated from Clark University in Worcester, Massachusetts by virtue of “the G.I. bill” that funded education for returning World War II veterans (Research Starters, 2019). He served his entire educational career in a single building (May A. Gallagher Jr. High School, Leominster, MA) beginning in the 1960’s through the 1980’s where he served first as a substitute teacher, then a teacher, and ultimately as principal. He was the first person of Italian-American descent to break into leadership in the city’s K-12 schools; many (including relatives) followed that lead. Geno Salvatelli modeled for his five sons over the long haul the truly good work of serving others through education. He taught me the value of education as a platform for serving the community, providing for one’s family, and transforming lives. He also taught me the value of standing up for what’s right and that sometimes you have to “go to the wall” for the things you believe in. He was an uncompromising model of integrity and others centeredness every day that I knew him. My father passed away in 2011. My close friend and biggest mentor, I look forward in faith and with anticipation our reunion one day.

Mary Jean (Muldoon) Salvatelli grew up during the Great Depression along with her two brothers; daughter to a single mom. She beams with thankfulness that she never worried about having a roof over her head and food on the table. Her sense of security derived mostly because of her family in which love was always in great supply. My dear, sweet Irish American mother, now 91 years young, did- and continues to do- more than anyone to establish in me a sense that I

could succeed at whatever I put my hand to. (In this study, that abiding confidence is referred to as strong sense of self-efficacy [Bandura, 1994].)

I cannot imagine completing these doctoral studies- and emerging with love intact- without a wife who was loving, empathetic, patient, and willing to share me with these always-proximate and ever-beckoning studies over the past nine years. Liliana has stuck it out and I really needed that. I thank God for her and look forward to discovering a new, sans doctoral studies season just ahead.

Last in sequence and first in position, I dedicate this work with praise to the Lord Jesus Christ who has blessed me with faith to believe, grace to sustain, and favor at the crossroads. “And surely I am with you always, to the very end of the age” (Matthew 28:20, New International Version). Always.

Be Thou My Vision (Forgaill, 1912)

Be Thou My Vision, O lord of my heart;
Nought be all else to me, save that Thou Art;
Thou my best thought, in the day and the night,
Waking or sleeping, Thy presence my light.

Be Thou my wisdom, be Thou my true word;
I ever with Thee, and Thou with me Lord;
Thou my Great Father, and I Thy true son;
Thou in me dwelling and I with Thee one.

Be Thou my breast-plate, my sword for the fight;
Be Thou my armour, and be Thou my might.
Thou my soul's shelter, and Thou my high tower;

Raise Thou me Heavenward, O power of my power.

Riches I heed not, nor man's empty praise,
Thou mine inheritance, through all my days:

Thou and Thou only, the first in my heart,
High King of Heaven, my treasure Thou art.

High King of Heaven when the battle is done,
Grant Heaven's joy to me, bright heaven's sun!

Christ of my own heart, whatever befall,
Still be thou my vision, O Ruler of all.

Table of Contents

ABSTRACT.....	3
Copyright Page.....	4
Dedication.....	5
List of Tables	11
List of Figures	12
CHAPTER ONE: INTRODUCTION.....	13
Overview.....	13
Background.....	14
Problem Statement.....	18
Purpose Statement.....	19
Significance of the Study	19
Research Questions.....	21
Definitions.....	23
CHAPTER TWO: LITERATURE REVIEW.....	25
Overview.....	25
Theoretical Framework.....	25
Related Literature.....	40
Summary.....	61

CHAPTER THREE: METHODS	65
Overview	65
Design	65
Research Questions	67
Hypotheses	68
Participants and Setting	70
Instrumentation	72
Procedures	79
Data Analysis	81
CHAPTER FOUR: FINDINGS	84
Overview	84
Research Questions	84
Hypotheses	86
Descriptive Statistics	87
Results	90
Hypotheses	105
CHAPTER FIVE: CONCLUSIONS	113
Overview	113
Discussion	113
Implications	122

Limitations	127
Recommendations for Future Research	132
REFERENCES	134
APPENDIX A: School District Authorization	152
APPENDIX B: Principal’s Consent.....	154
APPENDIX C: Teacher’s Consent	157
APPENDIX D: Parent Consent	162
APPENDIX E: Student Assent	167
APPENDIX F: Permission to Use Child Trends Social and Emotional Skills Surveys Battery	169
APPENDIX G: IRB Approval	171
APPENDIX H: Data Set: Outliers Removed	173
APPENDIX I: 192 Participants (Includes Dissimilar Student – Teacher Ratings)	185

List of Tables

Table 1	FSA Reliability Coefficients	75
Table 2	FSA Goodness-of-Fit Second-Order Confirmatory Factor Analyses	77
Table 3	Means, Standard Deviations, Sample Sizes	89
Table 4	MANOVA Tests of Normality	91
Table 5	ANOVA Tests of Normality	104
Table 6	Tests of Between-Subjects Effects	106
Table 7	Multiple Comparisons: Tukey HSD: Academic Self-Efficacy and Math	108
Table 8	Multiple Comparisons: Tukey HSD: Self-Control and Math	108
Table 9	Multiple Comparisons: Tukey HSD: Self-Control and ELA	110
Table 10	Multiple Comparisons: Tukey HSD: Academic Self-Efficacy and ELA	111
Table 11	Means and Standard Deviations	177
Table 12	Sample Sizes.	179
Table 13	Means, Standard Deviations, Sample Sizes	183
Table 14	Robust Tests of Equality of Means	187

List of Figures

Figure 1.	ANOVA Boxplot Persistence ELA	93
Figure 2.	ANOVA Boxplot Persistence Math	94
Figure 3.	ANOVA Boxplot Self-Control ELA	94
Figure 4.	ANOVA Boxplot Self-Control Math	95
Figure 5.	ANOVA Boxplot Academic Self-Efficiency ELA	95
Figure 6.	ANOVA Boxplot Academic Self-Efficiency Math	96
Figure 7.	ANOVA Boxplot Social Competence ELA	96
Figure 8.	ANOVA Boxplot Social Competence Math	97
Figure 9.	ANOVA Boxplot Mastery Orientation ELA	97
Figure 10.	ANOVA Boxplot Mastery Orientation Math	98

CHAPTER ONE: INTRODUCTION

Overview

Eradicating the achievement gap once and for all is overdue. Academic achievement in the U.S. among Hispanic and African American students from low-income backgrounds continues to trail more affluent, Caucasian peers (DeNavas-Walt & Proctor, 2015; Griner & Stewart, 2013) as has been the case for more than 50 years (Coleman et al., 1966). In the United States, students' academic achievement continues to trail that of other nations ("PISA 2015 Results in Focus", 2018). Lack of school success ultimately poses a threat to the long-term prosperity of the United States (Jain, 2016), as well as posing obstacles to the individual success and wellbeing of millions of citizens.

Research suggests that social-emotional competence increases student achievement and contributes to long-term positive life outcomes (Melnick, Cook-Harvey, & Darling-Hammond, 2017; Durlak, Dymnicki, Taylor, Weissberg, & Schellinger, 2011; Elias & Haynes, 2008). Research also suggests that these positive impacts extend to minority groups (Jones & Doolittle, 2017; Taylor, Oberle, Durlak, & Weissberg, 2017; Elias & Haynes, 2008). Thus, additional research is needed to better understand the association of social-emotional competence and academic achievement for all students and particularly among minority culture students from low-income backgrounds, so that the potential of social-emotional competence to positively impact learning is realized (Taylor et al., 2017; Elias & Haynes, 2008). In Chapter One, the background of social-emotional competence is reviewed. The problem, purpose, research questions, significance of the study, and definitions associated with social-emotional competence are presented.

Background

Social-emotional competence is a critical component of children's success and well-being in school and beyond (Durlak, Domitrovich, Weissberg, & Gullota, 2017; Melnick et al., 2017; Scarupa, 2014, Duckworth & Seligman, 2005). Benefits associated with social-emotional competence include qualities associated with academic success. Social-emotional competence is comprised of skills that yield personal emotional regulation capability and positive social interactions ("What is SEL?", 2017; Scarupa, 2014; Griggs, Rimm-Kaufman, Merritt, & Patton, 2013; Marchesi & Cook, 2012). Personal emotional regulation capability contributes to resilience by which individuals may respond effectively to stressors characteristic of school, work, and life ("What is SEL?", 2017; Scarupa, 2014; Griggs et al., 2013; Buckley, Storino, & Saarni, 2003). Research indicates that skills comprising social-emotional competence can be taught and learned in school (Devaney, 2015; Scarupa, 2014; Durlak et al., 2011). In the following sections, historical context and terms associated with social-emotional competence are presented. Theoretical foundations and conceptual frameworks associated with social-emotional competence and its relevance for positive outcomes in school and beyond are described.

Historical Context

Social-emotional competence as a field of research and practice is still young. One attribute of the current early conceptualization of social-emotional competence is its present lack of universally agreed upon terminology (McKown, 2017; Buckley et al., 2003). Terms including social-emotional competence, social-emotional learning, social-emotional skills, Social and Emotional Learning (SEL), emotional development, emotional intelligence, and others overlap conceptually and are commonly utilized interchangeably (McKown, 2017; Devaney, 2015; Elias & Haney, 2008). Similar lack of universal agreement in the young field is observed in the numerous related but distinct lists of emotions and skills comprising social-emotional

competence (“What is SEL?”, 2017; Devaney, 2015; Scarupa, 2014; Durlak et al., 2011; Elias & Haney, 2008; Buckley et al., 2003). McKown (2017) and Devaney (2015) cite a present lack of unified definition concerning social-emotional phenomena among researchers and practitioners. While conceptual overlap is common, distinctions among terms associated with social-emotional competence do exist. Emotional intelligence is a term associated with the work of John Mayer and his colleagues in the 1990s that refers to the abilities of individuals to successfully navigate social interactions (Mayer, Salovey, & Caruso, 2000; Mayer & Salovey, 1997). Emotional competence encompasses these abilities and focuses on the meaning individuals ascribe to social interactions.

For Saarni (1999), social-emotional competence derives from the meaning ascribed to social encounters that prompts emotion and subsequent emotional response. Emotional responses are as variable as the individual social histories and cognitive make-ups that prompt emotional responses (Saarni, 1999). Social histories, commencing in early childhood, are the results of individuals’ upbringing, the gender roles they occupy, and the meanings their cultures project onto social interactions. Because individuals’ social histories feature layers of complexity, emotional development reflects this complexity in the layered meanings individuals ascribe to their social interactions. As such, the term emotional competence is broader than the more narrowly conceived term emotional intelligence (Buckley et al., 2003). Since emotional competence cannot be conceived outside of the social contexts in which it functions and develops (Saarni, 1999), the term social-emotional competence is used interchangeably with the term emotional competence.

Social Context

Over the last two decades, research has demonstrated the positive impacts of social-emotional competence on children both inside and outside of school (Greenberg, Domitrovich, Weissberg, Durlak, 2017; Taylor, Oberle, Durlak, & Weissberg, 2017; Heckman & Kautz, 2012). Durlak et al. (2011) found that, as children gain social and emotional skills, they learn to respond less toward immediate external stressors and more toward internalized values (e.g., responsible decision-making, goal-orientation, self-efficacy, self-control, concern for others). The effects of increased social and emotional skills include increased academic achievement. These skills tend to be retained over time and are applied in novel contexts outside of school (Jones, Greenberg, & Crowley, 2015; Elias & Haynes, 2008).

Marchesi and Cook (2012) cite the association of social-emotional competence and learning as a promising field of study. For many reasons, social-emotional competence is particularly important for minority culture students from low-income backgrounds (Aber et al., 2015; Elias & Haynes, 2008). First, as previously cited, academic achievement of Hispanic and African American students from low-income backgrounds trails that of Caucasian students from higher-income backgrounds (DeNavas-Walt & Proctor, 2015; Griner & Stewart, 2013), and social-emotional competence has been found to be lower among Hispanic and African-American children from low-income backgrounds (Davis, Solberg, de Baca, & Gore, 2014; Evans & Kim, 2013; Elias & Haney, 2008). Gregory et al. (2016) commented that the critical thinking and inquiry-based problem-solving commonly a part of SEL lessons and activities are not as prevalent in the instruction low SES, minority culture students when compared to the instruction of higher SES, majority culture students. Instruction featuring increased critical thinking, according to Gregory et al. (2016), may be helpful in reducing the achievement gap associated with low SES, minority culture students. Additionally, research indicates that social-emotional

skills are teachable in school (Schonert-Reichl, 2017; Davis et al., 2014; Marchesi & Cook, 2012) among both disadvantaged and advantaged populations (Elias & Haney, 2008). Thus, while findings concerning the contribution of social-emotional competence to learning are important for all students, they are especially relevant for Hispanic and African-American students from low-income backgrounds (Taylor et al., 2017; Aber et al., 2015; Elias & Haynes, 2008).

Theoretical Context

Social-emotional competence has its roots in social cognitive theory. This theoretical framework posits that cognitive learning occurs in the context of people interacting with their environments and one another (Bandura, 1986). The conceptual framework of Carolyn Saarni (1999) is founded on social cognitive theory and proceeds to erect a conceptual framework that combines relational, functionalist, and social constructivist models of emotional development. The relational model, also rooted in social cognitive theory, holds that human interactions play out within constraints of individuals' motivations (i.e., the goals they seek) (Lazarus, 1991). Emotions are what individuals feel as they perceive themselves moving closer to or farther from their goals. The relational model delineates 15 distinct emotions (Lazarus, 1991). This model also holds that, as individuals successfully navigate human interactions (i.e., they get what they want), they make gains in perceived self-efficacy (i.e., confidence in their ability to succeed) (Bandura, 1986). The functionalist model similarly emphasizes the importance of what individuals derive or acquire from human interactions, but it is not associated with any list of emotions. It also gives greater weight to the influence of messages of approval or disapproval that individuals internalize from social interactions (Saarni, 1999). Whereas social cognitive theory conceptualizes the influence of social interaction upon (internal) cognitive development, social-constructivism emphasizes more exclusively the role of (external) social environment over

internal processing (Lewis & Michalson, 1983). Rather than viewing these models as mutually exclusive, Saarni (1999) considers them more as streams flowing together as a great river which comprises human emotional development.

Social-emotional competence is grounded in established theories and conceptual frameworks associated with developmental psychology. Upon a developmental psychology foundation, the concept of social-emotional competence proceeds into research terrain with promise for informing educational policy and improving curricular programming and instructional practice. Through curricular programming and instructional practice that includes social and emotional learning, there is promise for increasing student success.

Problem Statement

Academic achievement in U.S. K-12 schools trails other countries (“PISA 2015 Results in Focus”, 2018). The achievement of African American and Hispanic students from low-income backgrounds lags even more (DeNavas-Walt & Proctor, 2015). Dusenbury et al. (2015) present social-emotional competence as a foundation for all learning. Others have found that social-emotional competence contributes specifically to academic achievement (Jones & Doolittle, 2017; Durlak et al., 2011; Elias & Haney, 2008).

Social-emotional competence has been shown to be teachable in schools for equally positive effects across diverse populations (Jones & Doolittle, 2017; Taylor et al., 2017). As such, teaching social-emotional competence in schools holds significant promise for optimizing learning among all students. Cultivating social-emotional competence in students is especially promising for increasing achievement and success in schools among low-income families which have been characterized by less socioeconomic mobility than families from higher socioeconomic levels (Aber et al., 2015). Increasing students’ social-emotional competence is a promising strategy for reducing the achievement gap (Taylor et al., 2017). The problem is that,

despite promising research demonstrating the positive impact of social-emotional competence on important school outcomes from kindergarten through high school (Taylor et al., 2017; Brackett, Rivers, Reyes, & Salovey, 2012), policy and practice supporting the instruction of students' social-emotional competence is not yet the norm in K-12 schools (Dusenbury et al., 2015; Elias, 2008).

Purpose Statement

The purpose of this causal-comparison study was to provide evidence concerning the impact of social-emotional skills on academic achievement. The study identified differences in Florida Standards Assessment mathematics achievement (i.e., Math) scores and English Language Arts achievement (i.e., ELA) scores by social-emotional skills in a sample of Miami-Dade County and Broward County public school grade five students. The independent variables were social-emotional skills levels on the Child Trends Social and Emotional Skills Survey battery (Scarupa, 2014). The social-emotional skills examined in the study were sense of Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence. The dependent variables were comprised of participants' math and ELA achievement test scores on the Florida Standards Assessment (i.e., ELA scores), the annual high stakes test taken by all public schools K-12 students in Florida (Understanding Florida Assessment Reports, 2017).

Significance of the Study

The study identified differences in mathematics achievement test scores and ELA achievement test scores by particular social-emotional skills among grade five students from Title I schools. Findings from these multivariate analyses of variance indicate that social-emotional skills comprise a possible causal relationship to academic achievement (Taylor et al., 2017; Scarupa, 2014; Durlak et al., 2011; Marchesi & Cook, 2012; Elias & Haynes, 2008; Buckley et al., 2003). Findings from the study also address the lack of consensus in the field

concerning the specific social-emotional skills to be focused upon in further research of social and emotional learning in school contexts (Devaney, 2015). The study aspired to address the lack of academic consensus around which skills should be targeted. The study generated non-experimental, empirical data that found statistically significant relationships of academic self-efficacy, self-control, persistence, and social competence and increased academic achievement.

The study contributes to the academic literature by generating empirical evidence in a promising, yet immature field of study (Taylor et al., 2017; Scarupa, 2014; Griggs et al., 2013; Brackett, Rivers, Reyes, & Salovey, 2012; Buckley et al., 2003). The study contributes to social-emotional competence-related theoretical frameworks by addressing a need for research on the connection of social-emotional competence to educational achievement (Taylor et al., 2017; Buckley et al., 2003). Since the study's participants attend schools with high incidences of Hispanic and African-American students from lower income families, findings indicate that developing social-emotional skills in the population is a promising strategy for reducing the achievement gap as found by Jones and Doolittle (2017), Taylor et al., (2017), Scarupa (2014), Griner and Stewart (2013), Durlak et al., (2011), and Elias and Haynes (2008).

The study utilized a recently developed instrument that teachers and other educational practitioners may use to assess students' social-emotional skills levels. As such, the study contributes to establishing the usefulness of the instrument by practitioners in educational contexts, an aim cited by its developers (Scarupa, 2014). Finally, findings may also induce teachers, education leaders and policymakers to include Social and Emotional Learning (SEL) curricula and strategies in budgetary, instructional, and programmatic planning, an aim identified by Jones and Doolittle (2017), Taylor et al., (2017), Devaney (2015), Scarupa (2014), Marchesi and Cook (2012), Durlak et al., (2011), and Elias and Haynes (2008).

Research Questions

RQ1: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ2: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ3: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ4: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ5: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ6: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

RQ7: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ8: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ9: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ10: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ11: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ12: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

Teaching social-emotional competence in K-12 schools is a promising strategy for increasing academic achievement for all students and for reducing the achievement gap among African American and Hispanic students. The term social-emotional competence denotes skills associated with emotional regulation that are exhibited in social contexts. Social cognitive theory, in which the concept social-emotional competence has its roots, holds that both cognitive and emotional development occur in the context of interpersonal interaction. In addition to increased academic achievement, positive outcomes of social-emotional competence include greater engagement with and positive attitudes concerning school. Positive outcomes associated

with social-emotional competence are retained over time and have been found to contribute to adult wellbeing. The study examined the relationship of particular social-emotional skills to high stakes test scores in ELA and mathematics among grade five students. The study brings into sharper focus the skills future research should focus upon and contributes to social-emotional learning occupying a greater role in K-12 curricula and instructional practice. Chapter Two provides core concepts comprising the theoretical framework for the social-emotional competence conceptual framework along with related literature.

Definitions

1. *Emotional competence* - see “social-emotional competence” below; terms used interchangeably (Saarni, 1999).
2. *Emotional intelligence* - Emotional skills and abilities for navigating social interactions; much overlap with emotional competence except that it is a narrow conception of the abilities and skills without considering the cultural and social history of the individual (Buckley et al., 2003; Saarni, 1999).
3. *Florida Standards Assessment (FSA)* - Annual achievement test for Florida’s K-12 public schools; scores on the FSA are used in determining each public school’s annual grade (i.e., rating), and are an assessment of the achievement level of what students need to know, understand, and be able to do at each grade level (kindergarten through grade 12) in Florida’s public schools (Frequently Asked Questions, 2017).
4. *Social and Emotional Learning (SEL)* - Specific programs and strategies of the Collaborative for Academic, Social, and Emotional Learning (CASEL) for teaching their list of social and emotional competencies: self-awareness, self-management, social awareness, responsible decision making, and relationship skills (Devaney, 2015).

5. *Social-emotional competence* - The social and emotional skills needed to succeed despite environmental stressors; associated with discerning others' emotional states during social interactions, and situation-specific modulation of one's emotions in service to pursuing one's goals; takes into account the culture and social history in which the social-emotional competence develops and is exhibited (Buckley et al., 2003); the term acknowledges that emotional competence cannot be separated from the social context where emotional competence manifests and develops (Buckley et al., 2003; Saarni, 1999).

CHAPTER TWO: LITERATURE REVIEW

Overview

Social cognitive theory holds that people learn from one another as they interact in social contexts (Bandura, 1986). Situated within social cognitive theory is the emotional competence conceptual framework developed by Saarni (1999). Social cognitive theory and the emotional competence framework, respectively, comprise the theoretical and conceptual frameworks for this study. Chapter Two will address major principles associated with social cognitive theory, namely, human agency and its role in what Bandura terms triadic reciprocal causation, and the important role that sense of self-efficacy plays in the development of the subject of the study: social-emotional competence. Bandura's conception of social cognitive theory, the forms that self-efficacy assumes, and the effects that sense of self-efficacy exerts on human motivation and goal-setting will be addressed, as will the critical roles that family and peers play in the development of individuals' senses of self-efficacy. Next, the concepts of social-emotional competence and skills associated with social-emotional learning (i.e., the skills which constitute social-emotional competence) will be presented. Finally, research indicating the association of social-emotional competence with positive outcomes including increases in academic achievement and emotional wellbeing will be reviewed.

Theoretical Framework

Social Cognitive Theory

Social cognitive theory holds that individuals are more than direct products of environmental stimuli. Rather, environment is processed cognitively through a self-system through which the environment is interpreted (Bandura, 1986). As such, social cognitive theory presents humans as agents in their own environment and in the environments of others. It is this

interplay of environment, others, and self that contributes to what may be termed personality (Bandura, 2006).

Human agency is fundamental to achievement. Over time, as humans interact with each other and upon their environments, their cognitive and social development ensues in a rich and varied manner that is reflective of the range of cognitive, social, and environmental factors extant among individuals and groups. Due to this process of human agency, individuals and groups respond with competence- or lack thereof- to encounter the environmental adversities and potentialities characteristic of human experience (Bandura, 2006). According to social cognitive theory, human agency enables humans to envision a future that can grow out of their present, and engage in acts like prediction, evaluation, and self-regulation to bring about those futures. In “SEL in Elementary Classrooms-Mechanisms That Matter”, Rimm-Kaufman and Hulleman (2015) characterize self-regulation (i.e., the capability to cognitively manage emotions in alignment with desired situational outcomes) as one Social and Emotional Learning (SEL) skill.

Human agency requires intentionality. Intentionality connotes devising strategies and plans to bring about desired outcomes. Self-regulation occurs once a plan is commenced. Self-reactiveness represents constraining one’s actions toward desired outcomes and avoiding actions the individual deems would likely reduce the achievement of desired outcomes. Human agency also requires self-reflectiveness. Self-reflectiveness is the human capacity to reflect upon one’s own thoughts, the soundness of ideas, and the results of actions to make course corrections toward accomplishing desired outcomes (Bandura, 2006).

The study views social-emotional competence as a critical capability of human agency. Developing the agentic capability of social-emotional competence is shown in research to be associated with achievement, wellbeing, and success in children, youth, and adults (Jones & Doolittle, 2017; Taylor et al., 2017; Scarupa, 2014; Marchesi & Cook, 2012). The implication

is that intentionally developing students' social-emotional competence will prepare them for success.

Social cognitive theory presents three factors comprising behavior: the person (P), the environment (E), and the behavior (B). These factors are fluid, that is, as each of the three factors interplay, the state of each factor may change. The evolving interplay of P, E, and B is what Bandura (1999) terms triadic reciprocal causation. A hypothetical example will portray the critical implications that the construct of triadic reciprocal causation holds relative to acquisition of social-emotional competence. The persons (Ps) in the hypothetical example are two general education elementary grade five students, Student A and Student B. Student A and B have the same cognitive ability, but Student A possesses a high level of social-emotional competence, while Student B possesses a low level of social-emotional competence. The environment (E) for Student A and Student B is the fifth-grade students' classroom just prior to the start of the annual English Language Arts (ELA) high stakes achievement test. The desired behavior (B) (at least on the part of the teachers, students' parents, school principal, district administrators, and other key stakeholders in the school) for both Student A and B is that their academic performance is optimal, that is, commensurate with their cognitive ability. The problem, however, lies in the fact that, emanating from differences in social-emotional competence, while Student A is highly motivated to do well on the test, Student B is not motivated to do well on the test. The specific social-emotional skills that distinguish academically motivated, successful students like Student A from unmotivated, unsuccessful students like Student B constitutes the theme of the study.

Regarding each of the five social-emotional skills addressed in the study, low social-emotional competence may manifest as follows. First, Student B may not deliver optimal academic performance because of a weak sense of academic self-efficacy, that is, she does not believe she can do well on the test, so she does not put forth her best effort. Or Student B's low

social-emotional competence may manifest as a lack of persistence, so after a strong start on the test, Student B's focus fades, especially upon hitting the first challenging test items. Another way Student B's low social-emotional competence may manifest is in a general disposition of not valuing learning as a worthwhile activity in which to invest. In this study, not valuing learning as worthwhile is termed lack of learning mastery orientation (Scarupa, 2014). Finally, Student B may still be seething from the argument she had with Student A on the way into school rather than focusing on the test at hand, reflecting Student B's lack of sufficient social competence and self-control to keep the argument from sabotaging her performance on the high stakes test.

In contrast, Student A, of the same cognitive ability as Student B but possessing a high level of social-emotional competence, engages the same high stakes ELA test in a markedly different manner. Even though Student A also engaged in the argument with Student B on her way to line up to start the school day, Student A understands that this test represents an important opportunity to perform and succeed, and she is confident in her own ability to do well (academic self-efficacy), so she puts the unresolved conflict aside for the time being. Furthermore, Student A knows that all relationships have their ups and downs, so while she cares about the argument she had with Student B, she understands that sometimes conflict resolution requires patience and good communication, so she applies her social competence and self-control skills to ensure the argument does not ruin such an important school day. Student A applies her learning mastery orientation that is the result of her understanding that this test is her opportunity to demonstrate the hard work she invested all year long toward mastering grade five ELA. When Student A hits challenging test items, she slows down, re-reads the item, and looks back in the text of the selection to make her best educated guess. If she still cannot make up her mind, she determines to circle back to the item once she is finished with the remaining test items, thus demonstrating

integration of academic self-efficacy, self-control, mastery learning orientation, and persistence skills.

Each of these hypothetical inner psychic mindsets residing in the persons (Ps) of Bandura's triadic reciprocal causation illustrates a skill or skills (in the person of Student A), or lack of a skill or skills (in the person of Student B) associated with social-emotional competence. Lack of one or more social-emotional skills may render academic performance below one's cognitive ability. Competence in the social-emotional skills may render academic performance that maximizes cognitive ability.

This hypothetical example depicts the fluidity of the person (P) (i.e., the individual as agentic entity) in interplay with the environment (E). The resultant behaviors (Bs) are manifested in level of academic performance on a high stakes test. The direct implication of the importance of social-emotional competence in education is that, if students are equipped with social and emotional skills, they will be better equipped to interplay with challenging environments and then to muster the behaviors necessary to accomplish challenging goals.

Another aspect of social cognitive theory Bandura (1999) presents that has implications for social-emotional competence is the consequential nature of personal factors that operate in social contexts. Different persons will respond differently to environmental conditions based upon personal factors including upbringing, culture, and experience. These personal factors are dynamic in nature and may confound productive agentic functioning. Intentionally cultivating students' social-emotional competence may provide them means to overcome limiting personal factors that may threaten their achievement, success, and wellbeing in both short and longer terms. The capacity of social-emotional skills to overcome limiting personal factors that threaten success may be consequential especially for socioeconomically less advantaged populations of students.

Self-Efficacy. Bandura presents the concept of self-efficacy as playing a predominant role in social cognitive theory (1994). Self-efficacy, and, as extended to educational contexts, academic self-efficacy, is a core component of social-emotional competence (Scarupa, 2014). Bandura (1994) presents that self-efficacy, or individuals' beliefs about their own capacity to succeed, plays an important role in influencing individuals' motivation, cognition, emotions, and selected courses of action in the face of encountered environmental conditions. A strong sense of self-efficacy renders dispositions critical to achievement, success, and wellbeing. Individuals with strong senses of self-efficacy have confidence in their ability to engage challenging tasks. They commit to challenging tasks and endeavors and persist in accomplishing them. Such dispositions rooted in strong senses of self-efficacy result in more frequent goal accomplishment, and the corresponding success and fulfillment that accompanies goal accomplishment (Bandura, 1994). The implication is that individuals who possess strong senses of self-efficacy possess an advantage over those with weaker senses of self-efficacy. The impact of sense of self-efficacy is key in understanding the affective challenges faced by individuals and groups who find themselves marginalized by society.

Current research nests SEL within social cognitive theory. In "The Case for Preschool through High School State Learning Standards for SEL", Dusenbury et al. (2015) cites the Head Start Child Development and Early Learning Framework's social and emotional competencies, including self-efficacy, as being aligned with the Collaborative of Academic, Social, and Emotional Learning's (CASEL's) "slightly more detailed" (2015, p. 533) SEL framework.

Bandura presents that strong senses of self-efficacy emanate from specific sources. The most impactful mechanism for developing strong sense of self-efficacy is mastery experience (Bandura, 1994). A mastery experience is one in which the individual has set a goal and seen it through to completion (Bandura, 1999). Success breeds success in terms of developing a strong

sense of self-efficacy. As one experiences mastery, one naturally gains confidence in one's capability to achieve goals. The level of challenge in a mastery experience also impacts the experience's potential to contribute to sense of self-efficacy. Goal accomplishment must be challenging enough so the individual must persist, but not so challenging that the individual gives up due to frustration. To borrow a developmental psychology concept from Vygotsky, in this aspect, the challenge level needs to be within the individual's zone of proximal development (1987). For application in school contexts, the individuals' teacher is postured to provide appropriate-level challenges for students, along with scaffolding necessary to support students' successful accomplishment of goals embedded in such experiences. Over time, and with the accumulation of mastery experiences, students can develop and sustain strong senses of self-efficacy.

Whereas mastery experiences positively contribute to a sense of self-efficacy that extends beyond the individual's immediate context into subsequent, novel contexts, Bandura also presents that failure experiences exert a corresponding deleterious impact on individuals' sense of self-efficacy (1994). A negative sense of self-efficacy born out of failure experiences, like positive sense of self-efficacy, extends to subsequent, novel contexts. As mastery experiences comprise the prime material for development of positive sense of self-efficacy and its corresponding advantages, failure experiences comprise the prime material of negative sense of self-efficacy and its corresponding disadvantages. A negative sense of self-efficacy may manifest as lack of confidence in ability to achieve goals, and in a generalized avoidance of challenging situations.

The positive effects of mastery experiences cast in clear terms the opportunity that teaching self-efficacy provides educators to empower students. The negative effects of failure experiences cast in equally clear terms the existential threat that neglecting to safeguard students

from failure experiences presents. The harmful effects of failure experiences may be mitigated via appropriate leveling and scaffolding of student experiences.

The second manner Bandura identifies that sense of self-efficacy develops in individuals, either positively or negatively, occurs as individuals observe a sense of self-efficacy in others with whom they identify (1994). If models with whom the individual identifies have strong or weak senses of self-efficacy, then the individual's sense of self-efficacy tends to develop similarly. The implication for students and society is that students from advantaged socioeconomic backgrounds are more likely to live and move among models with positive sense of self-efficacy than students from disadvantaged socioeconomic backgrounds. As such, students from advantaged socioeconomic backgrounds are more likely to set, persist in accomplishing, and accomplish more and higher goals than students from disadvantaged socioeconomic backgrounds. This dynamic may contribute to the scale of challenge inherent in empowering students from low-income backgrounds to transcend the poverty that often has been pervasively modeled for them by significant others in their lives.

Bandura cites social persuasion as another source of cultivating a sense of self-efficacy (1994). Encouraging an individual concerning his or her capability to achieve a goal may contribute to a positive sense of self-efficacy. However, for encouragement to accomplish a positive contribution to sense of self-efficacy, it must be accompanied by success. Bandura presents that lack of success following encouragement quickly dispels an individual's gains in positive self-efficacy. Messages of discouragement about an individual's capability to be successful have particularly noxious effects upon sense of self-efficacy. In Bandura's theoretical framework, discouraging messages have the power to extinguish an individual's readiness to take the risk necessary to even attempt goal accomplishment (1994). Educators should take care to safeguard students from the emotional harm caused by both explicit and implicit messages of

doubt concerning students' capabilities to achieve and be successful. This is another example of the significance of cultivating students' social and emotional skills in service to their academic success, and social-emotional wellbeing.

The role of self-efficacy in cognitive and affective processes has considerable implications for educational contexts. Bandura presents that sense of self-efficacy interplays in cognitive, affective, motivational, and strategy-selection processes (1994). Sense of efficacy relates directly to goal-setting behaviors. Cognitive processing occurs when individuals formulate thoughts concerning goals and associated analytical thinking that occurs as individuals devise different mental scenarios relating to goals. A strong sense of self-efficacy will generate higher numbers of goals, and more challenging goals (Bandura, 2003). Hypothetical scenarios that are cognitively generated will be more positive among individuals with strong senses of self-efficacy. Among individuals with a weak sense of self-efficacy, hypothetical scenarios are more likely to feature negative outcomes. Implications for educational contexts are that guiding students to set appropriately challenging goals and supporting them to cognitively devise anticipatory scenarios requiring resiliency may contribute to their developing senses of positive self-efficacy.

Motivation. Bandura's conception of self-efficacy as a facet of social cognitive theory aligns with attributional, expectancy-value, and goal motivational theories. C. S. Dweck (2006), a leading attribution theorist, posits that the loci to which people attribute failures and successes results over time in the development of either a fixed mindset or a growth mindset. A fixed mindset characterizes success foremost as a matter of ability, which is viewed by the individual as largely unchanging. Individuals with fixed mindsets who experience failure are less likely to engage new challenges in the future, having internalized the conclusion that they lack the ability to be successful.

In contrast, a growth mindset characterizes success more as a matter of the level of effort and hard work expended on the part of the individual. An individual with a growth mindset will interpret failure more as a matter of not having tried hard enough and will consider new challenges through the lens of personal willingness to invest the effort required for success. According to Bandura (1994), individuals with strong senses of self-efficacy tend to develop growth mindsets, (i.e., they attribute failure to lack of effort), while individuals with a weak sense of self-efficacy tend to develop fixed mindsets, attributing failure to low ability.

Bandura's conception of self-efficacy also aligns with expectancy-value motivational theory. Expectancy-value theory holds that people engage new challenges based upon the personal expectations that achieving goals would render (Eccles, 2009). For example, a person who sets the goal of attaining an undergraduate degree might expect that accomplishing the goal would increase his or her income. Increased income might be highly valued by the person. Strong or weak sense of self-efficacy might be the factor that ultimately yields the decision concerning whether to embark upon undergraduate studies. Bandura presents that the concept of self-efficacy can provide predictive value in expectancy-value theory (1994).

Sense of self-efficacy also aligns with goal theory, which holds that the role of self-influence (i.e., the influence of internal cognitive processes) impacts the goals one sets, the persistence one exhibits in goal attainment, and the resiliency one exhibits in the face of obstacles to goal attainment (Griggs et al., 2013; Locke & Latham, 2002). Bandura presents that persons with stronger senses of self-efficacy set more and higher goals, persist longer in attaining goals, and exhibit greater resiliency in the face of adversity than persons with weaker senses of self-efficacy (2003). Clearly, the concept of self-efficacy presented by Bandura ties to motivation. Just as clearly, effectively teaching and supporting the development of students' positive sense of self-efficacy ties to their motivation to achieve and be successful in school.

Affective Processes

Bandura presents the influence that self-efficacy exercises upon affective processes with implications for instructional practice. The sense of self-efficacy, as it relates to an individual's perceived personal capability for coping with challenging situations, impacts the individual's affective dispositions toward engaging challenges (Bandura, 2006). A strong sense of coping self-efficacy entails a person's confidence to successfully confront challenging circumstances (Bandura, 1994). This positive sense of coping self-efficacy supports a person's belief that he or she will effectively be able to cope with the circumstances, resulting in reduced levels of stress and anxiety. A person's thought control self-efficacy (i.e., perceived personal capability to cognitively and affectively control and regulate negative thoughts) likewise impacts confidence concerning their capability of maintaining control over thoughts and feelings during adversity. Like positive coping self-efficacy, positive thought control self-efficacy results in lesser perceived stress levels and increases in persons' dispositions toward taking on challenges in the future. Social self-efficacy, which concerns a person's sense of perceived personal capability to successfully engage with others, is another facet of self-efficacy that Bandura cites as impacting affective processes (1994). The concept holds that a sense of positive social self-efficacy increases the number and quality of experiences in which a person may observe and engage positive models for achieving desired outcomes. Conversely, a weak sense of social self-efficacy yields reduced social activity. Bandura associates increased isolation with negative affective states related to self-worth. Negative self-worth beliefs result in reduced goal setting, task persistence, and resiliency behaviors (Bandura, 1994). Effects of sense of self-efficacy upon affective processes imply a role for the design and implementation of instructional activities that feature appropriately leveled and supported learning environments in which students' social competence, sense of self-worth, coping and thought control self-efficacies are safeguarded and

intentionally cultivated in service to fundamental affective outcomes necessary for accomplishing the cognitive outcomes schools seek.

Origins. Bandura identifies the family as the entity through which a person's sense of self-efficacy begins (1994). The advent of mastery and/or failure experiences commences with young children's interplay with objects and people in their environments. Family members figure largely in the nascent socialization of the child as they interplay with the young child in environments parents and other familial authorities largely control. As the young child interplays with the environment and family, the child develops either a positive or negative beginning sense of self-efficacy. Young children afforded abundant mastery experiences will develop strong senses of self-efficacy (Bandura, 1994). Children growing up in environments devoid of mastery experiences and featuring many failure experiences are likely to develop weak senses of self-efficacy (Bandura, 1994).

As a child matures, peers become another source of interplay for the child (Bandura, 1994). The child begins to compare him or herself to peers. Such comparisons yield effects upon the child's budding sense of self-efficacy. With the introduction of peers into the child's environment, the importance of social self-efficacy increases, as the child with a strong sense of social self-efficacy is likely to interact more frequently and more successfully with others.

Entrance to school signals a "critical formative period" (Bandura, 1994, p. 11) that figures prominently in the development of the sense of self-efficacy. Students quickly develop senses of intellectual self-efficacy because of three factors: (a) the success or failure experiences yielded from school grades, (b) cognitive and affective internalization of explicit and implicit messages students receive from teachers and peers concerning their intellectual self-efficacy, and, (c) comparison of one's own intellectual ability that may result from shared educational experiences with classmates. Bandura cites the teachers' sense of self-efficacy as impactful upon

students' sense of self-efficacy. Teachers with positive senses of self-efficacy exhibit classroom practices consistent with valuing development of students' self-efficacy more than teachers with negative senses of self-efficacy. Additional factors Bandura cites as impacting students' sense of self-efficacy are classroom and institutional practices, curricular programming, instructional design, and school culture (1994).

Social-emotional Competence

Emotional development theory, forwarded by Saarni (1999), is situated within the framework of social cognitive theory and contributes conceptually to this study. To understand the meaning of the term emotional competence, a definition may be helpful. Emotion is defined as “the affective state of consciousness; a state of feeling” (“Emotion”, 2017). Competence is defined as “a sufficiency of means for the necessities and conveniences of life” (“Competence”, 2017). Thus, emotional competence involves personal capability to manage one's internal, affective states of consciousness. Saarni adopts Bandura's (1994) concept of self-efficacy to describe the belief that one can manage oneself and one's circumstances toward achieving a desired outcome. Acting in an emotionally competent manner is, for Saarni (1999), emerging from an emotion-laden environment with a sense of having handled it successfully.

The emotional competence conceptual framework developed by Saarni (1999) rests upon a social cognitive theoretical foundation. Saarni, like Bandura, emphasizes the role of social context in emotional development. Aligned toward Bandura's human agency concept, Saarni concurs that humans are at once shaping and being shaped by the environment. It is in this social cognitive context that, for Saarni, emotional development transpires. Saarni's emotional development conceptual framework subscribes to Bandura's previously referred to triadic reciprocal causation: the interplay of person, environment, and behavior in subtle and complex ways that influence and impact human social, cognitive, and emotional development.

As presented in Chapter One: Introduction, the interchangeability of terms related to social and emotional development is common (McKown, 2017; Devaney, 2015; Elias & Hanes, 2008). In subscribing to the inseparable role social context plays in both social cognitive theory and the emotional competence conceptual framework developed by Saarni, the study utilizes a term interchangeable with it: social-emotional competence, which is also in use in the field (Elias & Haynes, 2008). Skills associated with SEL (“What is SEL?”, 2017) and skills associated with social-emotional competence is terminology that is likewise closely related and even conceptually interchangeable with the term social-emotional competence.

Saarni views the self as a system that acts to interpret and ascribe meaning to the environment. From interpreted meaning, it is the self that determines the results desired by the individual in that specific environment. In pursuit of the desired result, or what Saarni and Bandura term a goal, it is the self that coordinates the individual's behavior response (1999).

Saarni's emotional competence framework aligns with social cognitive theory in its conception of the young child developing emotionally as impacted and influenced by, first, family experiences, and then experiences with peers as well. Saarni also cites the impact of culture in assigning meaning to social experience as significant in developing emotional competence. Applying Bandura's conception of the potent role that mastery and failure experiences play in forging a sense of self-efficacy, Saarni presents that how an individual resolves social-environmental experiences, and how the individual interprets outcomes of these experiences, will forge the emotional competence of that individual (1999).

Saarni presents a list of emotional skills that is consistent with the variety existing in the field. Saarni's emotional skills are also aligned with the five specific skills that are investigated in the study: academic self-efficacy, mastery orientation, self-control, persistence, and social competence. Saarni identifies the capacity for emotional self-efficacy as a fundamental

emotional skill (1999). The term capacity for emotional self-efficacy utilized by Saarni is conceptually aligned to the term academic self-efficacy that is investigated study. Capacity for emotional self-efficacy relates to mastery orientation, which is the sense of having the personal capability to master a subject, combined with the desire to accomplish mastery of the subject matter in question (Scarupa, 2014).

Saarni identifies two emotional skills that rather self-evidently relate to self-control: awareness of one's emotions and ability to differentiate internal subjective emotional experience from external emotional expression (1999). Awareness of one's emotions is pre-requisite to self-control in that, without such awareness, one lacks insight about emotional states needing regulation. That is, when there is no awareness of one's emotions, there can be no perceived need for the self to control them. Similarly, the ability to modulate external expression of internal emotions is a fundamental operation of self-control in service to achieving desired social-environmental outcomes.

The ability to differentiate internal subjective emotional experience from external emotional expression is another emotional skill Saarni identifies as fundamental to emotional competence (1999). Ability to differentiate subjective emotional experience from external emotional expression relates conceptually to the social competence skill that was examined in the study. Exhibiting the ability to anticipate and regulate one's behaviors in social contexts according to self-perception of behaviors' effects upon achieving desired outcomes (rather than according to one's in-the-moment emotional state) is frequently the form that social competence assumes. Another two skills Saarni identifies as fundamental to emotional competence are related conceptually to the social competence skill: ability to discern and understand others' emotions, and capacity for empathic involvement (1999). The ability to know how others are feeling amid social experience empowers the individual to respond appropriately, which is an

essential characteristic of social competence. Capacity for empathic involvement (Saarni, 1999) empowers the individual to enter intimately into the emotional lives of others, and consequently to develop deep relationships that are a hallmark of social competence.

Saarni identifies one additional emotional skill related to the social and emotional skills that is investigated in the study: awareness of one's emotions (1999). Awareness of one's emotions is a foundation for human agentic capability (Bandura, 1994) (i.e., the ability to act upon one's environment, alter one's environment, and consequently be altered by one's environment). Awareness of one's emotions relates to the persistence skill featured in this study, because awareness of one's emotions is an early signal to the individual that the environment is such that persistence needs to be activated.

Related Literature

Social-emotional competence plays an important role in learning and wellbeing (Greenberg et al., 2017). Social-emotional competencies are skills, habits, attitudes, and mindsets increasingly acknowledged as contributing to success in school and life. “Young people’s abilities to manage their attention and feelings, collaborate well with others, show perseverance, build strong relationships, and learn from challenging experiences are the building blocks for future success” (Melnick et al., 2017, p. 1) in today’s collaborative and social learning and workplace environments. CASEL is a leading organization of researchers, donors, and practitioners dedicated to promoting the inclusion of evidence-based SEL programs in K-12 schools. CASEL defines social and emotional learning (SEL) as “the process through which children and adults acquire and effectively apply knowledge, attitudes, and skills” (“What is SEL?”, 2017) associated with better academic test scores, and higher graduation rates. Jones and Doolittle describe SEL as involving “children’s ability to learn about and manage their own

emotions and interactions in ways that benefit themselves and others, and that help children and youth succeed in schooling, the workplace, relationships, and citizenship” (2017, p. 4).

The acquisition of SEL is influenced by culture (Hecht & Shin, 2015). Some cultures are more individualistic in their values, meaning that people in these cultures’ fundamental orientation toward self-identity is personal interpretation of themselves as individuals. Additionally, people from individualistic cultures are more likely to respond to social contexts in terms of self-oriented interests. Other cultures are more collectivistic. In collectivistic cultures, people are more likely to construe self-identity in terms of how they integrate into groups. People from collectivistic cultures are more likely to value group harmony and conduct themselves according to this norm.

Self-awareness is a facet of social-emotional competence that is informed by culture. Maister and Tsakiris (2014) found that self-awareness among people in western, individualistic cultures is more concerned with body image (i.e., one’s physical attributes). People from eastern, collectivistic cultures are more self-aware regarding how they get along with others. Furthermore, in “The Shifting Basis of Life Satisfaction Judgments Across Cultures: Emotions Versus Norms”, Suh, Diener, Oishi, and Triandis (1998) found that people from individualistic cultures tended to attribute causes of behavior to personal emotions and dispositions. People from collectivistic cultures attributed causes of behavior to situational factors.

Another facet of social-emotional competence informed by culture is emotional regulation. (Emotional regulation is conceptually equivalent to self-control in this study.) Quite simply, people in western, individualistic cultures are more likely to express what they are feeling. People from eastern, collectivistic cultures are less apt to express their feelings (Matsumoto, Yoo, & Nakawa, 2008).

What constitutes appropriate eye contact among individuals in social situations is an example of how social competence (i.e., the ability to relate effectively with others) is informed by culture. In North American majority culture, sustaining eye contact with individuals is generally considered an indication of courtesy toward another individual. Among Native Americans however, sustaining direct eye contact with a person occupying a higher social status is considered rude (Kalbfleisch, 2009). Middle Eastern Muslim cultures consider sustained eye contact between genders as inappropriate (Simpson & Carter, 2008). Asian, Latin American, and some African cultures consider sustained eye contact with a perceived authority as an expression of a challenge to the authority (Zhang, 2006). North American teachers do well to be mindful of this with students from these cultures. Hecht and Shin (2015) point out that variability occurs within cultural people groups and warn against overgeneralizing impacts of culture upon social-emotional competence. Nonetheless, understanding the ways culture informs SEL is a factor in cultivating students' acquisition of social-emotional skills, and constitutes an area appropriate for additional research.

The important role that social-emotional competence plays in learning and wellbeing is becoming widely acknowledged. Because mental, behavioral, and emotional disorders threaten readiness to learn as well as overall wellbeing, a study by Ottmar, Rimm-Kaufman, Berry, & Larsen (2013) cites social-emotional interventions as critical to preventing such disorders. Furthermore, in a reflection of increasing acknowledgment of the importance key policymakers are placing upon the inclusion of SEL in schools, the U.S. Public Health Service report of the Surgeon General's Conference on Children's Mental Health cites the integration of social-emotional skills as critical to empowering students to learn (Redefining Low Income, 2000). Greenberg et al., (2017) present many public health advantages associated with effective implementation of evidence based SEL programs in schools, including enhancement of

children's sense of self-efficacy, increased engagement in school, and increases in school grades and test scores. Furthermore, children on the receiving end of effectively implemented, evidence based SEL programs experience more positive relationships, are characterized by better mental health and demonstrate increased readiness for college.

Another indication of the importance of social-emotional competence in learning is its place in federal legislation. Every Student Succeeds Act (ESSA), enacted in 2015, is the federal government's newest iteration of legislation intended to improve U.S. K-12 education. ESSA holds that measures of SEL, such as the measures featured in this study, are identified as appropriate in state accountability systems as "state-supported, locally selected indicators used for local information and improvement" (Hall, 2017, p.12). In a brief by CASEL, Gayl (2017) presents that ESSA is an opportunity to include SEL as a critical element of students' long-term academic and career success.

Another reflection of the increasing acknowledgement of the role social-emotional competence is occupying is emerging from studies on the economic benefit yielded for families and societies from investments in SEL programs in schools. A study from Columbia University's Center for Benefit-Cost Studies in Education (CBCSE) entitled, "The Economic Value of Social and Emotional Learning" (Belfield, Bowden, Klapp, Levin, Shand, & Zander, 2015) specified the economic returns of SEL using formal methods of benefit-cost analysis developed at CBCSE over the last 40 years. Benefit-cost analysis compares a monetary cost of an investment to its monetary returns. The implication is that benefit-cost analysis can provide an indication of whether an investment is merited. When benefits exceed costs, the simple implication is that the investment is a good one. Conversely, costs exceeding benefits would provide an economic argument against making, or continuing to make, a specific investment.

Belfield et al. considered six dimensions of SEL and calculated their associated costs in terms of training, materials, and facilities. Benefit maps were devised that delineated the positive outcomes each dimension could yield and attached a monetary value to the outcomes. SEL benefits that were monetized in the CBCSE study were reductions in: violence, ADHD symptoms, depression, anxiety, substance abuse, and sexual risk behaviors. Additional SEL benefits that were monetized in the CBCSE study included increases in math achievement, reading achievement, social competence, and healthy beliefs about aggression.

CBCSE then computed economic metrics to test the validity of their results. CBCSE found that each of the six dimensions yielded greater economic benefits than costs. Overall, the monetary benefits of SEL exceeded monetary costs at a ratio of 11:1. That is, Belfield et al. (2015) found that every dollar spent for SEL yielded an \$11 monetary return in terms of the societal dollar savings and increased productivity so generated. The authors note that their benefit-cost analysis of SEL considered only a portion of the full extent of SEL's benefits and that additional benefits not included in their analyses would, if included, yield greater monetary value than the \$11 dollar-return figure. While acknowledging limitations, including the relative scarcity of established SEL evaluation instruments and lack of research on the full array of SEL benefits, Belfield et al. concluded that SEL interventions "are likely to pass a benefit-cost test... and (SEL) interventions offer high economic returns as educational investments" (2015, p. 6).

In a longitudinal study of 663 Swedish students, Klapp, Belfield, Bowden, Levin, Shand, and Zander (2017) completed another benefit-cost analysis of the value of providing Social and Emotional Training (SET) in schools. Value was expressed in economic terms of benefits to families and society versus expenses associated with providing SET. The treatment group received SET; the control group received no SET. The treatment group exhibited decreasing

drug use over a 5-year period that equated to a benefit-cost analysis of \$14 in family and societal benefits for every \$1 investment in social-emotional competence instruction.

The importance that SEL is gaining is also indicated in a report from an alliance of the American Enterprise Institute for Public Policy Research and the Brookings Institution (AEI/BI). AEI/BI brought together a work group of experts from higher education, research, economics, social and public policy, and poverty studies to articulate policy objectives for reducing poverty and increasing opportunity for economically marginalized Americans. In the AEI/BI culminating report entitled “Opportunity, Responsibility, and Security- A Consensus Plan for Reducing Poverty and Restoring the American Dream”, Aber et al. concluded that educational attainment (i.e., years of school completed) and achievement (i.e., test scores) were significant factors in effecting “greater progress against poverty” (2015, p. 19) by spurring economic upward mobility in parents’ generations and to their children’s generation that followed. Aber et al. (2015) proceeded to present a major recommendation: “to promote social-emotional development” (Aber et al., 2015, p. 5) in schools.

One reason it is increasingly important that schools adopt the domain of students’ social-emotional development, especially among children living in poverty, is that the family, where children historically have developed socially and emotionally, is increasingly under greater pressure. One dimension of increased pressure presented by Aber et al. (2015) is the increased incidence of families headed by a single mother. In 1960, 8% of families were headed by single mothers; families headed by single mothers climbed to 23% in 2016 (“The Majority of Children”, 2016). Correspondingly, the percentage of married families decreased from 78.1% in 1970 to 51.1% in 2010 (Aber et al., 2015, p. 21).

The percentage of births to unmarried African American and Hispanic women has also increased markedly. The percentage of children born to unwed African American mothers was

37.6% in 1970 and increased to 70.4% in 2014. Among Hispanic children, 36.7% were born to unwed mothers in 1990 and this increased to 53% in 2014 (“The Majority of Children”, 2016). In a related finding, Elias and Haney (2008) found that Hispanic and African-American children from low socio-economic status families have lower social-emotional competence than students from higher socio-economic status families.

Many factors align to create real obstacles to success for students from low-socio-economic status families: reduced education attainment and test scores, reduced incomes associated with reduced education attainment, and reduced levels of social-emotional competence among low socio-economic status Hispanic and African American children. The association of SEL with increased achievement and success in school makes a compelling argument for inclusion of SEL in public schools, with inclusion of SEL in schools serving low socio-economic communities even more critical.

Heckman and Kautz (2012) present the importance of benefits of social-emotional competence to success in school, to success in the labor market, and to success in life overall. While achievement tests reflect certain facets of cognitive ability, they fail to reflect other attributes critical to success, such as goal-setting capability, and personality traits associated with success (e.g., perseverance, impulse control, etc.). In a meta-analysis of 75 studies that examined the effects of social, emotional, and/or behavioral programs in schools, Sklad, Diekstra, De Ritter, and Ben (2012) found an array of beneficial outcomes. The most pronounced effects of the programs were increases in social competence and decreases in antisocial behavior- both variables consistent with school success. Additional beneficial effects in Sklad et al.’s meta-analysis was found for academic achievement, self-image, substance abuse, and mental health.

Recent findings suggest that SEL may yield valuable benefits to children from preschool through adolescence. McLelland, Tominey, Schmitt, and Duncan (2017) present that early childhood educators indicate their desire for more SEL training. Early childhood educators' desire for more training reflects a recognition that the many students who arrive in preschool without having acquired adequate social and emotional skills in the home begin their educational journey at a disadvantage to their social-emotional competent peers. In addition to increased professional development for teachers, McLelland et al. (2017) cite direct instruction of SEL skills, and SEL lessons that grow more complex over time as promising interventions to cultivate social-emotional competence among early childhood students.

In "Promoting Social and Emotional Competencies in Elementary School", Jones, Barnes, Bailey, and Doolittle advocate for making SEL "a central feature of schooling" (2017, p. 50), despite acknowledging that research findings of the benefits of SEL are mixed. That is, some research findings demonstrate an array of important benefits, including better school grades and increased achievement, and more positive attitudes about school, among others, for children receiving SEL instruction (see, for example, Scarupa, 2014 and Sklad, Diekstra, Ritter, Ben, & Gravesteyn, 2012). There are also studies showing little or no effects of SEL programs in schools (see for example "Efficacy of Schoolwide Programs", 2011). As a result of their study, Jones et al. (2017) conclude that such variation may be more the result of imprecise SEL assessment methods in the young field of SEL than actual variation in the effects of SEL.

Yeager (2017) presents the developmental utility of SEL during adolescence, describing how adolescents especially need the skills SEL provides in handling emotions and in navigating the new demands and social contexts characteristic of this period. While Yeager (2017) acknowledges the ineffectiveness among middle school students of direct instruction of SEL skills (which is effective for elementary students), he presents that SEL programs featuring

opportunities for middle school students to express their “developmental motivations” (p. 73) and in which they emerge feeling respected by adults and peers yield positive results among this population.

Recent empirical findings indicate that SEL is associated with increased academic achievement. Schonfeld et al. (2015) conducted a three-year cluster-randomized trial of 705 students. One group of participants received instruction in an SEL program; one group did not. After three years, students from the SEL group demonstrated higher proficiency in reading, writing, and mathematics.

A longitudinal study by Jones, Greenberg, and Crowley (2015) provides another illustration of the important role that social-emotional competence plays in school success and adult well-being. Jones et al. (2015) set out to determine how well social competence evaluations conducted thirteen to nineteen years earlier predicted late teen/early adult outcomes in later school years and in comprehensive dimensions of adult well-being. Social competence is one of the social-emotional skills examined in this study. Social competence involves the ability to manage peer interactions that feature opportunities for cooperation and conflict and is considered an early predictor of social-emotional competence.

Jones et al. (2015) used data from the Fast Track project, a longitudinal study intended to provide interventions for children identified as high risk for long-term aggressive behavior and conduct disorders. All the students selected for the study lived in low socio-economic status neighborhoods when they were assessed as kindergarten students (Jones et al., 2015). A subsample of 753 participants was from four locations: three urban and one rural. The study was comprised of a control (high-risk; $n = 367$) and normative (non-high risk; $n = 386$) group. The independent variable for the study was social competence assessment scores. The dependent variables were the education/employment, public assistance, crime, mental health, and substance

abuse. Factors other than social competence that were controlled for possibly impacting adult well-being were race, gender, and specific family factors. Data in the form of self-reports, school archival records, juvenile and adult court records, and primary caregiver reports were collected to assess the dependent variables. Logistic and negative binomial regression analyses were performed and considered significant at an alpha level of $p < 0.05$. Most relevant to the study, Jones et al. (2015) found that social competence at kindergarten among students from low socio-economic neighborhoods was significantly predictive with graduating high school on time and completing a college degree. Numerous additional dimensions associated with success in school were obtained, including less years in special education, less repeated grades, and stable employment in young adulthood.

Davis et al. (2014) found positive correlations between social-emotional competence and two dependent variables: academic success and progress toward high school graduation. In a meta-analysis of the effects upon kindergarten through high school students of SEL programs in 213 schools, Durlak et al. (2011) found that goal setting, self-regulation, and academic self-efficacy positively impacted academic success and course completion among high school students in a large, urban northeast school district. Durlak et al. (2011) also found that social and emotional skills accounted for an 11-point academic achievement gain, along with improvements in students' attitudes and behavior, and that SEL programs are effectively conducted by general education teachers and support personnel. That social and emotional skills can be learned in school has also been found by Schonert-Reichl et al. (2015), Raver et al. (2011), Davis et al. (2014), and Marchesi and Cook (2012). As such, social and emotional skills may be integrated into curricular programming within existing school staffing.

After School Programs are an intuitive vehicle for teaching social and emotional skills. Whereas regular school days are predominantly filled with cognitive lessons and activities, After

School Programs may include non-cognitive lessons and activities such as those in SEL programs without reducing time developing students' academic skills. However, there are attributes of After School Programs that render them problematic as a school's primary mode for developing students' social-emotional competence. Hurd and Deutsch (2017) identify the disadvantages of providing SEL programs through After School Programs. The first difficulty with delivering SEL primarily through After School Programs is the fact that, for the majority of After School Programs, attendance is not mandatory, thus restricting the many benefits of SEL to those attending After School Programs. Hurd and Deutsch also identify high turnover of staff, low pay, and minimal professional development as common attributes of After School Programs that pose additional obstacles to accomplishing increases in students' social-emotional skills through SEL programs. Hurd and Deutsch recommend focusing on improving the quality and effectiveness of After School Programs prior to considering them as prime platforms in which to integrate SEL programs.

Research indicates that teachers' social-emotional competence is important in the development of social-emotional competence in students. Teaching is cited as highly stressful (Markow, Macia & Lee, 2013) and when teachers are stressed, their stress is transmitted to students through the manners in which teachers manage themselves and the ways they interact with students. This dynamic of teacher stress is a practical illustration of why teachers' social-emotional competence and skills bear upon students' social-emotional development. Schonert-Reichl (2017) points out that for students to learn deeply and develop socially and emotionally, a learning environment that is well-managed, and that students perceive as safe, supportive, and caring is needed. Brackett, Palomera, Mojsa, Reyes, and Salovey (2010) found that teachers who are calm and self-possessed have more positive relationships with students. Raver, Garner, and Smith-Donald (2007) found that when students have more positive relationships with

teachers, they exhibit higher academic and social competence. Socially and emotionally competent teachers have better relationships with students, and those better relationships create readiness in students to grow academically, socially, and emotionally. Just how important teachers' social-emotional competence may be to student learning was demonstrated in a study in 2008 by Mashburn et al. Mashburn et al. (2008) found quality of teacher-student relationships a better predictor of academic performance than teacher-student ratio, teacher education, and other factors.

Another way that teachers' social-emotional competence impacts the development of social-emotional competence in students has to do with teacher modeling. Students continually observe teachers in stressful situations (e.g., handling challenging student behavior, persistently working with students working through learning barriers, engaging conflicts with students' parents, etc.). As such, teachers are continually modeling social-emotional skills like self-control, persistence, and social competence, among others. The impact of teachers modeling social-emotional competence for students prompted Roeser, Skinner, Beers, and Jennings (2012) to emphasize the need for teachers to be mindful of both the social-emotional competence modeling dynamic, and the need for teachers to be intentionally and continuously developing social and emotional skills in service to developing students' social-emotional competence.

While developing teachers' social-emotional competence is a newer field of study, there are strategies that are promising. The RULER approach provides teachers tools they may use to respond productively to emotional stress (Chang, 2009). Teachers are taught to recognize when feeling duress, identify its causes, and apply techniques to reframe, resolve, or emotionally manage the situation. Additional interventions for increasing teachers' social-emotional competence include providing teachers with peer coaching toward more positive relationships with students, and professional development on the importance and usefulness for teachers of

practicing mindfulness and reflection about the emotional dimension of their teaching (Jones, Bouffard, & Weissbourd, 2013).

Research has identified SEL programs that have yielded evidence of positive social, emotional, and cognitive outcomes. An overview of evidence-based SEL programs is presented here through descriptions of a selection of leading programs. Caring School Community (CSC) is a program designed to cultivate positive relationships among students and between teachers and students (Caring School Community, 2018). CSC was shown to result in increased social skills and academic achievement in students (Solomon, Battistich, Watson, Schaps, & Lewis, 2000; Chang & Munoz, 2006).

Promoting Alternative Thinking Strategies (PATHS) is a curricular intervention shown to result in positive emotional, interpersonal, and cognitive domains (Conduct Problems Prevention Research Group, 2010; Greenberg & Kusché, 1998). Specific social-emotional skills shown to increase because of the PATHS curricular intervention include increases in emotion recognition, emotional coping, social competence, self-control, and persistence in cognitive concentration. PATHS has been shown to result in social-emotional gains in general education elementary students, among elementary school students with hearing impairments (Conduct Problems Prevention Research Group, 1999; Greenberg & Kusché, 1998), and among elementary school students with disabilities (Kam, Greenberg, & Kusché, 2004).

Positive Action (PA) is an intervention intended to result in enhanced self-concept among students (Washburn et al., 2011), with positive results. Washburn et al. (2011) studied students between the ages of six and eleven longitudinally for three to four years. While students in the total sample showed declines in positive self-concept, declines of the students receiving PA intervention were significantly less. Washburn et al. (2011) attribute the declines in self-concept among all groups in the study to increases in the developmental age of participants over the

course of the study (i.e., children at age 11 have typically exhibited declines in self-concept from when they were aged six). In other studies, grade five students receiving PA intervention showed less bullying behavior (Li et al., 2011), sexual activity, and substance abuse (Beets et al., 2009), and increased math and reading achievement (Flay, Allred, & Ordway, 2001).

Responsive Classroom (RC) is a curricular intervention intended to foster student engagement in learning, proactive classroom management, and establishment of a caring classroom community. RC has been shown to yield increases in students' social competence (About Responsive Classroom, 2018; Rimm-Kaufman & Chiu, 2007), and positive attitudes towards school (Brock, Nishida, Chiong, Grimm, & Rimm-Kaufman, 2008). Studies have also shown that RC yields increases in positive teacher-student interactions, and increased inquiry-based instruction among RC-trained teachers (Ottmar, Rimm-Kaufman, Berry, & Larsen, 2013). RC has also been shown to yield student gains in math and reading (Rimm-Kaufman et al., 2014; Rimm-Kaufman, Fan, Chiu, & You, 2007).

Second Step is an SEL curricular intervention for students in grades kindergarten through eighth. Second Step is intended to yield social, emotional, and cognitive gains. Implementation of Second Step has been shown to result in increased prosocial behavior (Second Step Suite, 2018). In a related finding, Holsen, Smith, and Frey (2008) suggest that Second Step yielded improved social competence in upper elementary students. Schick and Cierpka (2005) found that, as students acquire SEL understanding and skills, they report lower anxiety levels and exhibit improved social competence because of the Second Step intervention.

Conceptual rationales to explain why SEL may exert such a powerful effect upon academic performance are presented by various theoreticians and researchers. Research findings in the scientific literature have established over the past two decades that hormones and neurotransmitters released by the body during episodes of situational and interpersonal stress

significantly affect individuals' learning capability (Melnick et al., 2017). Specifically, stress is shown to negatively impact the capacity to retrieve information (Vogel & Schwabe, 2016), a critical skill in achievement tests. This finding is relevant concerning the significance of social-emotional competence on high stakes test scores. The first is the United States' vast multiethnic population characterized by lower incomes, and the increased negative impact of stressors among low-socioeconomic-status students (Galindo & Schonnenstein, 2015; Dodge, Pettit, & Bates, 1994). It follows, then, that a population generally under greater stress exhibits an achievement gap consistent with the high stakes test performance of minority culture students for the last 50 years (Griner & Stewart, 2013). Another finding is that stress reduces individuals' capacity to learn and remember classroom material (Vogel & Schwabe, 2016), hampering the higher order, critical and creative thinking desirable in 21st-century classrooms and workplaces.

The implication of these findings combined with the finding that social-emotional competence is teachable in schools increases the promise of SEL, especially for low SES-students. The increased social-emotional competence resulting from teaching SEL may empower students to manage stressors more effectively, thus reducing the stressors' debilitating impact on these students' high stakes test performance. In this study, this effect may have been exhibited in participants with higher social-emotional skill levels also achieving higher scores on the Florida Standards Assessment.

Greenberg and others provide additional conceptual rationales to explain why SEL may exert positive impacts on academic performance. Greenberg (2006) presents that SEL programs affect cognitive executive functions in prefrontal regions of the cerebral cortex. Marchesi and Cook (2012) present that social and emotional skills improve academic performance by promoting a deeper understanding of academic content, improving the capability for learning from others, and increasing persistence with academic tasks. The Committee on Defining

Deeper Learning and 21st Century Skills presents that three domains intersect and interact to produce academic, social, and emotional learning: the cognitive domain, comprised of the thinking and reasoning skills long emphasized in schools, the intrapersonal domain which is made-up of mindsets and skills associated with the self-management necessary for accomplishing goals, and the interpersonal domain, comprised of skills needed to effectively navigate social contexts toward accomplishment of said goals (Pellegrino & Hilton, 2012). The integration of all three domains necessary for learning suggests the critical role social-emotional competence plays.

Rimm-Kaufman and Hulleman (2015) identified core components and common constructs of leading evidence-based SEL programs to explain how and why SEL produces gains in social-emotional competence and academic achievement. According to Rimm-Kaufman and Hulleman (2015), implementation of evidence-based SEL programs features core components and common classroom constructs amenable to the development of social-emotional skills and academic achievement. A core component of evidence-based SEL programs is the goal of increases in students' skills in certain domains: emotional (e.g., the ability to regulate emotions), interpersonal (e.g., the ability to resolve conflicts), cognitive (e.g., the ability to persist with challenging tasks and situations) (Jones & Bouffard, 2012), and self-skills (e.g., sense of self-efficacy) (Skinner, Kinderman, Connell, & Wellborn, 2009). Common classroom constructs featured in evidence-based SEL programs are direct instruction and modeling of SEL skills. An example of direct instruction of SEL skills would be the instruction of step-by-step instructions for demonstrating the SEL skill: cooperation. An example of modeling cooperation would be, following the direct instruction, observing the skill as demonstrated by the teacher, and then practicing the skill with another student. Another common construct in evidence-based SEL programs is integration of SEL concepts and principles in academic curricula (2013 CASEL

Guide, 2012). For example, students may be instructed to exhibit the cooperation learned through direct instruction, and modeled thereafter, during a small group mathematics problem solving activity.

Rimm-Kaufman and Hulleman posit that acquisition of emotional, interpersonal, cognitive, and self- skills through activation of common classroom constructs toward common core components of evidence-based SEL programs serves to cultivate increasingly positive classroom culture and increasing levels of SEL skills in students. Another effect of activation of common classroom constructs may include increases in teachers' sensitivity and responsiveness to the social and emotional needs of students. Furthermore, the implementation of constructs common to evidence-based SEL programs may alter teachers' classroom management techniques (e.g., teachers' corrections of students may reflect increased emotional sensitivity) (Jennings & Greenberg, 2009). The interaction of increases in students' SEL skills in contexts of increasingly positive classroom climates provide the students with the internal resources and external environment in which SEL and academic performance may flourish (Rimm-Kaufman & Hulleman, 2015).

The list of research highlighting the importance of social-emotional learning in schools continues to grow. Aronson (2002) presents that SEL is a catalyst for greater persistence. Caprara, Barbaranelli, Pastorelli, Bandura, and Zimbardo (2000) posit that SEL yields increases in self-confidence. Duckworth and Seligman (2005) present that SEL cultivates the setting of high academic goals and self-control that yields increase in effort resulting in higher grades.

Bear and Watkins (2006) present that individuals with low social-emotional competence process challenging situations in a manner distinct from individuals with high social-emotional competence. Bear and Watkins (2006) posit that individuals with low social-emotional competence respond to situations according to immediate external (as opposed to internal,

psychological) factors. Adverse situations for low social-emotional competent individuals prompt reactive behaviors intended, in a short-sighted manner, to remove the individuals from the adversity they perceive. The “fight or flight” (Trumble, 2010) behaviors selected by the low social-emotional competent individual may have the unintended consequence of increasing the immediate conflict the individual is experiencing, especially when the selected behavior is one that features acting out physically or verbally. Bear and Watkins (2006) go on to present that high social-emotional competent individuals govern the situation by internal factors, namely, self-control and persistence mindsets, and positive decision-making.

Further applying the conceptual rationale of Bear and Watkins (2006) to the hypothetical example of Student A and Student B provides additional insight into the critical role that social-emotional competence may play in schools. As previously presented, Student A and Student B are both grade five classmates characterized by the same above average cognitive ability. What differentiates them is that Student A possesses high social-emotional competence and Student B possesses low social-emotional competence. Both Student A and B are taking an annual ELA high stakes test. Student B (possessing low social-emotional competence) does not immediately know the answer to a reading comprehension question and interprets the situation as adverse. Reacting to remove herself from the stress precipitated by the challenging reading comprehension question, Student B may choose “flight”. Student B’s fleeing reaction may take the form of making a guess and moving on quickly, and thus, temporarily at least, extricating herself from felt adversity. The sequence of encountering a challenging question, feeling stress, guessing an answer without thinking it through, and moving on quickly to the next test item repeats itself only a few more times before Student B’s low sense of academic self-efficacy, low self-control, and low capacity to persist leaves her feeling defeated. Student B, now seeking to remove herself as quickly and completely as possible from the adverse environment, makes the

next logical decision (for an individual with low social-emotional competence): fill in answers to all the remaining questions without taking time to even read them, much less consider them carefully. Student B then proceeds to repeat similar courses of action in subsequent mathematics and writing portions of the high stakes testing regimen designated for public schools in the state where she lives.

In choosing to retreat from the adversity she perceived in the high stakes testing situation, Student B fails to demonstrate the reading comprehension capability commensurate with her above-average cognitive ability. Student B emerges from the episode less confident, and even less likely to engage productively when faced with new challenges in the future (Bandura, 1986). In the hypothetical example, the pattern of challenge avoidance internalized in Student B repeats itself in generalized contexts she perceives as adverse. The challenge-avoidant psychosocial dynamic may render far-reaching, long-term negative consequences concerning Student B's prospects for medium- and longer-term school success. Lack of school success feeds into and may result in, ultimately, a lack of vocational success and a sense of wellbeing as an adult. In the shorter term, the direct consequence of failing the high-stakes ELA test is that Student B faces retention at her grade level as prescribed in the academic accountability regulations of the state where she lives. The hypothetical example illustrates why effectively developing students' social-emotional competence may be crucial for maximizing students' academic achievement, as well as school and life success.

The study contributes empirical findings called for in the literature on the relationship of social and emotional skills to learning. Schonfeld et al. (2015) have found, in addition to social-emotional competence increasing academic performance, that the positive impact of SEL may be especially significant among youth in high-risk school settings. Because the participants in the

study attended Title I schools, findings extend the research of Schonfeld et al. (2015) by generating additional research related to high-risk populations of learners.

Brackett, Rivers, Reyes, & Salovey (2012) characterize findings on the positive association of social-emotional competence to learning as promising yet preliminary due to the relatively recent research interest in the subject. Marchesi and Cook (2012) call for additional empirical evidence concerning associations between social-emotional competence and student outcomes. The study supports and adds to the findings of Brackett et al. (2012) and Marchesi and Cook (2012) by examining social and emotional skills as a possible causal factor of academic achievement and by focusing on one critical aspect of academic performance: mathematics and ELA achievement test scores.

Additional empirical evidence on the association of social-emotional competence with learning that is supported by the study is indicated by Durlak et al.'s (2011) seminal meta-analysis of 213 school-based SEL programs that involved 270,034 students. Durlak et al. (2011) calls additional research on the association of social-emotional competence with learning helpful for the further development of theory and research. Furthermore, Durlak et al. (2011) note that only 16% of the studies comprising the meta-analysis explicitly treated academic performance; only 32% of the studies explicitly assessed SEL skills. The study treated both academic performance and SEL skills assessment, dual focuses termed by Durlak et al. as "essential" (2011, p. 419). Furthermore, Durlak et al. (2011) and Dirks et al. (2007) call for research that sheds light upon how discrete SEL skills relate to each other. The multivariate analyses of variance (MANOVA) featured in this study generated findings regarding relationships between SEL skills.

Findings from the study also extend research findings by generating empirical evidence concerning social-emotional competencies equivalent to those cited by Davis et al. (2014) and by

CASEL. Equivalent, rather than identical, competencies may be explained by the non-standard, overlapping and somewhat redundant terminology characteristic of the present state of social and emotional skills research and practice as cited by Devaney (2015) and Buckley et al. (2003). Whereas Davis et al. (2014) examined goal setting, academic self-efficacy, and self-regulation, the study examined three skills that are conceptually equivalent to the skills studied by Davis, namely, mastery orientation, academic self-efficacy, and self-control, respectively. What CASEL terms “understand and manage emotions” is assessed in the study as a conceptually-equivalent self-control metric. CASEL’s “set and achieve positive goals” is conceptually related to three skills that are examined in the study: academic self-efficacy, persistence, and mastery orientation. CASEL’s “feel and show empathy for others” and “establish and maintain positive relationships” is addressed in the study via the social competence metric. Finally, the study’s five social and emotional learning skills cumulatively bear upon dimensions of CASEL’s global term: “make responsible decisions” (“What is SEL?”, 2017).

The study contributes to an emerging area of research cited by Galloway, Lippman, Burke, Diener, and Gates (2017), namely, SEL skills assessment. Dirks, Treat, and Weersing (2007) join Galloway et al. (2017) by calling for research that accurately measures different SEL skills. The present, emerging state of SEL assessment is also reflected in that CASEL has sponsored an Assessment Design Challenge to identify design principles toward better establishing SEL assessment.

In a report from the Learning Policy Institute on the role of SEL in the context of state accountability systems as stipulated by ESSA, SEL is presented as becoming a necessary foundation for students’ academic success (Melnick et al., 2017). The study expands existing evidence regarding impacts of SEL upon a critical measure of academic success: math and

reading high stakes test achievement. Findings from the study may differentiate the relative impacts of social and emotional skills upon math and reading achievement.

As evidence mounts about the relationship of social-emotional competence to school success, Galloway et al. cite as “urgent” (2017, p. 1) the need for tools that assess social-emotional competence of children and youth. Findings from the study may contribute to the establishment of the recently-developed instrument that is utilized in the study: Child Trends Social and Emotional Skills Survey battery (Scarupa, 2014). The study also advances research by identifying specific social and emotional skills that contribute to academic achievement. The empirical evidence generated by the study serves as a catalyst to narrow the array of distinct but overlapping skills identified in research by Devaney (2015). Another contribution of the study is to extend and reinforce the findings of Davis et al. (2014) by similarly assessing levels of social and emotional skills but using a different assessment instrument. Whereas Davis et al. (2014) used self-report data, the study also used teacher assessments of participants’ social and emotional skills levels.

Summary

Social-emotional learning is an application of developmental psychology. The social cognitive theory holds that individuals process their experience through a self-system by which they interpret their environments (Bandura, 1986). This self-system features a cognitive dimension that has been long studied relative to school contexts. The self-system also features a non-cognitive, affective dimension that develops in interplay with social, situational, and environmental factors. Bandura presents that individuals’ beliefs about their personal capacity to succeed, that is, their personal sense of self-efficacy, play a predominant role in social cognitive theory (1994). Self-efficacy and, by application for the purposes of the study, academic self-efficacy, is a core component of social-emotional competence. The fluid, idiosyncratic process

of individuals interacting with external factors results in development- or lack thereof- of cognitive, social, and emotional competence (Saarni, 1999).

Social-emotional competence involves an individual's capabilities to manage internal, affective states of consciousness when confronting social, situational, and environmental factors characteristic of school and work settings. How competently an individual performs is shown increasingly to impact school success and adult well-being (Durlak, Domitrovich, Weissberg, & Gullota, 2017; Heckman & Kautz, 2012). The focus of the study is the social-emotional dimension that is increasingly recognized as crucial for success and the impact that social-emotional competence exerts upon academic achievement in elementary school contexts (Melnick et al., 2017).

SEL, "the process through which children and adults acquire and effectively apply knowledge, attitudes, and skills" ("What is SEL?", 2017), is comprised of discreet skills (Scarupa, 2014). The study examined the social-emotional skills: academic self-efficacy, persistence, self-control, mastery orientation, and social competence. Research according to Hecht and Shin (2015) indicates that social-emotional competence impacts school success and adult well-being across cultures, but culture-specific variables impact the forms social-emotional competence assumes. Variables impacting the forms social-emotional competence assumes across cultures include the forms emotional regulation takes, appropriateness of behaviors in individualistic versus collectivistic cultures and norms regarding eye contact in social settings.

The role that social-emotional competence plays in learning and wellbeing is becoming widely acknowledged (Greenberg et al., 2017; Ottmar et al., 2013; Redefining Low Income, 2000). Social-emotional competence is shown to be an important factor in emotional health and in developing positive relationships (Sklad, Diekstra, De Ritter, & Ben, 2012; Heckman & Kautz, 2012). Findings also indicate that social-emotional skills are positively related to

academic achievement and other dimensions of school success (Davis et al., 2014; Durlak et al., 2011). Studies indicate that social-emotional skills are retained over time and applied in novel settings (Jones et al., 2015). Investments in SEL interventions are shown to yield worthwhile societal economic benefits (Sklad et al., 2015; Belfield et al., 2015). Recent findings also indicate that SEL may be a valuable tool in reducing poverty (Aber et al., 2015). For these reasons, there is growing support for social-emotional learning to be established as an element of K-12 school programming (Jones et al., 2017).

School interventions and curricula have been developed that have been shown through research to, when implemented with fidelity, result in increases in students' social-emotional competence (Scarupa, 2014; CASEL, 2013). Effective social-emotional interventions and curricula are characterized by common elements that may be critical for effectiveness. Common elements of evidence-based social-emotional interventions and curricula include direct instruction (in elementary school settings) and modeling of, and student practice using social-emotional skills in authentic school settings (e.g., during class instruction, on the playground, in the cafeteria, etc.) (Rimm-Kaufman & Hulleman, 2015). Another aspect found to be critical in developing students' social-emotional competence is teachers' personal social-emotional competence that is modeled for students continuously throughout the school year (Schonert-Reichl, 2017; Mashburn et al., 2008). Professional development is important for developing teachers' knowledge, understanding, and skills related to social-emotional development.

Central to social-emotional development is one's sense of self-efficacy (i.e., one's level of confidence about the personal capability to achieve). A positive sense of self-efficacy empowers an individual to perceive opportunities to achieve, set challenging goals, devise efficacious courses of action toward goal attainment, exhibit resilience in the face of adversity, enlist support from others, and persist with challenges until they ultimately experience success

(Bandura, 1994, Saarni, 1999). Each mastery experience leaves behind traces in the personality that nourish individuals' senses of self-efficacy. Mastery experience layered upon mastery experience builds an increasingly strong sense of self-efficacy that serves to perpetuate greater and greater successes and achievements (Bandura, 1994, Saarni, 1999). The stronger one's sense of self-efficacy, the more proficiently may one develop emotionally, relationally, and vocationally.

The power inherent in building strong senses of self-efficacy and social-emotional competence in students should stir the passions of all educators. This power should also prompt every educator to take care not to reduce students' senses of self-efficacy, for the converse also holds. Failure experiences reduce individuals' senses of self-worth and teach students to avoid challenges out of increasingly negative senses of self-efficacy which become self-reinforcing over time. Educators possess the power inherent in developing students' social-emotional competence. Educational researchers are well postured to discover and generate the findings upon which policymakers, district leaders, and school-based principals and teachers can simultaneously edify and safeguard students' social-emotional competence in service to the fundamental, overarching goals for which educators commit to the profession: maximizing students' learning, cultivating student cognitive development and emotional wellbeing, and equipping students to engage positively with others in school and society. Next, Chapter Three: Methods will present the research design, and details regarding the study's participants, setting, data collection, and statistical analysis and reporting procedures.

CHAPTER THREE: METHODS

Overview

Chapter Three presents the methods that were utilized in the quantitative research design of the study. The causal-comparative study employed MANOVA to determine whether students with differing levels of social-emotional skills differ in achievement test scores. Research design, research questions, hypotheses, participants and setting, instrumentation, procedures, and data analyses are described.

Design

The study employed a causal-comparative research design featuring MANOVA to examine social-emotional skills levels as independent variables operating as possible causal factors upon the dependent variables. There were five independent variables. The independent variables were specific social-emotional skills: Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence. There were two dependent variables: Math scores and English Language Arts (ELA) scores on the Florida Standards Assessment (FSA). The FSA is the state-mandated annual high stakes achievement test for Florida public school students in grades three through twelve.

Gall, Gall, and Borg (2007) present causal-comparative design as appropriate to investigate cause-and-effect relationships. Causal-comparative design is used to determine the magnitude of the difference of independent variables' impact upon more than one dependent variable. Independent variables measured in interval scales, such as the scales used in the Child Trends Social and Emotional Skills Survey battery employed in the study, are appropriate in causal-comparative research designs. Furthermore, in causal-comparative research designs the independent variables are not manipulated as is the case in experimental research. Non-experimental, causal-comparative research designs examine groups' naturally occurring

variations of the independent and dependent variables under study. Rather than draw strong cause-and-effect conclusions, one aim of causal-comparative research is to establish a foundation in recent, promising avenues of research such as the impact of social-emotional competence on academic achievement (Durlak et al., 2017; Melnick et al., 2017; Taylor et al., 2017; Taylor, Weissberg, & Schellinger, 2011; Durlak, Dymnicki, Elias & Haney, 2008; Buckley, Storino, & Saarni, 2003). Future studies may build on findings from the study toward stronger cause-and-effect experimental conclusions concerning social-emotional skills' impact on academic achievement.

Unlike research that examines phenomena that may be explained by studying one or two variables, educational research frequently involves more complex phenomena requiring analysis of numerous variables, or even interactions among numerous variables, as is the case in this study. The complex nature of both social-emotional competence and student learning are examples of educational phenomena involving the interrelation of many variables. Such complexity rendered MANOVA as an indicated statistic due to its capability to examine multiple independent and dependent variables. MANOVA allows researchers “to measure and study the degree of relationship among various combinations” (Gall et al., 2007, p. 353) of three or more variables. MANOVA is useful in that it “helps the researcher conceptualize and analyze the nature of ... interrelated characteristics” (Gall et al., 2007, p. 324) comprising complex phenomena such as that featured in this study.

In addition to identifying whether groups featuring the independent variables impacted the dependent variables in a statistically significant manner, subsequent analyses identified the variables of significant statistical impact, as well as their degree of impact. Wilks' lambda is the statistical procedure most commonly employed to identify statistically significant differences among combinations of dependent variables. Following the Wilks' lambda analysis, univariate

Analysis of Variance (ANOVA) of each dependent variable was conducted to identify the impact of individual independent variables upon each dependent variable. Identifying social-emotional skills that operate as possible causal factors relative to ELA and mathematics high stakes test achievement may guide future research toward fully tapping the power inherent in Social and Emotional Learning (SEL) for optimizing student learning.

Research Questions

RQ1: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ2: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ3: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ4: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ5: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ6: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate,

high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

RQ7: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ8: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ9: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ10: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ11: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ12: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

Hypotheses

The null hypotheses for the study were:

H01: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H02: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H03: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

H04: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H05: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H06: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

H07: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H08: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H09: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

H010: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H011: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H012: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

Participants and Setting

Participants for the study were drawn from a convenience sample of grade five students and their teachers. The social-emotional skills data collected in the study utilized student participants' 2018-2019 FSA Math and ELA achievement scores. The role of the teacher participants was to report their assessments of their students' social and emotional skills. Participants were drawn from grade five general education classrooms at Title I schools in a large, metropolitan, public school district located in southern Florida enrolled during the 2018 – 2019 school year. Schools commonly termed “Title I” are eligible to receive funding through

legislation the technical title of which is: Title I, Part A of the Elementary and Secondary Education Act. Title I provides funds to schools with high incidence of low-income families (Title I, Part A Program, 2017), a population of interest in this study.

The sample size for students was 115 ($N = 115$). The precise number of participants met or exceeded the minimum number required to obtain a medium effect size and the minimum sample number (i.e., 100) required by Liberty University. According to Gall et al. (2007), 66 is the minimum number of participants required for a medium effect size with a statistical power of 0.7 at the 0.5 alpha level. See Procedures for additional information regarding sample selection.

Among the schools that consented (through their principals) to participate in the study, all fifth-grade general education students for whom grade five FSA mathematics and ELA scores are on file with the school district had the opportunity to participate. The sample was obtained after acquiring and documenting school district authorization to conduct the study (see Appendix A). Next, principals' consent for their fifth-grade students' participation was obtained and documented (see Appendix B). Once principals' consent was obtained, grade five teachers' consent was obtained (see Appendix C). A consent letter was sent to the parents/guardians of all fifth-grade general education students. Parent consent and student assent were obtained and documented for each participant in the study (see Appendices D and E, respectively).

Data collection occurred directly from students in the form of self-report Child Trends Student Surveys (to be referred to as Student Surveys) and from teachers in the form of Child Trends Teacher Surveys (to be referred to as Teacher Surveys). Administration of the Student Surveys was conducted by participating teachers and occurred in one sitting. Student Survey data was collected at school sites in students' general education classrooms. Teachers were permitted to complete the Teacher Surveys within two weeks of student self-report data collection at a time and location of teachers' choosing.

Instrumentation

Two instruments were used to measure the variables in the study. The dependent variables (i.e., Math scores and ELA scores) were assessed using participants' overall scores on the mathematics and ELA portions of the 2018-2019 Florida Standards Assessment (FSA). The independent variables (i.e., Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence) were assessed using student participants' combined Student Survey and Teacher Survey ratings as per procedures contained in the Child Trends Operationalization Document contained as an element of the Child Trends Social and Emotional Skills Survey battery. The Child Trends Social and Emotional Skills Survey battery was adopted from a publication from Child Trends (Scarupa, 2014), a leading non-profit organization dedicated to "improving the lives and prospects of children and youth through high-quality research" ("Home- Child Trends", 2018). The assessment tool was comprised of a teacher survey and a student survey. The teacher survey and student survey were used together to assess the levels of each elementary student participant's five social-emotional skills. Additional documents comprising the Child Trends Social and Emotional Survey battery and utilized in the study were an operationalization document and a scoring guide (Scarupa, 2014). The Child Trends Social and Emotional Skills Survey battery is a public domain document. Permission was explicitly granted to the researcher to use the instrument (see Appendix F).

Florida Standards Assessment

The Florida Standards Assessment (FSA) measures student achievement in ELA, mathematics, and high-school level End of Course exams. All third through twelfth grade Florida public school students take the FSA. Grade level tests differ by test items derived from grade level Florida Standards. The Florida Standards were adopted by the Florida Department of Education (FDOE) in 2014. The Florida Standards emphasize critical thinking, problem solving,

and communication skills, and delineate foundational expectations of what all students should know, understand, and be able to do in Florida's kindergarten through twelfth grades (Frequently Asked Questions, 2017). The Florida Department of Education (FDOE) directed the development of the FSA. The Florida Standards Assessment instrument has met or exceeded American Educational Research Association, American Psychological Association, and National Council on Measurement in Education Standards published in 2014, and featured participation by the FDOE Office of K-12 Student Assessment, Florida teachers, a Technical Advisory Committee comprised of nationally recognized educational assessment experts, and the American Institutes of Research (Florida Standards Assessment 2017-2018 Volume 1, 2018).

FSA mathematics and ELA testing occur annually in the spring. The FSA ELA test is comprised of two separate sub-tests: reading and writing. In 2018-2019, the math test and both of the ELA sub-tests for students in grade five classrooms were administered in paper-based formats. The grade five FSA mathematics test and the ELA reading sub-test each took place in two testing sessions of 80 minutes. The FSA mathematics test and FSA ELA reading sub-test is spread over two days for each. The grade five FSA ELA writing sub-test is comprised of one text-based, constructed-response item that was completed in a single, 120-minute session. The grade five FSA mathematics test and the ELA reading sub-test each contain 56-66 items.

There are a variety of types of test items common to the grade five FSA mathematics test and the ELA reading sub-test. The types of test items in the FSA mathematics include Multiple Choice, Multiselect (in which the student is directed to select all the correct answers), Editing Task Choice (in which the student is directed to select the answer which correctly replaces highlighted text), Selectable Hot Text (in which the student is directed to fill in bubbles corresponding to correct sentences), equation editor (in which the student is directed to select the correct mathematics symbol to complete a math equation), and matching (Grade 5 mathematics

item specifications, 2018). In addition to Editing Task Choice and Multiselect, the FSA ELA reading sub-test includes Selectable Text (in which the student is directed to make an inference and select supporting text), Evidence-Based Selected Response (EBSR) (in which the student is directed to analyze, infer and select supporting text), Table Match (in which the student is directed to select correct answers from a table), and Multimedia (in which the student is directed to interpret images, charts or graphics) items (Grade 5 English Language Arts Item Specifications, 2018).

The FSA was scored by testing authorities by summing correct responses on each test to derive a total raw score. Raw scores were statistically converted to scale scores. The 2018-2019 FSA ELA and Mathematics Fact Sheet (2018) reported scale scores to indicate fifth-grade students' mathematics and ELA abilities. 2019 FSA mathematics scale scores range from 256 to 388; 2019 FSA ELA scale scores range from 257 to 385. Students' ability estimates were denoted in terms of levels (e.g., scale scores ranging from 257 to 303 correspond to an ELA level one). There are five levels (i.e., one through five). Each level has a corresponding one or two word term and concise description associated with it. Level one term and description is "inadequate: highly likely to need substantial support for the next grade level" (Understanding Florida Standards Assessments Reports, 2017). Level two is "below satisfactory: likely to need substantial support for the next grade" (Understanding Florida Standards Assessments Reports, 2017). Level three is "satisfactory: may need additional support for the next grade" (Understanding Florida Standards Assessments Reports, 2017). Level four is "proficient: likely to excel in the next grade" (Understanding Florida Standards Assessments Reports, 2017), and level five is "mastery: highly likely to excel in the next grade" (Understanding Florida Standards Assessments Reports, 2017).

Each summer since 2014, FLDOE content experts, psychometricians, and experts from the Florida Test Development Center and the American Institutes of Research (AIR) actively collaborate to construct the FSA that is administered the following spring. Test construction is comprised of a process that utilizes content target blueprints, psychometric considerations, new item development procedures, and review that includes, in addition to FLDOE, test development and AIR experts, and members of Bias, Community Sensitivity, and Content Item Review committees (Florida Standards Assessment 2017-2018 Volume 1, 2018).

On an annual basis, Florida Department of Education reports evidence of FSA reliability and validity. Statistical measures for FSA reliability and validity are published each year in the fall following spring FSA administration. As such, measures of reliability and validity for the 2018-2019 FSA are not yet available. See Table 1 for reliability statistics of FSA's administered to date. All of the reliability measures of the FSA grade five mathematics and ELA tests have attained American Psychological Association (2014) and American Educational Research Association (2014) reliability standards (Florida Standards Assessment 2017-2018, 2018; Florida Standards Assessment 2016-2017, 2017; Florida Standards Assessment 2015-2016, 2016; Florida Standards Assessment 2014-2015, 2015).

Table 1

FSA reliability coefficients.

	2017/18		2016/17		2015/16		2014/15	
	Grade 5 ELA	Grade 5 Math						
Cronbach <i>Alpha</i>	0.92	0.95	0.92	0.96	0.91	0.95	0.89	0.93
Stratified <i>Alpha</i>	0.92	0.95	0.92	0.96	0.91	0.95	0.9	0.93
Feldt-Raju	0.9	0.93	0.89	0.93	0.89	0.93	0.88	0.92

(Florida Standards Assessment 2017-2018, 2018; Florida Standards Assessment 2016-2017, 2017; Florida Standards Assessment 2015-2016, 2016; Florida Standards Assessment 2014-2015, 2015)

An additional analysis of reliability is performed annually to assess inter-rater reliability of the grade five FSA ELA writing sub-test. Measures of reliability are calculated for three writing dimensions: (a) purpose, focus, and organization, b) evidence and elaboration, and, 3) conventions. In 2017-2018 at grade five, more than 200,000 student responses were examined for inter-rater reliability. At grade five, a range of 78% to 81% of exact inter-rater reliability was found. One hundred percent of either exact or adjacent inter-rater reliability was found. Cohen's kappa is a metric that represents inter-rater agreement after accounting for chance. Weighted Kappa coefficients ranged from 0.842 to 0.894 across the three dimensions at grade five.

On an annual basis, the Florida Department of Education reports validity procedures and analyses for FSA mathematics and ELA tests. Third-party, independent study of alignment of the test items to the Florida Standards is conducted as part of the FSA construction. Test items have been found to be representative of the Florida Standards in all Florida Standards Assessments conducted in 2017-2018, 2016-2017, 2015-2016, and 2014-2015 (Florida Standards Assessment 2017-2018, 2018; Florida Standards Assessment 2016-2017, 2017; Florida Standards Assessment 2015-2016, 2016; Florida Standards Assessment 2014-2015, 2015). Second-order confirmatory analyses were conducted and provide evidence that FSA score level assignments aligned with the underlying structure of the test. Three goodness-of-fit metrics were calculated: root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis index (TLI). For root mean square error of approximation (RMSEA), a value closer to zero indicates better fit (zero implies best fit); less than 0.05 is considered good fit; greater than 0.1 indicates poor fit (Browne & Cudek, 1993). See Table 2 for validity statistics of FSA's administered to date. All of the validity measures of the FSA grade five mathematics and ELA tests have attained American Psychological Association (2014) and American Educational Research Association (2014) validity standards (Florida Standards Assessment 2017-2018, 2018;

Florida Standards Assessment 2016-2017, 2017; Florida Standards Assessment 2015-2016, 2016; Florida Standards Assessment 2014-2015, 2015).

Table 2

FSA Goodness-of-Fit Second-Order Confirmatory Factor Analyses.

	2017/18		2016/17		2015/16		2014/15	
	Grade 5 ELA	Grade 5 Math						
RMSEA	0.02	0.03	0.02	0.04	0.02	0.03	0.02	0.03
CFI	0.99	0.98	0.99	0.95	0.99	0.97	0.99	0.96
TLI	0.99	0.98	0.99	0.95	0.99	0.97	0.99	0.96

(Florida Standards Assessment 2017-2018, 2018; Florida Standards Assessment 2016-2017, 2017; Florida Standards Assessment 2015-2016, 2016; Florida Standards Assessment 2014-2015, 2015)

RMSEA for the grade five FSA mathematics and ELA tests indicated good fit. Comparative fit index (CFI) and Tucker-Lewis index (TLI) scores greater than 0.9 are recognized as acceptable fit; scores greater than 0.95 are considered good fit (Hu & Bentler, 1999). CFI and TLI calculations ranged from 0.95 to 0.99 for the fifth grade FSA mathematics and ELA tests. All the CFI and TLI scores indicated good fit.

Fairness and accessibility of the FSA were integrated into the instrument development process by training developers in principles of universal design of assessments. These principles are intended to remove barriers to a wide range of students. Furthermore, differential item functioning (DIF), a statistical process of identifying test items for which specific groups perform differently, was conducted for the following groups: gender, ethnicity, disability status, and language status. (Statewide Assessment Program, 2019).

The FSA has been featured in doctoral dissertations by DeSouza (2018) and another by Morris (2016).

Social and Emotional Skills

The Child Trends Social and Emotional Skills Survey battery is the result of a collaboration between Child Trends and the Tauck Family Foundation (Scarupa, 2014). The instrument assesses skills found to be teachable in school. The Child Trends Social and Emotional Skills Survey battery is comprised of a 14-item Child Trends Teacher Survey, a 12-item Child Trends Student Survey, and an Operationalization Document. Together, the surveys yield levels regarding individual students' skills that make up social-emotional competence, namely, Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence.

The Teacher Survey assesses an individual teacher's assessment of his or her individual students' Persistence, Self-Control, and Social Competence. Teachers were instructed to reflect on the student's behavior during the last school quarter, and to respond to each of the 12 items (e.g., "the student kept working on a task that was difficult" [Scarupa, 2014, p. 18]) on a Likert-like scale: a rating of one for none of the time, two for a little of the time, three for most of the time, or four for all of the time. The Student Survey assesses Academic Self-Efficacy, Persistence, Self-Control, and Mastery Orientation. Students were instructed to indicate for each item the box that best described them (e.g., "I calm down quickly when I get upset" [Scarupa, 2014, p. 31]) on a Likert-like scale: not at all like me, a little like me, somewhat like me, or a lot like me. For two measures, Persistence and Self-control, there are two scores: one from the Student Survey, and one from the Teacher Survey which correspond to each student participant. In instances of more than one point of discrepancy, Scarupa (2014) recommends using the teacher score, as teachers are considered more reliable reporters. To reduce the possibility of invalid assessment scores for the skills assessed by both the Teacher and Student Survey (i.e., Persistence and Self-Control), the researcher included in statistical analyses only participants with scores differing by one point or less. The Student and Teacher Surveys include scoring

benchmarks. Scores from 1.0 through 1.99 correspond to a Low level of each social-emotional score being assessed; scores from 2.0 through 2.99 correspond to Moderate level; scores from 3.0 through 4.0 correspond to High level. Raw scores for each social-emotional skill were coded as 1, 2, and 3 corresponding to Low, Moderate, and High levels, respectively. Coding the social-emotional skills scores rendered them into nominal form, a requirement for independent variables when using MANOVA (Warner, 2013). The researcher used the coded score levels for input into SPSS in all statistical analyses.

Development of the Child Trends Social and Emotional Skills Survey battery featured measures review, identification, and adaptation of survey questions, expert feedback, pilot study, and survey finalization. Validity and reliability were established using Principal Axis Factor analyses with Varimax (orthogonal) rotations for both the teacher and student pilot surveys. Results informed final versions of the Teacher Survey and Student Survey. To test for reliability, Cronbach's alphas for each social-emotional skill assessed by Teacher Survey were: Academic Self-Efficacy: 0.65, Persistence: 0.92, Self-Control: 0.82, and Social Competence: 0.97 (Scarupa, 2014). Cronbach's alphas for each social-emotional skill assessed by the Student Survey were: Academic Self-Efficacy: 0.83, Persistence: 0.73, and Mastery Orientation: 0.83.

Procedures

The researcher submitted the research proposal to the dissertation committee for review and made resultant recommended revisions. The researcher then defended the dissertation proposal before the dissertation committee. Following a successful proposal defense, the researcher obtained Institutional Review Board (IRB) approval (see Appendix G). The researcher obtained permission to utilize the Child Trends Social and Emotional Skills Survey battery in the study (see Appendix F). The researcher obtained authorization from the Miami-

Dade County Public Schools District to conduct the study (see Appendix A). Upon gaining school district approval, the researcher obtained a list of Title I elementary schools in the Miami-Dade County Public Schools district. The researcher invited principals from all 140 Broward County public Title I schools to participate in the study. The researcher also invited Innovation Charter School, a public charter school in Broward County, Florida to participate in the study. Principals from Innovation Charter School, Lakeview Elementary School, Dr. Gilbert S. Porter Elementary School, Mae M. Walters Elementary School, Colonial Drive Elementary School, Broadmoor Elementary School, and Laura C. Sanders Elementary School authorized school participation in the study.

Upon gaining approval from principals, grade five teachers were invited to participate in the study. Grade five teachers from Innovation Charter School, Lakeview Elementary School, Dr. Gilbert S. Porter Elementary School, and Mae M. Walters Elementary School consented to participate in the study. The researcher met with the consenting grade five teachers at each school site. Teachers were presented the study's general purpose, benefit to the field, administration instructions and procedures, and an estimate of the amount of time participation would require. Teachers were offered a modest dollar amount (e.g., \$50 per 10 student participants) as an expression of appreciation for the time they would invest in completing the Teacher Surveys and administering student participants' completion of the Student Survey. The consenting teachers were given Parent/Guardian Consent and Student Assent forms to disseminate to their students (see Appendices D and E, respectively). Students regarding whom signed parent/guardian consent and signed student assent, were acquired comprised participants for the study. Signed Parent/Guardian Consent and Student Assent forms were retained by the teacher and collected by the researcher at the school sites. Informed consent documentation will

be retained until three years after completion of the study in a secure location, and then shredded to protect participants' confidentiality.

The teacher and student survey completion period then commenced. The Student Surveys, estimated by the instrument's developers to require approximately 20 minutes to complete, were administered by the teachers to student participants in paper format. Survey completion occurred in a single period at the school sites. No testing irregularities were reported. Teachers completed the Child Trends Teacher Surveys within a reasonable time following Student Survey administration. Data analysis followed.

Data Analysis

The sample size was 115 ($N = 115$). According to Gall et al. (2007), 66 participants is the minimum number required for a medium effect size with a statistical power of 0.7 at the 0.05 alpha level. Stevens (2009) identifies a sample size range of 54-70 as appropriate to yield a statistical power of 0.7 at the 0.05 alpha level for MANOVA featuring five independent variable groups. The independent variable raw data is comprised of Teacher Survey and Student Survey ratings for each of five social-emotional skills. Once the raw data were collected, the researcher conducted data screening by visually examining the raw data for irregularities. Raw Teacher and Student Survey scores were coded 1, 2, or 3 corresponding to Low, Moderate, or High levels of each social-emotional skill. Names of student participants were also coded to protect the confidentiality of the data. Raw scores, social-emotional skill level codes, Mathematics and ELA scores, and gender and ethnic information for each participant were compiled in a researcher-devised Excel spreadsheet. The researcher visually screened the spreadsheet data for irregularities to ensure the data was recorded with fidelity. Next, the data was exported from the spreadsheet into the Statistical Package for the Social Sciences (SPSS) program.

The data was examined using Multivariate Analysis of Variance (MANOVA) statistical

procedures. In MANOVA, “mean scores on multiple quantitative outcome variables are compared for participants across two or more groups” (Warner, 2013, p. 778). In the case of this study, the multiple quantitative dependent variables were participants’ 2018-2019 FSA ELA and FSA mathematics scores. According to Gall et al. (2007), MANOVA is used to determine whether independent, or predictor, variables, and interactions among the independent variables, exert statistically significant effects on two or more dependent, or outcome, variables. As regards this study, Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence were the independent variables, and the purpose of the study was to determine whether these exerted statistically significant effects, either independently or in combination, upon the dependent variables: participants’ 2018-2019 Florida Standards Assessment mathematics scores and ELA scores. The MANOVA procedure yielded an *F* ratio large enough to reject the null hypothesis indicating that the independent variables yielded at least one significant difference in the dependent variables. Univariate analyses of variance were then performed to identify which independent variables, or combinations of independent variables, yielded differences in the dependent variables (Warner, 2013).

According to Warner (2013), there are four assumptions that need to be satisfied for appropriate use of MANOVA. The first assumption to be satisfied for MANOVA is independence of observations of the dependent variables. The second assumption to be satisfied for MANOVA is that the dependent variables (i.e., FSA ELA and mathematics scores) are quantitative and “reasonably normally distributed” (Warner, 2013, p. 785). The SPSS program tested the normal distribution assumption using the Shapiro-Wilk test. The third assumption to be satisfied for appropriate use of MANOVA, according to Warner (2013), is linear, joint distribution of dependent variable scores. SPSS tested for linear distribution of dependent variables by generating scatter plots to demonstrate the linear associations of the dependent

variables to each independent variable. The fourth assumption to be satisfied when using MANOVA is homogeneity of variance across participants' dependent variables' scores. Homogeneity of variances and covariances was assessed using SPSS by the Box's test and Levene's test of equality of variances. SPSS was used to detect multicollinearity and the presence of univariate or multivariate outliers among independent variables scores.

Chapter Three described the methods to be used in the study. Research design, research questions, hypotheses, participants and setting, instrumentation, procedures, and data analyses were described. Chapter Four will present results from the study.

CHAPTER FOUR: FINDINGS

Overview

Chapter Four presents the statistical findings relating to the study. Research questions and null hypotheses are reviewed. Descriptive statistics in the form of means and standard deviations derived from MANOVA and ANOVA statistical procedures are presented as are results of those statistical procedures. The assumption test results are reported and statistically significant results relating to the research questions are presented. Rejections and retentions of null hypotheses are reported.

Research Questions

RQ1: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ2: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ3: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ4: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ5: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ6: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

RQ7: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ8: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ9: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ10: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ11: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ12: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

Hypotheses

The null hypotheses for the study were:

H₀₁: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H₀₂: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H₀₃: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

H₀₄: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H₀₅: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H₀₆: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

H₀₇: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H₀8: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H₀9: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

H₀10: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H₀11: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H₀12: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

Descriptive Statistics

Data are expressed as mean \pm standard deviation. Samples of students scoring at Low levels of Persistence and Social Competence were of insufficient sizes ($N = 1$, $N = 1$, respectively) to conduct statistical analyses. Sample sizes were acceptable for statistical analyses at Low levels of Self-Control, Mastery Orientation, and Academic Self-Efficacy, and at Moderate and High levels of Academic Self-Efficacy, Persistence, Self-Control, Mastery Orientation and Social Competence.

Students at High levels had higher ELA and Math scores than students assessed at Moderate levels in four independent variables: Academic Self-Efficacy, Persistence, Self-Control, and Social Competence. Students at the High level of Mastery Orientation had a lower score than students at the Moderate level. Students at the Low level of Mastery Orientation scored higher on ELA and Math than students at Moderate or High levels. The greatest difference between High and Moderate levels occurred in Persistence for Math ($M = 329.72$, $SD = 21.14$ and $M = 302.39$, $SD = 23.89$, respectively), a difference in means of 27.33. Students scored higher on Math than ELA at all Moderate and High levels in all five independent variable groups: Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence (see Table 3).

Table 3
Means, Standard Deviations, Sample Sizes.

FSA ELA				
	Levels	Mean	Standard Deviation	N
Persistence	1.0	314.00		1
	2.0	300.61	26.77	28
	3.0	321.51	24.72	86
	Total	316.31	26.58	115
Self-Control	1.0	302.50	0.71	2
	2.0	305.62	20.65	40
	3.0	322.40	27.91	73
	Total	316.31	26.58	115
Academic Self-Efficacy	1.0	317.00	28.49	5
	2.0	309.07	22.65	43
	3.0	320.97	28.11	67
	Total	316.31	26.58	115
Social Competence	1.0	367.00		1
	2.0	304.19	21.09	27
	3.0	319.34	26.75	87
	Total	316.31	26.58	115
Mastery Orientation	1.0	322.95	19.97	20
	2.0	318.60	26.88	43
	3.0	312.38	28.62	50
	Total	316.60	26.71	113
FSA Math				
	Levels	Mean	Standard Deviation	N
Persistence	1.0	297.00		1
	2.0	302.39	23.89	28
	3.0	329.72	21.14	86
	Total	322.78	24.75	115
Self-Control	1.0	320.50	20.51	2
	2.0	311.75	19.61	40
	3.0	328.89	25.50	73
	Total	322.78	24.75	115
Academic Self-Efficacy	1.0	313.60	21.65	5
	2.0	312.58	22.85	43
	3.0	330.01	23.88	67
	Total	322.78	24.75	115
Social Competence	1.0	343.00		1
	2.0	313.48	14.32	27
	3.0	325.44	26.66	87
	Total	322.78	24.75	115
Mastery Orientation	1.0	325.30	15.41	20
	2.0	321.77	21.97	43
	3.0	322.92	30.23	50
	Total	322.90	24.95	113

Results

A Multivariate Analysis of Variance (MANOVA) was carried out. MANOVA assumptions that the study feature two or more continuous dependent variables (Florida Standards Assessment Math and ELA scores), a categorical independent variable with two or more independent levels (the levels of the the independent variables were Low, Moderate, and High), and independence of observations were met. Preliminary assumption checking using SPSS found violations ($p < .05$) of normal distribution in five of 24 analyses, as assessed by the Shapiro-Wilk test (see Table 4).

Table 4
MANOVA Tests of Normality.

		Levels	Statistic	Shapiro-Wilk df	Sig.
Persistence	ELA	2	.968	28	.540
		3	.962	83	.016
	Math	2	.972	28	.630
		3	.994	83	.969
Self-Control	ELA	2	.958	38	.165
		3	.945	72	.003
	Math	2	.973	38	.475
		3	.981	72	.347
Academic Self-Efficacy	ELA	1	.902	5	.423
		2	.943	42	.038
		3	.950	65	.011
	Math	1	.850	5	.196
		2	.948	42	.053
		3	.990	65	.873
Social Competence	ELA	2	.970	25	.642
		3	.961	86	.011
	Math	2	.972	25	.700
		3	.982	86	.267
Mastery Orientation	ELA	1	.987	20	.990
		2	.969	42	.315
		3	.969	50	.208
	Math	1	.933	20	.174
		2	.973	42	.408
		3	.966	50	.161

The sample size assumption that there be at least as many cases as the number of dependent variables (i.e., two) was violated in two instances; violations occurred in the Low levels of Persistence and Social Competence. There was homogeneity of variance-covariances matrices, as assessed by Box's test of equality of variance-covariances matrices ($p = .208$) and

there was homogeneity of variances for both dependent variables, as assessed by Levene's Test of Homogeneity of Variance ($p = .453$, $p = .179$, respectively).

A MANOVA yielded statistically significant differences on the combined dependent variables in: Persistence ($F(4, 142) = 3.970$, $p = .004$; Wilks' $\Lambda = .809$; partial $\eta^2 = .101$), Social Competence ($F(4, 142) = 4.365$, $p = .002$; Wilks' $\Lambda = .793$; partial $\eta^2 = .110$), Persistence combined with Self-Control ($F(2, 71) = 9.437$, $p < .0005$; Wilks' $\Lambda = .790$; partial $\eta^2 = .210$), and Persistence combined with Mastery Orientation ($F(4, 142) = 3.343$, $p = .012$; Wilks' $\Lambda = .835$; partial $\eta^2 = .086$). Because MANOVA results were statistically significant, one-way univariate ANOVA was conducted to identify independent variables, or combinations of independent variables, with statistically significant differences in the dependent variables.

ANOVA requires that data feature one dependent variable measured at the continuous level. This requirement was met by carrying out separate analyses for each dependent variable (i.e., ELA scores and Math scores), each of which is measured at the continuous level. Three independent variables (i.e., Academic Self-Efficacy, Self-Control, and Mastery Orientation) were measured at three categorical levels: Low, Moderate, and High. ANOVA was applied only at the Moderate and High levels of Persistence and Social Competence due to insufficient sample sizes at the Low levels ($N = 1$, $N = 1$).

Since each of the independent variables was subjected independently to Analysis of Variance, the ANOVA requirement that data feature one independent variable with two or more categorical (i.e., Low, Moderate, and High), independent groups was met. The ANOVA requirement: independence of observations was met. ANOVA assumes that data feature no outliers. ANOVA found no extreme outliers, but found univariate outliers, as assessed by boxplots (see Figures 1-10). As such, the assumption that the data be free of outliers was violated. Data for the study featured 14 outliers among 12 participants (two participants

generated outliers for both ELA and Math scores). Warner states, “real data sets often contain errors... inconsistencies (and) outliers” (2013). In response to this violation, the researcher consulted with his dissertation committee chair and determined to perform a second execution of MANOVA with outliers removed to observe the impact on findings. The data set with outliers (and three participants with an incomplete score in either the Student Surveys or the Florida Standards Assessment) removed featured 100 participants ($N = 100$).

When MANOVA was executed with the outliers removed, this new data set featured a new set of outliers along with one statistically significant result. MANOVA yielded a statistically significant difference on the combined dependent variable in Persistence ($F(4, 124) = 2.681, p = .035, \text{Wilks' } \Lambda = .847; \text{partial } \eta^2 = .080$). In follow up to the MANOVA, univariate Analysis of Variance (ANOVA) showed a statistically significant difference among grade five mathematics scores on the Florida Standards Assessment Math scores (i.e., Math scores) by Persistence ($F(2, 63) = 4.421, p = .016; \text{partial } \eta^2 = .123$) levels, using a Bonferroni adjusted α level of .025. Null hypothesis one was rejected for Persistence. SPSS will not perform Tukey’s post hoc tests for Persistence because one of the levels in Persistence has fewer than the number of dependent variables (IBM SPSS, 2016) (i.e., the study features two dependent variables and the Low level of Persistence had one case). Therefore, the significant difference in Persistence levels on Math scores was found for Moderate ($M = 308.19, SD = 16.50$) and High ($M = 330.20, SD = 19.71$) levels, a mean increase of 22.01. See Appendix H for additional information on the Multivariate Analysis of Variance that was performed with outliers removed.

In the principal data set utilized in the study (that included outliers), the researcher decided not to include 75 participants ($N = 192$). Seventy-five student participants were not included in the study because their self-ratings differed from teachers’ by more than 1.00 points on the two social-emotional skills (namely, Persistence and Self-Control) that featured combined

teacher - student assessment. While the Child Trend Social-Emotional Skills Battery Operationalization Document (Scarupa, 2014) allows for the student's rating to be discarded in favor of the teacher's (authors state: teachers "are likely a *more* reliable reporter on these skills" [Scarupa, 2014, p. 42]), the researcher consulted with his dissertation committee chair then determined not to include those participants for three reasons.

The first reason was that, according to Gall et al. (2007), 66 is the minimum number of participants required for a medium effect size with a statistical power of 0.7 at the 0.5 alpha level; thus, removing the 75 participants would not compromise that research design standard. The second reason the researcher decided to remove the 75 participants lay in reasoning that if a student likely mis-assessed his or herself on one or two skills, that student may have mis-assessed him or herself on the others and, if that were the case, overall internal validity of the study would decrease. Thus, it was concluded by the researcher that safeguarding the internal validity of the study by removing the 75 participants was a better alternative than including them. The third reason was that, even with the 75 participants removed, the study would exceed the minimum number of participants (i.e., 100) required in Liberty University doctoral dissertation research. For the purposes of thoroughness, the researcher executed MANOVA with the inclusion of the 75 participants ($N = 192$).

The MANOVA that was executed with the inclusion of the 75 participants whose self-ratings differed from teachers' by more than 1.00 points on the two social-emotional skills that featured combined teacher - student assessment (i.e., Persistence and Self-Control) yielded statistically significant results. MANOVA for the data set including the additional 75 participants ($N = 192$) yielded statistically significant differences on the combined dependent variables in Persistence ($F(4, 258) = 3.358, p = .011, \text{Wilks' } \Lambda = .903; \text{partial } \eta^2 = .049$), Social Competence ($F(4, 258) = 3.126, p = .016, \text{Wilks' } \Lambda = .910; \text{partial } \eta^2 = .046$), Persistence

combined with Self-Control ($F(4, 258) = 3.391, p = .010, \text{Wilks' } \Lambda = .903; \text{partial } \eta^2 = .050$), Persistence combined with Academic Self-Efficacy ($F(6, 258) = 2.247, p = .039, \text{Wilks' } \Lambda = .903; \text{partial } \eta^2 = .050$), and Persistence combined with Self-Control, Academic Self-Efficacy, and Mastery Orientation ($F(2, 129) = 6.383, p = .002, \text{Wilks' } \Lambda = .910; \text{partial } \eta^2 = .090$). Because MANOVA found significant differences on the combined dependent variables, univariate ANOVA was conducted to identify the independent variables, or combinations of independent variables, yielded differences in the dependent variables.

ANOVA found numerous statistically significant results. There was an increase in Math scores for Persistence from the Low ($M = 291.00, SD = 12.06$) to the High ($M = 330.35, SD = 19.83$) levels ($p < .0005$), an increase of 39.68, as assessed by Tukey post hoc test. There was an increase in Math scores for Persistence from the Moderate ($M = 304.02, SD = 23.52$) to the High ($M = 330.35, SD = 19.83$) levels ($p < .0005$), an increase of 26.66, as assessed by Tukey post hoc test. There was an increase in Math scores for Self-Control from the Moderate ($M = 311.42, SD = 20.60$) to the High ($M = 326.25, SD = 25.02$) levels ($p < .0005$), an increase of 15.14, as assessed by Tukey post hoc test. There was an increase in Math scores for Academic Self-Efficacy from the Low ($M = 307.29, SD = 22.30$) to the High ($M = 327.30, SD = 25.63$) levels ($p = .002$), an increase of 20.21, as assessed by Tukey post hoc test. There was an increase in Math scores for Academic Self-Efficacy from the Moderate ($M = 315.00, SD = 20.88$) to the High ($M = 327.30, SD = 25.63$) levels ($p < .0005$), an increase of 12.48, as assessed by Tukey post hoc test. There was an increase in Math scores for Social Competence from the Moderate ($M = 312.03, SD = 16.17$) to the High ($M = 323.84, SD = 25.71$) levels ($p = .004$), an increase of 12.18, as assessed by Tukey post hoc test. Statistically significant differences were found in ELA scores for Persistence ($F(2,130) = 5.682, p = .004; \text{partial } \eta^2 = 0.80$) and Social Competence ($F(2, 130) = 4.730, p = .010; \text{partial } \eta^2 = .068$), using a Bonferroni adjusted α level

of .025. There was an increase in ELA scores for Persistence from the Low ($M = 296.80$, $SD = 20.60$) to the High ($M = 323.78$, $SD = 23.00$) levels ($p < .0005$), an increase of 27.35, as assessed by Tukey post hoc test. There was an increase in ELA scores for Persistence from the Moderate ($M = 299.65$, $SD = 25.29$) to the High ($M = 323.78$, $SD = 23.00$) levels ($p < .0005$), an increase of 24.50, as assessed by Tukey post hoc test. There was an increase in ELA scores for Self-Control from the Moderate ($M = 305.14$, $SD = 20.89$) to the High ($M = 321.13$, $SD = 27.23$) levels ($p < .0005$), an increase of 15.86, as assessed by Tukey post hoc test. There was an increase in ELA scores for Academic Self-Efficacy from the Moderate ($M = 311.32$, $SD = 22.45$) to the High ($M = 319.64$, $SD = 28.34$) levels ($p = .020$), an increase of 8.55, as assessed by Tukey post hoc test. There was an increase in ELA scores for Social Competence from the Moderate ($M = 303.95$, $SD = 21.69$) to the High ($M = 318.61$, $SD = 26.25$) levels ($p = .001$), an increase of 14.41, as assessed by Tukey post hoc test. There was an increase in ELA scores for Mastery Orientation from the High ($M = 310.72$, $SD = 29.78$) to the Low ($M = 324.00$, $SD = 18.64$) levels, ($p = .003$), an increase of 13.28, as assessed by Tukey post hoc test. A statistically significant difference was found in ELA scores for Persistence combined with Self-Control ($F(2, 130) = 5.070$, $p = .008$; partial $\eta^2 = .072$), and for Persistence combined with Academic Self-Efficacy ($F(3, 130) = 3.527$, $p = .017$; partial $\eta^2 = .075$), using a Bonferroni adjusted α level of .025.

Despite these numerous statistically significant findings when MANOVA was executed including the 75 participants ($N = 192$) with self-ratings that differed by one point or more than teachers' ratings for Persistence and Self-Control, an increase in assumptions violations was also found compared with the principal data set utilized by the researcher that did not include these 75 participants. ANOVA found no extreme outliers, but found univariate outliers, as assessed by boxplots. One or more univariate outliers were found in each independent variable on scores for

each dependent variable; the assumption that the data be free of outliers was violated. The assumption that the independent variable scores are normally distributed among dependent variables was violated, as assessed by the Shapiro-Wilk test: ELA scores featured a violation in Persistence at the High level ($p < .0005$); ELA scores featured violations in Self-Control at Moderate ($p = .011$) and High ($p < .0005$) levels; ELA scores featured violations in Academic Self-Efficacy at Moderate ($p = .007$) and High ($p = .001$) levels; ELA scores featured a violation in Social Competence at the High level ($p < .0005$); ELA scores featured a violation in Mastery Orientation at the High level ($p = .009$). Math scores featured a violation in Social Competence at the High level ($p = .039$). The numerous assumptions violations render the statistically significant findings for the data set that included the additional 75 participants ($N = 192$) less trustworthy than the principal data set ($N = 115$) that did not include the additional 75 participants with self-ratings dissimilar to the teacher ratings for Persistence and Self-Control. See Appendix I for additional information on the Multivariate Analysis of Variance that was performed that included the 75 additional participants.

In the original, principal data set in the study (that included outliers and did not include the 75 participants with self-ratings dissimilar to the teacher ratings for Persistence and Self-Control) preliminary assumption checking using SPSS revealed that the assumption that each dependent variable be normally distributed was violated ($p < .05$) (see Table 5), as assessed by the Shapiro-Wilk test. Warner states, “when scores are approximately distributed, about 99% of the scores should fall within +3 and -3 standard deviations of the sample mean” (2013, p. 153). While there were five violations of normal distribution in 24 assessments by the Shapiro-Wilk test, one hundred percent of scores in the study fell between +3 and -3 standard deviations of the sample mean. Warner states, “researchers have to make reasonable judgment calls about how to handle extreme scores or outliers. Researchers need to rely on both common sense and honesty

in making these judgments” (2013, p. 156). The researcher’s judgment is that 19 of 24 assessments constitutes meeting the assumption of *approximate* normality so inclusion of outliers in data analyses, while not desirable, is justified. The ANOVA assumption of homogeneity of variances was met, as assessed using Levene’s Test of Homogeneity of Variance ($p > .05$).

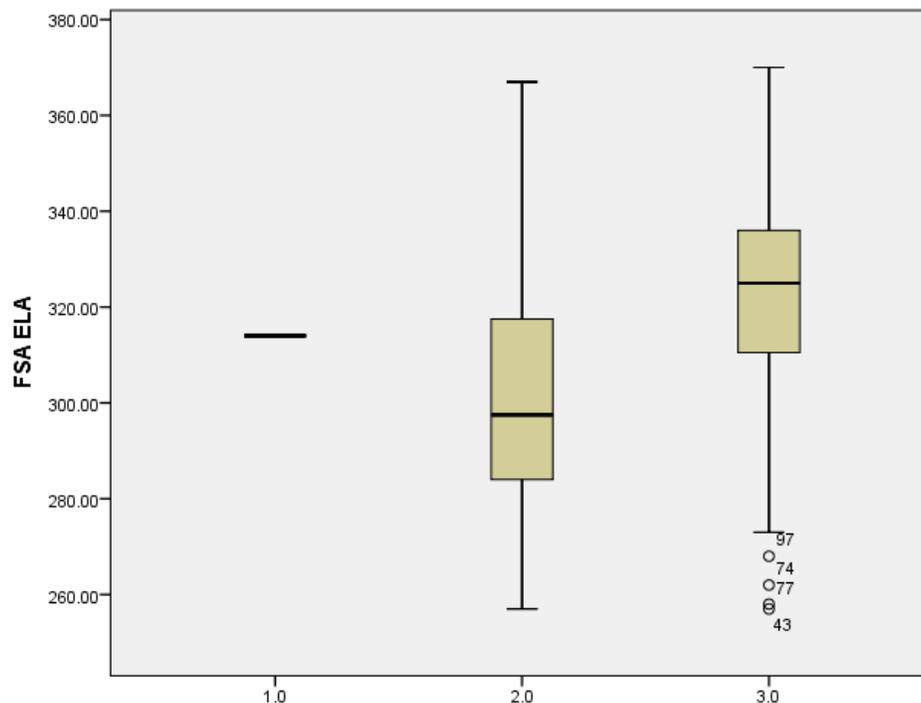


Figure 11. ANOVA Boxplot Persistence ELA

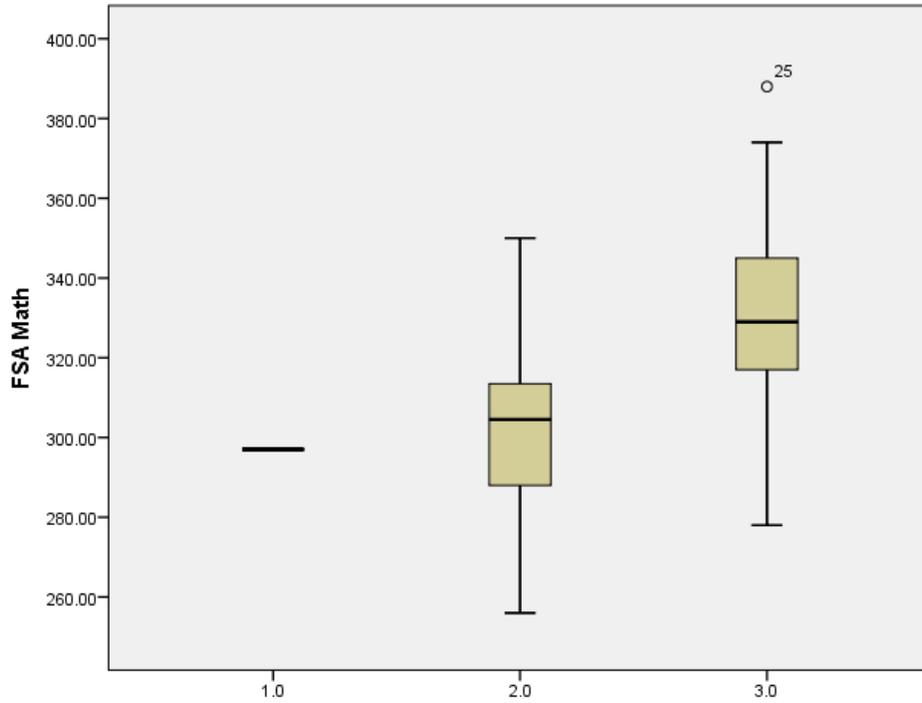


Figure 12. ANOVA Boxplot Persistence Math

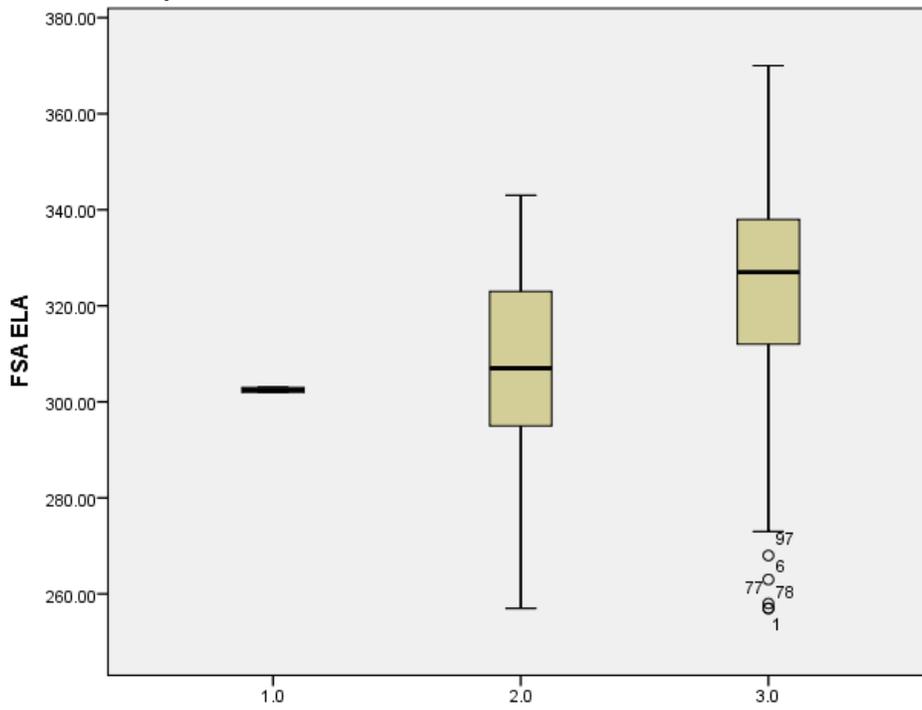


Figure 13. ANOVA Boxplot Self-Control ELA

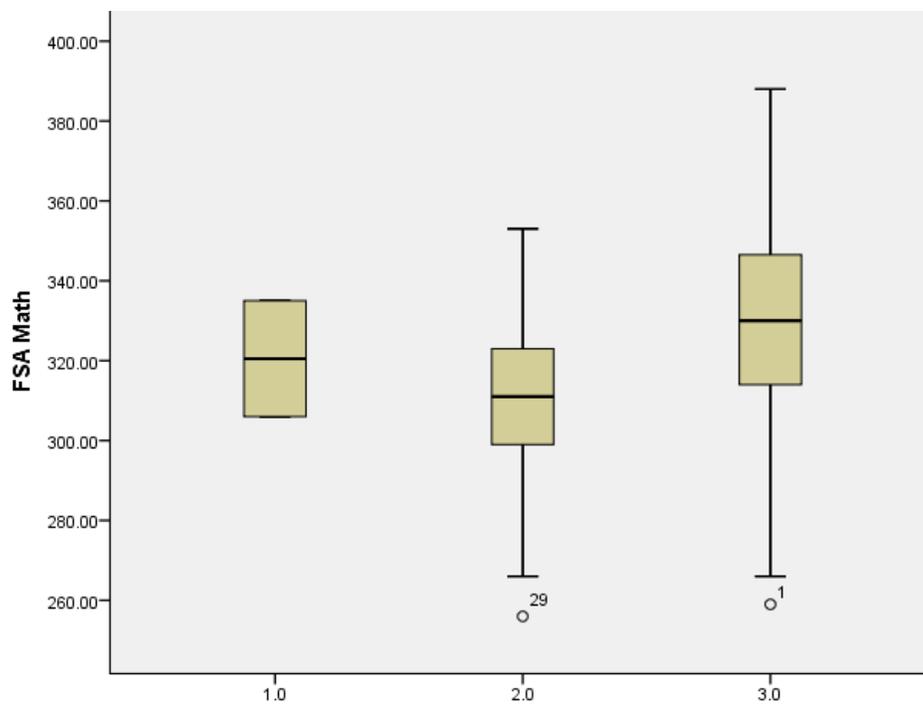


Figure 14. ANOVA Boxplot Self-Control Math

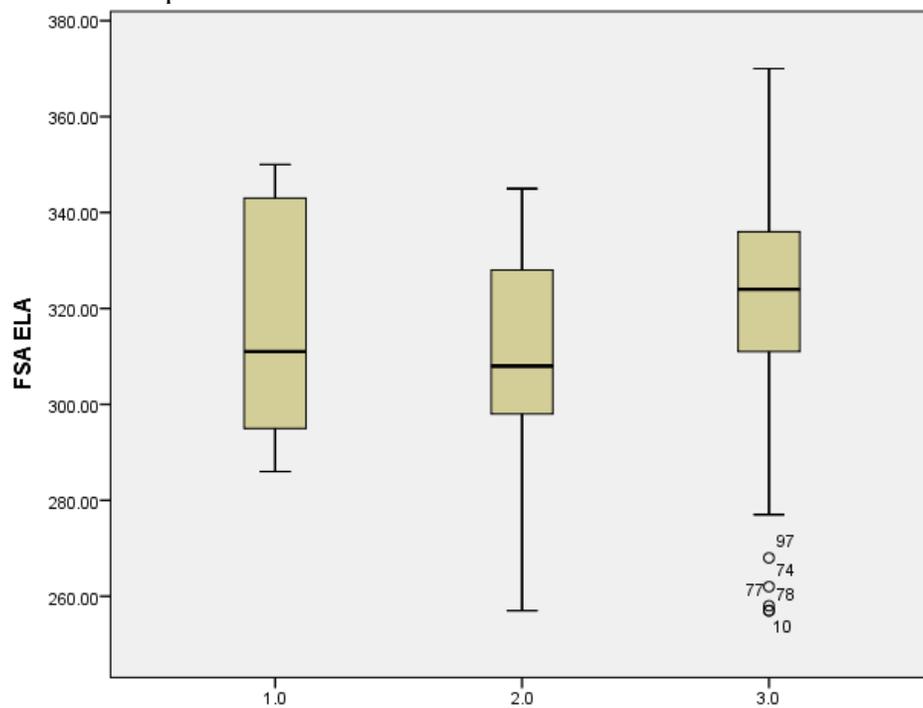


Figure 15. ANOVA Boxplot Academic Self-Efficiency ELA

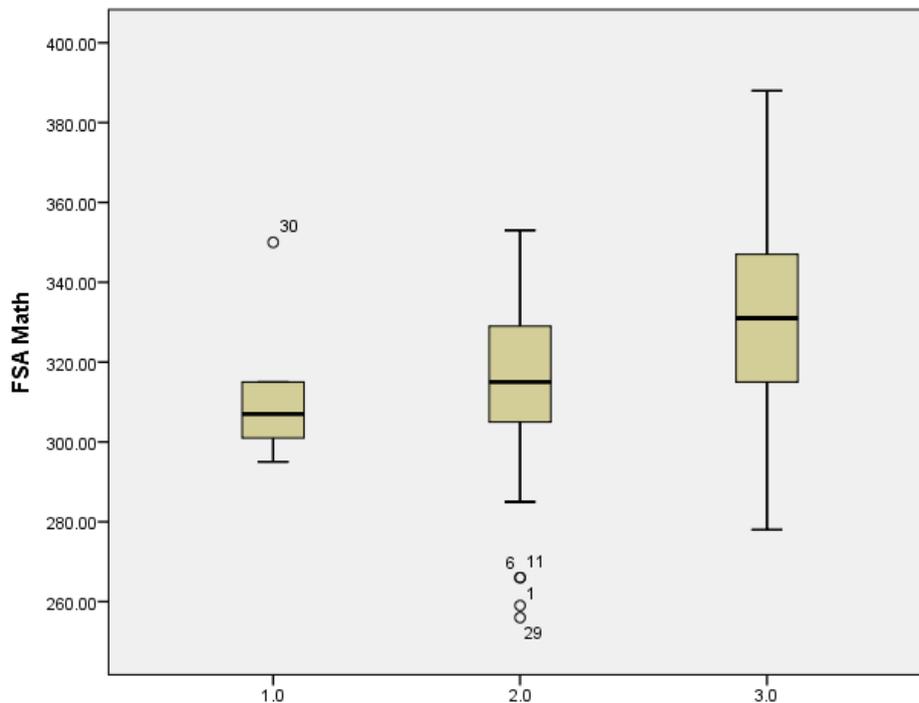


Figure 16. ANOVA Boxplot Academic Self-Efficiency Math

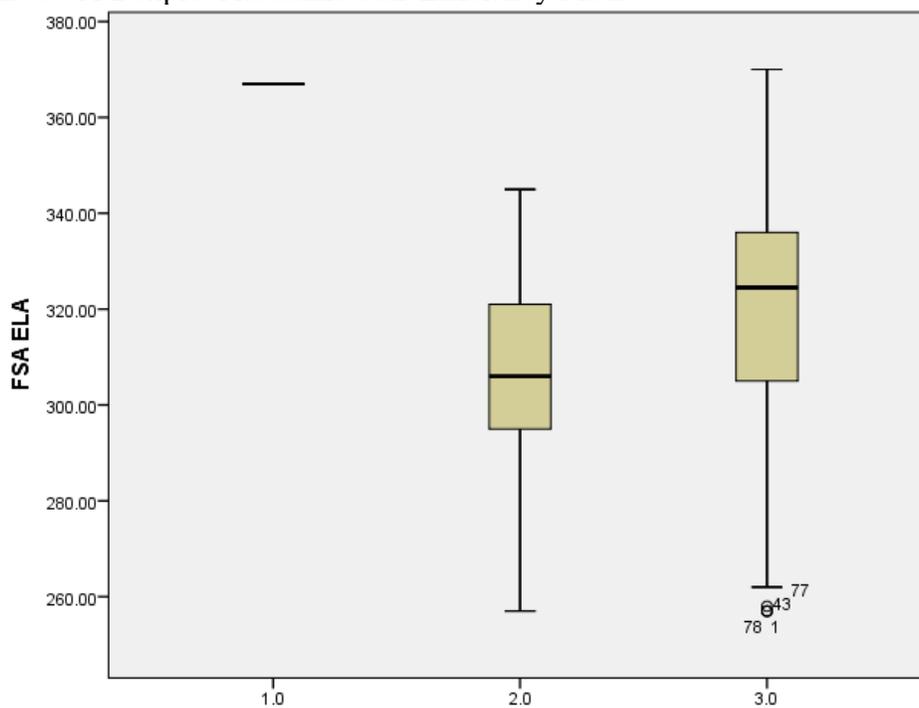


Figure 17. ANOVA Boxplot Social Competence ELA

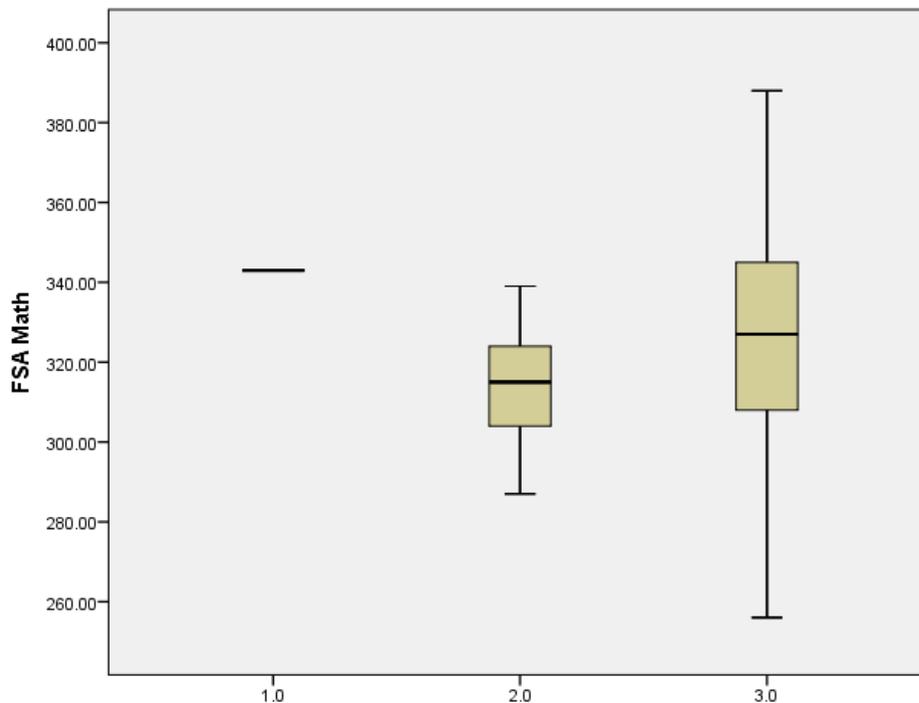


Figure 18. ANOVA Boxplot Social Competence Math

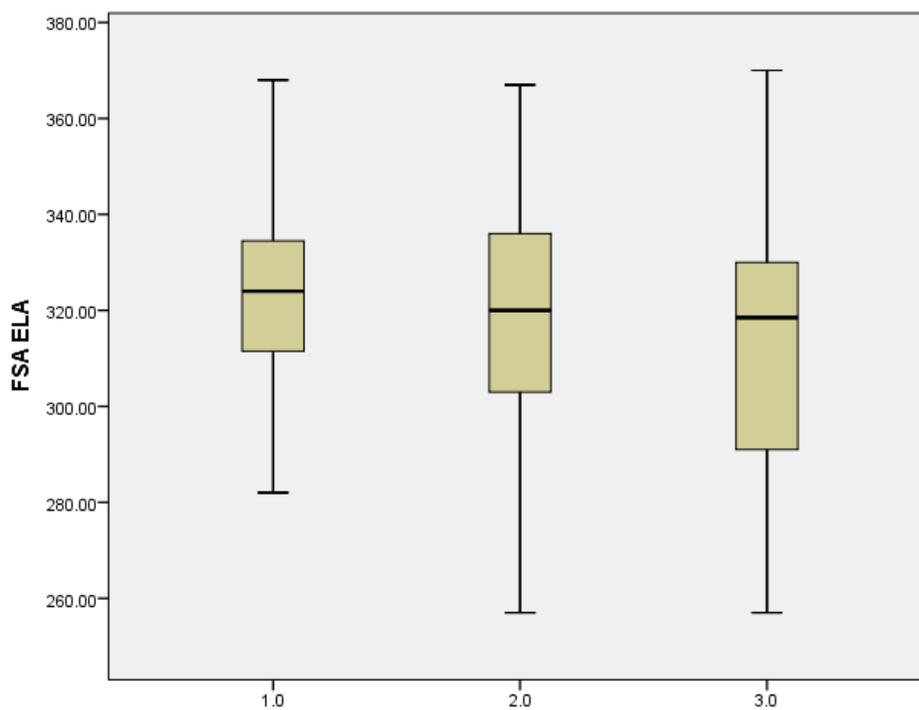


Figure 19. ANOVA Boxplot Mastery Orientation ELA

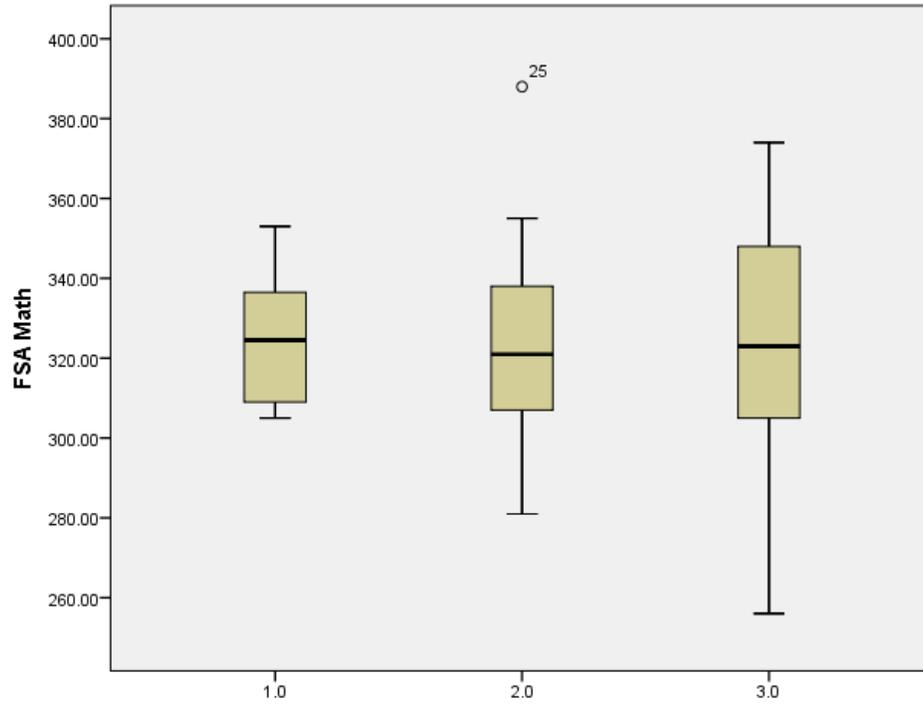


Figure 20. ANOVA Boxplot Mastery Orientation Math

Table 5
ANOVA Tests of Normality

				Shapiro- Wilk	
		Levels	Statistic	Df	Sig.
Persistence	ELA	2	.968	28	.540
		3	.962	83	.016
	Math	2	.972	28	.630
		3	.994	83	.969
Self-Control	ELA	2	.958	38	.165
		3	.945	72	.003
	Math	2	.973	38	.475
		3	.981	72	.347
Academic Self-Efficacy	ELA	1	.902	5	.423
		2	.943	42	.038
		3	.950	65	.011
	Math	1	.850	5	.196
		2	.948	42	.053
		3	.990	65	.873
Social Competence	ELA	2	.970	25	.642
		3	.961	86	.011
	Math	2	.972	25	.700
		3	.982	86	.267
Mastery Orientation	ELA	1	.987	20	.990
		2	.969	42	.315
		3	.969	50	.208
	Math	1	.933	20	.174
		2	.973	42	.408
		3	.966	50	.161

Hypotheses

The null hypotheses for the study were:

H₀₁: There is no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students categorized by Low, Moderate, and/or High skill proficiency levels of Persistence.

In follow up to the MANOVA, univariate Analysis of Variance (ANOVA) showed a statistically significant difference among grade five mathematics scores on the Florida Standards Assessment Math scores (i.e., Math scores) by Persistence ($F(2, 72) = 6.116, p = .004$; partial $\eta^2 = .145$) levels (see Table 6), using a Bonferroni adjusted α level of .025. The Bonferroni adjustment of alpha level is employed when multiple statistical tests are performed simultaneously (Warner, 2013) as occurred with this Analysis of Variance of two dependent variables: math and ELA scores. The function of the Bonferroni correction is to designate an alpha level that is appropriate for these multiple comparisons. Whereas an alpha level of .05 is appropriate for single comparisons, using an alpha level of .05 in statistical tests comparing more than one dependent variable increases the risk of Type I error (i.e., deciding to reject H_0 when H_0 is correct). The Bonferroni correction is accomplished by dividing the .05 alpha level by the number of comparisons featured (in the case of this study, two comparisons were performed). Therefore, the Bonferroni adjusted alpha level of significance is .025 (i.e., $.05/2 = .025$).

SPSS will not perform Tukey's post hoc tests for Persistence because one of the levels in Persistence has fewer than the number of dependent variables (IBM SPSS, 2016) (i.e., the study features two dependent variables and the Low level of Persistence had one case). Therefore, the statistically significant difference of Persistence on Math scores was found for Moderate ($M = 302.39, SD = 23.89$) and High ($M = 329.72, SD = 21.14$) levels, a mean increase of 27.33. Null hypothesis one was rejected for Persistence.

Table 6
Tests of Between-Subjects Effects.

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	FSA ELA	46542.780 ^a	39	1193.405	2.632	.000	.588
	FSA Math	39749.954 ^b	39	1019.230	2.450	.000	.570
Intercept	FSA ELA	1938522.827	1	1938522.827	4275.087	.000	.983
	FSA Math	1928950.380	1	1928950.380	4637.392	.000	.985
Persistence	FSA ELA	6051.481	2	3025.740	6.673	.002	.156
	FSA Math	5088.228	2	2544.114	6.116	.004	.145
Self Control	FSA ELA	1189.753	2	594.876	1.312	.276	.035
	FSA Math	523.892	2	261.946	.630	.536	.017
Academic Self Efficacy	FSA ELA	2412.425	2	1206.212	2.660	.077	.069
	FSA Math	67.229	2	33.615	.081	.922	.002
Social Competence	FSA ELA	6726.756	2	3363.378	7.417	.001	.171
	FSA Math	1078.629	2	539.314	1.297	.280	.035
Mastery Orientation	FSA ELA	1201.434	2	600.717	1.325	.272	.035
	FSA Math	2493.644	2	1246.822	2.997	.056	.077
Persistence * SelfControl	FSA ELA	5584.165	1	5584.165	12.315	.001	.146
	FSA Math	10.102	1	10.102	.024	.877	.000
Persistence * Academic Self Efficacy	FSA ELA	48.184	1	48.184	.106	.745	.001
	FSA Math	18.800	1	18.800	.045	.832	.001
Persistence * Social Competence	FSA ELA	453.347	1	453.347	1.000	.321	.014
	FSA Math	288.024	1	288.024	.692	.408	.010
Persistence * Mastery Orientation	FSA ELA	2238.665	2	1119.332	2.468	.092	.064
	FSA Math	811.302	2	405.651	.975	.382	.026
Self Control * Academic Self Efficacy	FSA ELA	41.903	1	41.903	.092	.762	.001
	FSA Math	406.853	1	406.853	.978	.326	.013
SelfControl * Social Competence	FSA ELA	175.348	1	175.348	.387	.536	.005
	FSA Math	193.097	1	193.097	.464	.498	.006
Self Control * Mastery Orientation	FSA ELA	1221.821	2	610.910	1.347	.266	.036
	FSA Math	1180.959	2	590.480	1.420	.249	.038
Academic Self Efficacy * Social Competence	FSA ELA	1242.366	2	621.183	1.370	.261	.037
	FSA Math	252.702	2	126.351	.304	.739	.008
Academic Self Efficacy * Mastery Orientation	FSA ELA	3114.010	3	1038.003	2.289	.086	.087
	FSA Math	1573.361	3	524.454	1.261	.294	.050
Social Competence * Mastery Orientation	FSA ELA	124.932	2	62.466	.138	.872	.004
	FSA Math	113.837	2	56.918	.137	.872	.004
Persistence * Self Control * Academic Self Efficacy	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * Self Control * Social Competence	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * Self Control * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * AcademicSelfEfficacy * SocialCompetence	FSA ELA	525.638	1	525.638	1.159	.285	.016
	FSA Math	143.733	1	143.733	.346	.558	.005
Persistence * Academic Self Efficacy * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * Social Competence * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000

Self Control * Academic Self Efficacy * Social Competence	FSA ELA	34.997	1	34.997	.077	.782	.001
	FSA Math	13.406	1	13.406	.032	.858	.000
Self Control * Academic Self Efficacy * Mastery Orientation	FSA ELA	526.326	2	263.163	.580	.562	.016
	FSA Math	451.756	2	225.878	.543	.583	.015
Self Control * Social Competence * Mastery Orientation	FSA ELA	994.388	1	994.388	2.193	.143	.030
	FSA Math	.080	1	.080	.000	.989	.000
Academic Self Efficacy * Social Competence * Mastery Orientation	FSA ELA	425.719	1	425.719	.939	.336	.013
	FSA Math	36.876	1	36.876	.089	.767	.001
Persistence * Self Control * Academic Self Efficacy * Social Competence	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * Self Control * Academic Self Efficacy * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * Self Control * Social Competence * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * Academic Self Efficacy * Social Competence * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Self Control * Academic Self Efficacy * Social Competence * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Persistence * Self Control * Academic Self Efficacy * Social Competence * Mastery Orientation	FSA ELA	.000	0	.	.	.	.000
	FSA Math	.000	0	.	.	.	.000
Error	FSA ELA	32648.139	72	453.446			
	FSA Math	29948.823	72	415.956			
Total	FSA ELA	11305447.000	112				
	FSA Math	11751317.000	112				
Corrected Total	FSA ELA	79190.920	111				
	FSA Math	69698.777	111				

a. R Squared = .588 (Adjusted R Squared = .364)

b. R Squared = .570 (Adjusted R Squared = .338)

H₀2: There is no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students categorized by Low, Moderate, and/or High skill proficiency levels of Academic Self-Efficacy.

There was an increase in Math scores from the Moderate ($M = 312.58$, $SD = 22.85$) to the High ($M = 330.01$, $SD = 23.88$) level of Academic Self-Efficacy, a mean increase of 17.85, which was statistically significant ($p < .0005$) (see Table 7), as assessed by Tukey post hoc test. Null hypothesis two was rejected.

Table 7
Multiple Comparisons: Tukey HSD: Academic Self-Efficacy and Math.

Tukey HSD							
Dependent Variable	(I) Academic Self-Efficacy	(J) Academic Self-Efficacy	Mean		Sig.	95% Confidence Interval	
			Difference (I-J)	Std. Error		Lower Bound	Upper Bound
FSA Math	1.0	2.0	1.0524	9.64857	.993	-22.0378	24.1426
		3.0	-16.8000	9.46523	.185	-39.4515	5.8515
	2.0	1.0	-1.0524	9.64857	.993	-24.1426	22.0378
		3.0	-17.8524*	4.03770	.000	-27.5151	-8.1897
	3.0	1.0	16.8000	9.46523	.185	-5.8515	39.4515
		2.0	17.8524*	4.03770	.000	8.1897	27.5151

H₀3: There is no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students categorized by Low, Moderate, and/or High skill proficiency levels of Self-Control.

There was an increase in Math scores from the Moderate ($M = 311.75$, $SD = 19.61$) to the High ($M = 328.89$, $SD = 25.50$) level of Self-Control, a mean increase of 17.65, which was statistically significant ($p < .0005$) (see Table 8), as assessed by Tukey post hoc test. Null hypothesis three was rejected.

Table 8
Multiple Comparisons: Self-Control and Math.

Tukey HSD							
Dependent Variable	(I) Self-Control	(J) Self-Control	Mean Difference (I-J)		Sig.	95% Confidence Interval	
			Mean Difference (I-J)	Std. Error		Lower Bound	Upper Bound
FSA Math	1.0	2.0	9.0526	14.79609	.814	-26.3562	44.4615
		3.0	-8.5972	14.62037	.827	-43.5856	26.3911
	2.0	1.0	-9.0526	14.79609	.814	-44.4615	26.3562
		3.0	-17.6499*	4.08942	.000	-27.4363	-7.8634
	3.0	1.0	8.5972	14.62037	.827	-26.3911	43.5856
		2.0	17.6499*	4.08942	.000	7.8634	27.4363

H04: There is no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students categorized by Low, Moderate, and/or High skill proficiency levels of Mastery Orientation.

There was no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students between Low, Moderate, and High levels of Mastery Orientation. Null hypothesis four was not rejected.

H05: There is no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students categorized by Low, Moderate, and/or High skill proficiency levels of Social Competence.

There was no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students between Low, Moderate, and High levels of Social Competence. Null hypothesis five was not rejected.

H06: There is no statistically significant difference in Florida Standards Assessment math achievement test scores (i.e., Math scores) of fifth grade students categorized by Low, Moderate, and/or High skill proficiency levels of combinations of Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

In follow up to the MANOVA, univariate ANOVA did not show statistically significant differences by which to reject the null hypothesis on Math scores in combinations of any of the independent variables: Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence, using a Bonferroni adjusted α level of .025. Null hypothesis six was not rejected.

H₀7: There is no statistically significant difference in Florida Standards Assessment English Language Arts achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and/or High levels of Persistence.

In follow up to the MANOVA, univariate ANOVA showed a statistically significant difference in ELA scores for Persistence ($F(2, 72) = 6.673, p = .002$; partial $\eta^2 = .156$), using a Bonferroni adjusted α level of .025. SPSS will not perform Tukey's post hoc tests for Persistence because one of the levels in Persistence has fewer than the number of dependent variables (i.e., the study features two dependent variables and the Low level of Persistence had one case) (IBM SPSS, 2016). Therefore, the significant difference in Persistence levels on ELA scores was found for Moderate ($M = 300.61, SD = 26.77$) and High ($M = 321.51, SD = 24.72$) levels, a mean increase of 20.90. Null hypothesis seven was rejected.

H₀8: There is no statistically significant difference in Florida Standards Assessment English Language Arts achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and/or High levels of Academic Self-Efficacy.

The Tukey post hoc test found an increase in ELA scores by Academic Self-Efficacy from Moderate ($M = 309.07, SD = 22.65$) to High ($M = 320.97, SD = 28.11$) levels (see Table 9), a mean increase of 12.30, which was statistically significant ($p = .013$). Null hypothesis eight was rejected.

Table 9

Multiple Comparisons: Tukey HSD: Academic Self-Efficacy and ELA

Tukey HSD							
Dependent Variable	(I) Academic Self-Efficacy	(J) Academic Self-Efficacy	Mean Difference (I-J)			95% Confidence Interval	
			Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
FSA ELA	1.0	2.0	7.9048	10.07401	.714	-16.2036	32.0131
		3.0	-4.4154	9.88258	.896	-28.0656	19.2349
	2.0	1.0	-7.9048	10.07401	.714	-32.0131	16.2036
		3.0	-12.3201*	4.21574	.013	-22.4089	-2.2314
	3.0	1.0	4.4154	9.88258	.896	-19.2349	28.0656
		2.0	12.3201*	4.21574	.013	2.2314	22.4089

H₀9: There is no statistically significant difference in Florida Standards Assessment English Language Arts achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and/or High levels of Self-Control.

There was an increase in ELA scores from the Moderate ($M = 305.62$, $SD = 20.65$) to the High ($M = 322.40$, $SD = 27.91$) level of Self-Control, a mean increase of 16.62, which was statistically significant ($p = .001$) (see Table 10), as assessed by Tukey post hoc test. Null hypothesis nine was rejected.

Table 10

Multiple Comparisons: Tukey HSD: Self-Control and ELA.

Tukey HSD							
Dependent Variable	(I) Self-Control	(J) Self-Control	Mean Difference (I-J)			95% Confidence Interval	
			Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
FSA ELA	1.0	2.0	-3.4737	15.44849	.973	-40.4438	33.4965
		3.0	-20.0972	15.26503	.391	-56.6283	16.4339
	2.0	1.0	3.4737	15.44849	.973	-33.4965	40.4438
		3.0	-16.6235*	4.26974	.001	-26.8416	-6.4055
	3.0	1.0	20.0972	15.26503	.391	-16.4339	56.6283
		2.0	16.6235*	4.26974	.001	6.4055	26.8416

H₀10: There is no statistically significant difference in Florida Standards Assessment English Language Arts achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and/or High levels of Mastery Orientation.

There was no statistically significant difference in Florida Standards Assessment ELA achievement test scores (i.e., INSERT scores) of fifth grade students between Low, Moderate, and High levels of Mastery Orientation. Null hypothesis ten was not rejected.

H₀11: There is no statistically significant difference in Florida Standards Assessment English Language Arts achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and/or High levels of Social Competence.

In follow up to the MANOVA, univariate ANOVA showed a statistically significant difference in ELA scores for Social Competence ($F(2, 72) = 7.417, p = .001$; partial $\eta^2 = .171$), using a Bonferroni adjusted α level of .025. SPSS will not perform Tukey's post hoc tests for Social Competence because one of the levels in Social Competence has fewer than the number of dependent variables (IBM SPSS, 2016). Therefore, the significant difference in Social Competence levels on ELA scores was found (and previously reported as an ANOVA finding) for Moderate ($M = 304.19, SD = 21.09$) and High ($M = 319.34, SD = 26.75$) levels, a mean increase of 15.15. Null hypothesis eleven was rejected.

H₀12: There is no statistically significant difference in Florida Standards Assessment English Language Arts achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and/or High levels of combinations of Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

In follow up to the MANOVA, univariate ANOVA found a statistically significant difference in ELA scores by Persistence combined with Self-Control level ($F(1, 72) = 12.315, p = .001$; partial $\eta^2 = .146$), using a Bonferroni adjusted α level of .025. Tukey's post hoc test could not be performed because the sample size for Low level of Persistence was insufficient ($N = 1$) (IBM SPSS, 2016). Null hypothesis twelve was rejected.

CHAPTER FIVE: CONCLUSIONS

Overview

Chapter Five details findings from this causal-comparative study considering theory and other studies. Implications for teachers, school-based administrators, policymakers, and legislators are presented. Limitations of the study's research design are noted. Suggestions for future research are posed.

Discussion

The purpose of this causal-comparison study was to provide evidence concerning the impact of social-emotional skills on academic achievement. The study contributes to research treating both academic achievement and Social and Emotional Learning (SEL) skills assessment, a need cited by Durlak et al. as essential (2011). The study identified differences in Florida Standards Assessment mathematics achievement (i.e., Math) scores and English Language Arts achievement (i.e., ELA) scores by social and emotional skills (i.e., Academic Self-Efficacy, Self-Control, Persistence, Mastery Orientation, and Social Competence) as assessed by the Child Trends Social and Emotional Skills Survey Battery among Miami-Dade County and Broward County public school grade five students.

Results of the study were consistent with self-efficacy and emotional competence theoretical frameworks developed by Bandura (1986, 2006) and Saarni (1999), respectively. Results were also consistent with findings from the literature identifying the relationship of social-emotional skills to academic achievement (Jones & Doolittle, 2017; Taylor et al., 2017; Scarupa, 2014; Marchesi & Cook, 2012). Statistically significant findings for Academic Self-Efficacy, Persistence, and Self-Control indicate a possibly causal effect on both Math and ELA scores. Social Competence was found to exert a possibly causal effect on ELA scores but not to Math scores. Mastery Orientation was not found to statistically significantly impact Math or

ELA academic achievement, a finding not aligned toward the finding of Blackwell, Trzesniewski, and Dweck (2007) that Mastery Orientation contributes to academic achievement in adolescents.

RQ1: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

The study found a statistically significant difference in Math scores among participants from Moderate to High levels of Persistence as examined through Analysis of Variance (ANOVA) ($F(2, 72) = 6.116, p = .004$; partial $\eta^2 = .145$), using a Bonferroni adjusted α level of .025. The finding is consistent with the self-efficacy theoretical framework presented by Bandura (2003) which holds that persons with stronger senses of self-efficacy persist longer in attaining goals and exhibit greater resiliency in the face of adversity than persons with weaker senses of self-efficacy. The most impactful mechanism for developing strong sense of self-efficacy is mastery experience (Bandura, 1994). A mastery experience is one in which the individual has set a goal and seen it through to completion (Bandura, 1999). As one experiences mastery, one gains confidence in one's capability to achieve goals and is more likely to persist through challenges. The statistically significant finding that higher Persistence impacted Math scores (indicating a possibly causal effect) is also consistent with attribution theory as presented by Dweck (2006) which holds that a person who experiences success in meeting previous challenges is more likely to persist in expending effort to confront present challenges. The finding also aligns with goal theory (Griggs et al., 2013; Locke & Latham, 2002).

RQ2: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

The study found a difference in Math scores from Moderate ($M = 312.58$, $SD = 22.85$) level to High ($M = 330.01$, $SD = 23.88$) level of Academic Self-Efficacy, a mean increase of 17.85, which was statistically significant ($p < .0005$), as assessed by Tukey post hoc test. Sample size for Low level of Academic Self-Efficacy ($N = 5$) was insufficient to assess statistical significance of Low level of Academic Self-Efficacy in relation to Moderate and High levels. Academic self-efficacy refers to “a person’s belief that he or she can perform a variety of academic tasks effectively” (Scarupa, 2014, p. 5). The study’s statistically significant finding that Math scores increased from Moderate to High levels of Academic Self-Efficacy is consistent with Bandura’s self-efficacy theoretical framework. Bandura (1994) presented the theoretical concept: mastery experiences as central to developing a strong sense of self-efficacy. The finding is consistent with the emotional competence theoretical framework presented by Saarni who adopted Bandura’s (1994) concept of self-efficacy and developed and applied it. Acting in an emotionally competent manner is, for Saarni (1999), emerging from an emotion-laden environment with a sense of having handled it successfully. Applying Bandura's position regarding the potent role mastery and failure experiences play in forging sense of self-efficacy, Saarni presents that how an individual resolves social-environmental experiences, and how the individual interprets outcomes of these experiences, forges the emotional competence of that individual (1999).

The finding that Math scores increased from Moderate to High levels of Academic Self-Efficacy aligns with goal theory, which holds that the role of self-influence (i.e., the influence of internal cognitive processes) impacts the goals one sets, the persistence one exhibits in goal

attainment, and the resiliency one exhibits in the face of obstacles to goal attainment (Griggs et al., 2013; Locke & Latham, 2002). The finding is aligned with the attribution theory developed by C. S. Dweck (2006) who adopted and applied Bandura's self-efficacy paradigm to posit that a person's experiences of success render the person more likely to engage in new challenges and more likely to view meeting challenges as a matter of expending sufficient effort (i.e., success breeds success). The finding is consistent with expectancy-value theory which holds that a person's readiness to engage new challenges is based on one's personal expectations concerning the benefits that meeting the challenge would render. The finding is also aligned with the relational model presented by Lazarus (1991) which holds that self-efficacy increases in accordance with an individual's perception of progress toward one's goal. For Lazarus, centrally contributing to one's perception of progress is yielded from interactions with others.

RQ3: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

The study found a difference in Self-Control from Moderate ($M = 311.75$, $SD = 19.61$) level to High ($M = 328.89$, $SD = 25.50$) level of Self-Control, a mean increase of 17.65, which was statistically significant ($p < .0005$) as assessed by Tukey post hoc test. The sample size for Low level of Self-Control ($N = 2$) was insufficient to assess statistical significance of Low level of Self-Control in relation to Moderate and High levels. Self-Control refers to "the ability to manage or regulate emotion and behaviors, inhibit negative responses, and delay gratification in ways considered socially appropriate for a given situation" (Scarupa, 2014). The statistically significant finding of an increase in Math scores from the Moderate ($M = 311.75$, $SD = 19.61$) to the High ($M = 328.89$, $SD = 25.50$) levels of Self-Control is consistent with findings by Davis et al. (2014) that self-regulation was positively correlated with academic success and Durlak et al.

(2011) that self-regulation positively impacted academic achievement among high school students.

RQ4: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

The study found no statistically significant difference in Math scores among participants by their levels of proficiency in Mastery Orientation. This may be attributable to a lack of differences between the variables, a limitation of the study (e.g., lack of representativeness of the convenience study utilized in the study), or other reasons.

RQ5: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

The study found no statistically significant difference in Math scores among participants by their levels of proficiency in Social Competence. This may be attributable to a lack of differences between the variables, a limitation of the study (e.g., lack of representativeness of the convenience study utilized in the study), or other reasons.

RQ6: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

The study found no statistically significant difference in Math scores among participants by their levels of proficiency in combinations of any of the independent variables. The study's lack of statistically significant findings comparing Math scores and skill proficiency levels in combinations of any of the independent variables fails to support the theoretical frameworks of

Bandura (2006, 1994, 1987), Saarni (1999) and the literature on the subject (Jones & Doolittle, 2017; Taylor et al., 2017; Rimm-Kaufman & Hulleman, 2015, Scarupa, 2014; Marchesi & Cook, 2012; Durlak, 2011). Nevertheless, this lack of statistically significant finding may not be an indication that social-emotional skills levels do not impact math achievement. That no statistically significant comparisons between Math scores and skill proficiency levels in combinations of any of the independent variables may be attributable to limitations of the study (e.g., a lack of representativeness of the sample), a threat that exists in convenience samples such as the one featured in the study (Gall, Gall & Borg, 2007). A possible contributing factor to lack of significant findings between Math scores and skill proficiency levels in combinations of any of the independent variables addressed in the study may be that sample sizes for Low levels of Persistence, Academic Self-Efficacy, Self-Control, and Social Competence ($N = 1$, $N = 4$, $N = 2$, $N = 1$, respectively) were insufficient to assess statistical significance of Low levels in relation to Moderate and High levels in each of these skills. Limitations associated with convenience sampling combined with the study's sampling limitations at Low levels considered in light of the study's statistically significant findings for skills proficiency levels of the independent variables in isolation renders the question of statistically significant differences in math achievement by combinations of social-emotional skills a subject best left for future studies.

RQ7: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

The study found a statistically significant difference in ELA scores among participants from Moderate level to High levels of Persistence as examined through Analysis of Variance (ANOVA) ($F(2, 72) = 6.673$, $p = .002$; partial $\eta^2 = .156$), using a Bonferroni adjusted α level of .025. The finding is consistent with self-efficacy theoretical framework presented by Bandura

(2003) as well as with Bandura's conceptualization of the impact mastery experiences play in the development of social-emotional competence (1994). The increase in ELA scores between the Moderate and High levels of Persistence is also consistent with attribution theory as presented by Dweck (2006) and with goal theory as presented by Griggs et al. (2013) and Locke and Latham (2002).

RQ8: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

The study found a difference in ELA scores among participants from Moderate ($M = 309.07$, $SD = 22.65$) to High ($M = 320.97$, $SD = 28.11$) levels of Academic Self-Efficacy, a mean increase of 12.32, which was statistically significant ($p = .013$), as assessed by Tukey post hoc test. The sample size for Low level of Academic Self-Efficacy ($N = 5$) was insufficient to assess statistical significance of Low level of Academic Self-Efficacy in relation to Moderate and High levels. The study's statistically significant finding that ELA scores between the Moderate and High levels of Academic Self-Efficacy is consistent with Bandura's self-efficacy theoretical framework. It is also consistent with the conceptual framework of Bandura (1994) regarding mastery experiences. The finding is consistent with the emotional competence theoretical framework presented by Saarni (1999) as well as with goal theory (Griggs et al., 2013; Locke & Latham, 2002). The finding is aligned with the attribution theory developed by C. S. Dweck (2006). The finding is consistent with expectancy-value theory and with the relational model presented by Lazarus (1991).

RQ9: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

The study found a difference in ELA scores among participants from Moderate ($M = 305.62$, $SD = 20.65$) to High ($M = 322.40$, $SD = 27.91$) levels of Self-Control, a mean increase of 16.62, which was statistically significant ($p = .001$) as assessed by Tukey post hoc test. Sample size for Low level of Self-Control ($N = 2$) was insufficient to assess statistical significance of Low level of Self-Control in relation to Moderate and High levels. The increase in ELA scores from the Moderate to the High level of Self-Control extends findings by Davis et al. (2014) that self-regulation was positively correlated with academic success and Durlak et al. (2011) that self-regulation positively impacted academic achievement among high school students.

RQ10: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

The study found no statistically significant difference in ELA scores among participants by their levels of proficiency in Mastery Orientation. This may be attributable to a lack of differences between the variables, a limitation of the study (e.g., lack of representativeness of the convenience study utilized in the study), or other reasons.

RQ11: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

The study found a statistically significant difference in ELA scores among participants from Moderate to High levels of Social Competence as examined through Analysis of Variance (ANOVA) ($F(2, 72) = 7.417$, $p = .001$; partial $\eta^2 = .171$), using a Bonferroni adjusted α level of .025. Social competence refers to “a student’s ability to (a) take others’ perspectives, (b) work well with peers to accomplish a task, (c) resolve problems in ways that maximize positive consequences and minimize negative consequences for the student and her/his peers, and (d)

behave appropriately according to the situation and social norms” (Scarupa, 2014). The finding is consistent with Bandura’s conceptualization of social self-efficacy, which concerns one’s personal sense of capability to successfully engage with others (1994). The concept holds that a sense of positive social self-efficacy increases the number and quality of experiences in which a person may observe and engage positive models for achieving desired outcomes. Conversely, a weak sense of social self-efficacy yields reduced social activity. Bandura associates increased isolation with negative affective states related to self-worth. Negative self-worth beliefs result in reduced goal setting, task persistence, and resiliency behaviors (Bandura, 1994).

Aligned toward Bandura’s human agency concept (2006), Saarni (1999) concurs that humans are at once shaping and being shaped by the environment. It is in this social cognitive context that, for Saarni, emotional development occurs. Saarni’s emotional development conceptual framework subscribes to Bandura’s theoretical construct of triadic reciprocal causation which attributes the interplay of person, environment, and behavior as interacting in subtle and complex ways to impact social, cognitive, and emotional development.

RQ12: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

The study found a difference in ELA scores from Moderate to High levels of Persistence combined with Moderate to High levels of Self-Control as examined through ANOVA ($F(1, 72) = 12.315, p = .001; \text{partial } \eta^2 = .146$), using a Bonferroni adjusted α level of .025. The Persistence finding is consistent with self-efficacy theoretical framework presented by Bandura (2003) as well as with Bandura’s conceptualization of the impact of mastery experiences in the development of social-emotional competence (1994). The statistically significant finding that

Persistence exerted a possibly causal effect on to ELA scores is also consistent with attribution theory as presented by Dweck (2006) and it also aligns with goal theory as presented by Griggs et al. (2013) and Locke and Latham (2002). The study's statistically significant finding that ELA scores increase from Moderate to High levels of Self-Control extend findings by Davis et al. (2014) that self-regulation is positively correlated with academic success and Durlak et al. (2011) that self-regulation positively impacts academic achievement among high school students.

Implications

Academic achievement in U.S. K-12 schools trails other countries ("PISA 2015 Results in Focus", 2018). The achievement of African American and Hispanic students from low-income backgrounds continues to lag even more (DeNavas-Walt & Proctor, 2015). Findings from this study affirm findings indicating that social-emotional competence contributes to academic achievement (Jones & Doolittle, 2017; Dusenbury et al., 2015; Durlak et al., 2011; Elias & Haney, 2008) and go further to indicate a possibly causal impact of social-emotional competence on academic achievement. Social and Emotional Learning (SEL) in K-12 schools holds promise for reducing the achievement gap and, in the medium and long terms, may increase social and economic equity among lower income citizens of color (Aber et al., 2015; Durlak et al., 2011). The time to eradicate the achievement gap is now and SEL is one powerful tool for accomplishing it.

The study was situated among fifth-grade students in Title I schools. Findings from the study contribute to research on social-emotional competence among minority culture students from low-income backgrounds, an area of study cited by Aber et al. (2015) and Elias and Haynes (2008) as particularly important. Four factors combine in rendering implications for the importance of social-emotional competence research among minority culture students from low-

income backgrounds: (a) findings from the study contribute to evidence that social-emotional competence exert a possibly be causal impact on academic achievement, (b) findings from the study suggest promise for reducing the historical lag in academic achievement of Hispanic and African American students from low-income backgrounds compared to majority culture (i.e., Caucasian) students (DeNavas-Walt & Proctor, 2015; Griner & Stewart, 2013), (c) previous research indicates that social-emotional competence has been lower among Hispanic and African-American children from low-income backgrounds (Taylor et al., 2017; Aber et al., 2015; Davis, Solberg, de Baca, & Gore, 2014; Evans & Kim, 2013; Elias & Haney, 2008), and, (d) findings from previous research indicate that social and emotional skills are teachable in school by general education teachers and staff (Schonert-Reichl et al., 2015; Raver et al., 2011, Davis et al., 2014, & Marchesi & Cook, 2012). Thus, while findings from this study contribute to educational research on social-emotional and academic learning of students generally, the findings hold especial implications for students from low-income backgrounds of Hispanic and African American descent (Taylor et al., 2017; Aber et al., 2015; Elias & Haynes, 2008).

Implications of the promise social and emotional skills hold for increasing academic achievement among minority culture students from low income backgrounds are numerous. In the American Enterprise Institute/Brookings Institute report entitled, “Opportunity, Responsibility, and Security- A Consensus Plan for Reducing Poverty and Restoring the American Dream”, Aber et al. concluded that educational attainment (i.e., years of school completed) and achievement (i.e., test scores) were significant factors in effecting “greater progress against poverty” (2015, p. 19) by spurring economic upward mobility in parents’ generations and to their children’s generation that followed. Aber et al. (2015) proceeded to present a major recommendation: “to promote social-emotional development” (Aber et al., 2015, p. 5) in schools.

Findings from the study indicate that federal and state educational legislators should enact policies to increase the teaching and learning of social-emotional skills in schools; implementing SEL in schools with high populations of minority culture students from low income backgrounds should be especially emphasized. Statistically significant findings from the study concerning the relationship of academic self-efficacy to math and ELA achievement imply the need for the development of self-efficacy in teachers and school-based personnel. Bandura cites teacher sense of self-efficacy as impactful upon students' sense of self-efficacy. Teachers with positive senses of self-efficacy exhibit classroom practices consistent with valuing development of students' self-efficacy more than teachers with negative senses of self-efficacy (Schonert-Reichl, 2017; Markow, Macia & Lee, 2013; Brackett et al., 2010; Mashburn et al., 2008; Raver, Garner, & Smith-Donald, 2007). The implication is that thoughtful programs of professional development should be devised to better care for educators' social-emotional wellbeing.

Bandura cites factors as impacting students' sense of self-efficacy: classroom and institutional practices, curricular programming, instructional design, and school culture (1994). As regards the role school culture exercises upon the development of students' senses of self-efficacy, Bandura cites entrance to school as signaling a "critical formative period" (Bandura, 1994, p. 11). Bandura presents that students quickly develop senses of intellectual self-efficacy because of three factors: the success or failure experiences yielded from school grades, cognitive and affective internalization of explicit and implicit messages students receive from teachers and peers concerning their intellectual self-efficacy, and comparison of one's own intellectual ability that may result from shared educational experiences with classmates. Each of these factors should be addressed by school leaders to increase among all school stakeholders understanding of the nature and importance of social-emotional competence in children and youth. SEL should

be integrated into school practices, programming, instructional design, and culture to create schools where children and youth flourish socially and emotionally as well as academically. Recipients of social-emotional and institutional professional development should include teachers, those who oversee teachers (e.g., principals, instructional coaches, district personnel), and those who support teachers' work with children in classrooms (e.g., paraprofessionals, specialists). Such professional development should be devised in school districts and in university teacher preparation programs. Another implication of findings from the study is that the prevalence of evidence based SEL programs in schools should increase. Regarding the instrument used in the study to assess each social-emotional skill: Child Trends Social and Emotional Skills Survey battery, statistically significant findings from the study may serve to confirm its use by researchers and teachers. Findings from the study regarding statistically significantly relationships of Academic Self-Efficacy, Persistence, Self-Control, and Social Competence may serve toward addressing the present lack of universal agreement concerning related but distinct lists of emotions and skills comprising social-emotional competence ("What is SEL?", 2017; McKown, 2017; Devaney, 2015; Scarupa, 2014; Durlak et al., 2011; Elias & Haney, 2008; Buckley et al., 2003).

Findings such as those from this study point toward a possible causal relationship of social-emotional skills relative to academic achievement. Findings represent a response to the position heralded in past initiatives, including No Child Left Behind, that have relied upon intensive academic testing regimens focused on academic achievement (Dee & Jacob, 2011) to the (detrimental) exclusion of social-emotional developmental dimensions of children and youth. Findings such as these from this study provide evidence that teaching social-emotional competence toward academic ends is justified. These findings also provide justification for schools to invest money and time in the development of social-emotional competence in

students. A study from Columbia University's Center for Benefit-Cost Studies in Education (CBCSE) entitled, "The Economic Value of Social and Emotional Learning" (Belfield et al., 2015) specified the economic returns of SEL using formal methods of benefit-cost analysis. Findings lend additional credence to the findings of Belfield et al. (2015) and Sklad et al. (2012) detailing the significant societal economic savings accrued by investing dollars in social-emotional development of children and youth; benefits that were monetized in the CBCSE study were reductions in: violence, ADHD symptoms, depression, anxiety, substance abuse, and sexual risk behaviors. Belfield et al. (2015) found that SEL yielded an \$11 monetary return for each one-dollar investment in terms of the societal dollar savings and increased productivity so generated.

Previous findings indicate that social-emotional skills develop well-being in people that are retained into adulthood and applied in all aspects of one's life (Greenberg et al., 2017; Jones & Doolittle, 2017; Melnick et al., 2017). Bandura (1994) presented that increased social isolation is associated with negative affective states relating to self-worth. Mental, behavioral, and emotional disorders threaten overall wellbeing as well as readiness to learn (Ottmar, Rimm-Kaufman, Berry, & Larsen, 2013). Social-emotional interventions are critical to preventing such disorders. In a meta-analysis of 75 studies that examined the effects of social, emotional, and/or behavioral programs in schools, Sklad, Diekstra, De Ritter, and Ben (2012) found an array of beneficial outcomes the most pronounced of which were increases in social competence and decreases in antisocial behavior. All told, the implication is that emphasis upon the social-emotional well-being of students should feature in U.S. K-12 schoolhouse practice in priority like that which academics have enjoyed for a generation. As educators and policymakers struggle for an adequate response to school violence at the hands of individuals tending toward

social isolation and mental illness (Guarino, 2011; Mass Shootings, 2007), can there be a more compelling case for increasing the quantity and quality of SEL in schools?

Limitations

One aim of non-experimental, causal-comparative research is to establish a foundation in recent, promising avenues of research (Gall, Gall, & Borg, 2007). The impact of social-emotional competence on academic achievement (Durlak et al., 2017; Melnick et al., 2017; Taylor et al., 2017; Taylor, Weissberg, & Schellinger, 2011; Durlak, Dymnicki, Elias & Haney, 2008; Buckley, Storino, & Saarni, 2003) constitutes one such avenue. Causal-comparative research is concerned with issues of internal and external validity; issues of internal and external validity are addressed here.

Warner identifies four conditions desirable for attaining internal validity. Explanation of this study's alignment toward the conditions identified by Warner follows.

1. "The *X* and *Y* variables that represent 'cause' and 'effect' must be systematically associated with the study" (2013, p. 17). The study was designed with social-emotional skills comprising the *X* variables and Math and ELA scores comprising the *Y* variables.
2. "The cause, *X*, must precede the effect, *Y*, in time" (2013, p. 17). This non-experimental study did not meet (or intend to meet) this experimental research standard. As such, strong conclusions regarding a causal relationship of social-emotional skills to math and academic achievement may not be drawn. Rather, findings from this study point toward, if not to, particular social-emotional skills (specifically, academic self-efficacy, self-control, persistence and social competence) as causes of math and ELA academic achievement; findings from this causal-comparative study are characterized by the researcher as suggestive of causality (see list below).

Statistically Significant Findings: Causal-Comparative Study of Social-Emotional Skills and Academic Achievement Among Fifth Grade Students.

- MANOVA yielded statistically significant differences on the combined dependent variables in Persistence.
- MANOVA yielded statistically significant differences on the combined dependent variables in Social Competence.
- MANOVA yielded statistically significant differences on the combined dependent variables in Persistence combined with Self-Control.
- MANOVA yielded statistically significant differences on the combined dependent variables in Persistence combined with Mastery Orientation.
- ANOVA yielded a statistically significant difference in Math scores between Persistence Moderate and High levels.
- Tukey post hoc test revealed a statistically significant increase in Math scores between Moderate and High level of Academic Self-Efficacy.
- Tukey post hoc test revealed a statistically significant increase in Math scores between Moderate and High level of Self-Control.
- ANOVA yielded a statistically significant difference in ELA scores between Persistence Moderate and High levels.
- ANOVA yielded a statistically significant difference in ELA scores between Social Competence Moderate and High levels.
- Tukey post hoc test revealed a statistically significant increase in ELA scores between Moderate and High level of Self-Control.
- Tukey post hoc test revealed a statistically significant increase in ELA scores between Moderate and High level of Academic Self-Efficacy.

- ANOVA yielded a statistically significant difference in ELA scores by Persistence Moderate and High levels combined with Self-Control Moderate and High levels.
3. “There must not be any other variable confounded with (or systematically associated with) the *X* variable treatment” (2013, p. 17). This experimental research standard was not met (or intended) in the study. The complex nature of both social-emotional competence and student learning are examples of educational phenomena involving the interrelation of many variables. Such complexity rendered MANOVA an indicated statistic due to its capability to examine multiple independent and dependent variables (Gall et al., 2007, p. 353).
 4. “There should be some reasonable theory that would predict or explain a cause-and-effect relationship between the variables” (2013, p. 17). The theoretical frameworks of Bandura (2006; 2003; 1999; 1994; 1986) and Saarni (1999) adequately address this condition.

As regards external validity, the study yielded numerous findings that stir imaginings from research and practice perspectives. But sampling limitations of the study do not allow for such. The convenience sample employed in the study does not lend toward the study’s findings generalizability beyond its sample of participants ($N = 115$). Such lofty research aims must be left for subsequent, experimental studies.

Warner states, “Real data sets often contain errors... inconsistencies (and) outliers” (2013) and this study was not immune from such. A limitation of the internal validity of the study was violation of the MANOVA assumption that the data not feature outliers. Data for the study featured twelve outliers in 115 cases ($N = 115$). In response to this violation, the researcher consulted with his dissertation committee chair and determined to perform a second execution of MANOVA with outliers removed to observe the impact on findings. When

Multivariate Analysis of Variance was executed for the data set featuring the removal of the outliers, this new data set featured a new set of outliers (see Appendix H). (Exclusion of 12 outlier scores had the effect of creating a new data set; whereas the original data set featured 115 scores ($N = 115$), this new data set featured 103 scores ($N = 103$). Since variance is calculated by squaring a data set's standard deviation, this new data set ($N = 103$) yielded a different standard deviation and, by extension, a different squared standard deviation (mean variance) than that of the original data set ($N = 115$). This different mean variance of the new data set ($N = 103$) introduced the possibility of new outliers being revealed which is what occurred in the MANOVA analysis contained in Appendix H.

Warner states, "when scores are approximately distributed, about 99% of the scores should fall within +3 and -3 standard deviations of the sample mean" (2013, p. 153). While there were five violations of normal distribution in 24 assessments by the Shapiro-Wilk test (see Table 5), one hundred percent of scores in the study fell between +3 and -3 standard deviations of the sample mean. Warner states, "Researchers have to make reasonable judgment calls about how to handle extreme scores or outliers. Researchers need to rely on both common sense and honesty in making these judgments" (2013, p. 156). The judgment is that 19 of 24 assessments constitute meeting the assumption of *approximate* normality so inclusion of outliers in data analyses, while not desirable, is justified.

An additional potential limitation of the internal validity of the study was the researcher's decision not to include 75 participants. Seventy-five student participants were not included in the study because their self-ratings differed from teachers' by more than 1.00 points on the two social-emotional skills (namely, Persistence and Self-Control) that featured combined teacher - student assessment. While the Child Trend Social-Emotional Skills Battery Operationalization Document (Scarupa, 2014) allows for the student's rating to be discarded in favor of the

teacher's (authors state: teachers "are likely a *more* reliable reporter on these skills" [Scarupa, 2014, p. 42]), the researcher consulted with his dissertation committee chair then determined not to include those participants for three reasons. The first reason was that, according to Gall et al. (2007), 66 is the minimum number of participants required for a medium effect size with a statistical power of 0.7 at the 0.5 alpha level; thus, removing the 75 participants would not compromise that research design standard. The second reason the researcher decided to remove the 75 participants lay in reasoning that if a student likely mis-assessed his or herself on one or two skills, that student may have mis-assessed him or herself on the others and, if that were the case, overall internal validity of the study would decrease. Thus, it was concluded by the researcher that safeguarding the internal validity of the study by removing the 75 participants was a better alternative than including them. For the purposes of thoroughness, the researcher executed MANOVA with the inclusion of the 75 participants ($N = 192$). Findings are included in Appendix I. The third reason was that removing the 75 participants maintained the minimum sample number required by Liberty University for dissertation research ($N = 100$).

Another limitation of the internal validity of the study was a small sample size at the Low levels of Academic Self-Efficacy, Persistence, Self-Control, and Social Competence. Low sample sizes prevented examination of the relationship of these independent variables to ELA and Math scores. An additional limitation of the internal validity of the study was that surveys were administered in the English language despite most of the participants being of Hispanic descent; the number of English Language Learners participating in the study is unknown. A limitation of the internal validity of the study was that teachers administered the surveys to the student participants. While the teachers were provided written, uniform survey administration instructions as part of the Child Trends Social-Emotional Skills Battery, featuring more than a single survey administrator increases the possibility of varying application of treatments and, as

Stephens (2009) presents, “it is dangerous to assume that the treatments will be implemented as you planned” (p. 39). A limitation to the external validity of the study is that generalizability of findings to populations beyond the sample is uncertain due to the convenience sample comprising participants in the study.

Recommendations for Future Research

These are recommendations for future research based on the study:

1. Replicate the study by increasing the number of participants which would increase the probability of acquiring adequate sample size to better understand the relationship of Low levels of the particular social-emotional skills to math and ELA academic achievement. For example, while the study showed a statistically significant impact on Math achievement between Moderate and High levels of Persistence, are there statistically significant impacts on Math between Low and Moderate levels? Or Low and High? Considering that statistically significant differences were found between Moderate and High levels in various skills for their impact on Math and ELA scores, might not finding statistically significant relationships between Low and higher levels be even more likely, statistically speaking? This is a subject for future research.
2. Replicating the study in Spanish for English Language Learners would reduce internal threat to the validity of the study.
3. Replicating the study at other grade levels would be beneficial in understanding whether social-emotional skills have greater and lesser relationships to math and ELA academic achievement by grade levels.
4. Replicating the study with populations other than general education students (e.g., ESE students, students from different ethnic cultures, etc.) would be beneficial for

- understanding the relationship of social-emotional skills and math and ELA academic achievement in other populations.
5. With findings from the study that particular social-emotional skills (namely, Academic Self-Efficacy, Persistence, Self-Control, and Social Competence) relate to math and/or ELA academic achievement, research on how the particular social-emotional skills relate to each academic area (rather than merely finding that they do) would be beneficial in understanding the nature of obstacles to social-emotional learning toward devising methods to help children overcome the obstacles.
 6. With findings from the study that particular social-emotional skills relate to math and/or ELA academic achievement, research on how the particular social-emotional skills impact particular sub-skills in math (e.g., math problem-solving, algebraic thinking, etc.) and ELA (e.g., reading, writing, etc.) would be beneficial in optimizing the impact of each social-emotional skill upon the subject areas.
 7. Future studies may build on findings from Causal-Comparative Study of Social-Emotional Skills and Academic Achievement Among Fifth Grade Students to ascertain whether social-emotional skills exert causal influence upon academic achievement.

REFERENCES

- 2013 CASEL guide- Effective Social and Emotional Learning programs preschool and elementary school edition.* (2012). Chicago, IL: Collaborative for Academic, Social, and Emotional Learning. Retrieved from <http://casel.org/wp-content/uploads/2016/01/2013-casel-guide-1.pdf>
- 2018-19 FSA ELA and mathematics fact sheet.* (2018). Tallahassee, FL: Florida Department of Education. Retrieved from <http://www.fldoe.org/core/fileparse.php/5663/urlt/FSAELA-MathFS1819.pdf>
- Aber, L., Butler, S., Danziger, S., Doar, R., Ellwood, D. T., Gueron, J. M., . . . Waldolfel, J. (2015). *Opportunity, responsibility, and security- A consensus plan for reducing poverty and restoring the American dream.* AEI Brookings Work Group on Poverty and Opportunity.
- About responsive classroom. (2018). Retrieved from <https://www.responsiveclassroom.org/about/>
- American Educational Research Association (AERA), American Psychological Association (APA), & National Council on Measurement in Education (NCME).(2014). Standards for educational and psychological testing. Washington, DC.
- American Psychological Association.(2014). Standards for educational and psychological testing. Washington DC: American Psychological Association.
- Aronson, J. M. (2002). *Improving academic achievement: Impact of psychological factors on education.* New York: Academic Press.<https://doi.org/10.1016/B978-012064455-1/50017-8><https://doi.org/10.1016/B978-012064455-1/50013-0>

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior* (pp. 71-81). New York: Academic Press.
- Bandura, A. (1999). Social cognitive theory of personality. In L. A. Pervin, & O. P. John (Eds.), *Handbook of personality- theory and research* (2nd ed., pp. 154-196). New York, New York: The Guilford Press.
- Bandura, A. (2003). Negative self-efficacy and goal effects. *Journal of Applied Psychology, 88*(1), 88-99.
doi:<http://dx.doi.org.ezproxy.liberty.edu/10.1037/0021-9010.88.1.87>
- Bandura, A. (2006). Toward a psychology of human agency *Perspectives on Psychological Science, 1*(2), 164-180. doi:10.1111/j.1745-6916.2006.0001
- Bear, G. G., & Watkins, J. M. (2006). Developing self-discipline. In G. G. Bear, & K. M. Minke (Eds.), *Children's needs III: Development, prevention, and intervention* (pp. 29-44). Bethesda, MD: National Association of School Psychologists.
- Beets, M. W., Flay, B. R., Vuchinich, S., Snyder, F. J., Acock, A., Li, K., . . . Durlak, J. (2009). Use of a social and character development program to prevent substance use, violent behaviors, and sexual activity among elementary-school students in Hawaii. *American Journal of Public Health, 99*(8), 1438-1445. Retrieved from <http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/215086056?accountid=12085https://doi.org/10.2105/AJPH.2008.142919>
- Belfield, C., Bowden, B., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). Center for Benefit-Cost Studies in Education Teachers College, Columbia University.

- Blackwell, L. S., Trzesniewski, K., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an Intervention. *Child Development, 78*(1), 246-283.
- Brackett, M. A., Palomera, R., Mojsa, J., & Reyes, M. S., P. (2010). Emotion regulation ability, job satisfaction, and burnout among sh secondary school teachers. *Psychology in the Schools, 47*, 406-417. <https://doi.org/10.1002/pits.20478>
- Brackett, M. A., Rivers, S. E., Reyes, M. R., & Salovey, P. (2012).Enhancing academic performance and social and emotional competence with the RULER feeling words curriculum.*Learning and Individual Differences, 22*(2), 218-224.
<https://doi.org/10.1016/j.lindif.2010.10.002>
- Brock, L. L., Nishida, T. K., Chiong, C., Grimm, K. J., & Rimm-Kaufman, S. E. (2008). Children's perceptions of the classroom environment and social and academic performance: A longitudinal analysis of the contribution of the Responsive Classroom approach. *Journal of School Psychology, 46*(2), 129-149.
<https://doi.org/10.1016/j.jsp.2007.02.004>
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.
- Buckley, M., Storino, M., & Saarni, C. (2003).Promoting emotional competence in children and adolescents: Implications for school psychologists.*School Psychology Quarterly, 18*(2), 177-191. Retrieved from <http://search.proquest.com.ezproxy.liberty.edu/docview/195510128?pq-origsite=summon&accountid=12085> <https://doi.org/10.1521/scpq.18.2.177.21855>

Caprara, G. V., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. G. (2000). Prosocial foundations of children's academic achievement. *Psychological Science, 11*, 302-306.

<https://doi.org/10.1111/1467-9280.00260>

Caring school community- center for the collaborative classroom. (2018). Retrieved from

<https://www.collaborativeclassroom.org/programs/caring-school-community/>

Chang, F., & Munoz, M. A. (2006). School personnel educating the whole child: Impact of character education on teachers' self-assessment and student development. *Journal of Personnel Evaluation in Education, 19*, 35-49. [https://doi.org/10.1007/s11092-007-9036-](https://doi.org/10.1007/s11092-007-9036-5)

[5](https://doi.org/10.1007/s11092-007-9036-5)

Chang, M. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*(3), 193-218.

doi:<http://dx.doi.org.ezproxy.liberty.edu/10.1007/s10648-009-9106-y>

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity*. (Superintendent of Documents Catalog No. FS 5.238:38001). Washington, D.C.: U.S. Department of Health, Education, and Welfare Office of Education.

Competence- definition of competence by Merriam-Webster. Retrieved from

<https://www.merriam-webster.com/dictionary/competence>

Conduct Problems Prevention Research Group (CPPRG). (1999). Initial impact of the fast track prevention trial for conduct problems: I. the high-risk sample. *Journal of Consulting and Clinical Psychology, 67*(5), 631-647. <https://doi.org/10.1037/0022-006X.67.5.631>

Conduct Problems Prevention Research Group (CPPRG). (2010). The effects of a multiyear universal social-emotional learning program: The role of student and school

- characteristics. *Journal of Consulting and Clinical Psychology*, 78(2), 156-168.
<https://doi.org/10.1037/a0018607>
- Davis, A., Solberg, S. V., de Baca, C., & Gore, T. H. (2014). Use of social emotional learning skills to predict future academic success and progress toward graduation. *Journal of Education for Students Placed at Risk*, 19(3), 14.
<https://doi.org/10.1080/10824669.2014.972506>
- Dee, T., & Jacob, B. (2011). The impact of No Child Left Behind on student achievement. *Journal of Policy Analysis and Management*, 30(3), 418-446.
- DeNavas-Walt, C., & Proctor, B. D. (2015). *Income and poverty in the United States: 2014. Current population reports*. Washington, D.C.: US Census Bureau. Retrieved from <http://www.sneha.org/website/cmsAdmin/uploads/2014-Income&PovertyInTheUS.pdf>
- DeSouza, T. (2018). *The effect of Florida assessments for instruction in reading programs on Florida Atandards Assessments test scores* (Doctor of Education). Retrieved from <https://search-proquest-com.ezproxy.liberty.edu/docview/1994449785?pq-origsite=summon>
- Devaney, E. (2015). *Beyond the bell: Research to practice in the afterschool and expanded learning fields- supporting social and emotional development through quality afterschool programs*. Chicago, IL: American Institutes for Research
- Dirks, M. A., Treat, T. A., & Weersing, V. R. (2007). Integrating theoretical, measurement, and intervention models of youth social competence. *Clinical Psychology Review*, 27, 327-347. <https://doi.org/10.1016/j.cpr.2006.11.002>
- Duckworth, A. S., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, 16, 939-944.
<https://doi.org/10.1111/j.1467-9280.2005.01641.x>

- Dodge, K. A., Pettit, G. S., & Bates, J. E. (1994). Socialization mediators of the relation between socioeconomic status and child conduct problems. *Child Development, 65*, 649-665.
doi:10.1111/j.1467-8624.1994.tb00774.x <https://doi.org/10.1111/j.1467-8624.1994.tb00774.x>
- Durlak, J., Dymnicki, A. B., Taylor, R. D., Weissberg, R., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405-432. Retrieved from <http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/881470410?accountid=12085https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Dusenbury, L. A., Newman, J. Z., Weissberg, R. P., Gorn, P., Domitrovich, C. E., & Mart, A. K. (2015). The case for preschool through high school state learning standards for SEL. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg & T. P. Gullotta (Eds.), *Handbook of social and emotional learning- research and practice* (pp. 532-548). New York: The Guilford Press.
- Dweck, C. S. (2006). *Mindset: The new psychology of success* (1st ed.). New York: Random House.
- Elias, M. J., & Haynes, N. M. (2008). Social competence, social support, and academic achievement in minority, low-income, urban elementary school children. *School Psychology Quarterly, 23*(4), 474-495. doi:<http://dx.doi.org/10.1037/1045-3830.23.4.474>
- Emotion- definition of emotion by Merriam-Webster. Retrieved from <https://www.merriam-webster.com/dictionary/emotion>

Eccles, J. (2009). Who am I and what am I going to do with my life? personal and collective identities as motivators of action. *Educational Psychologist*, 44(2)

doi:<http://dx.doi.org.ezproxy.liberty.edu/10.1080/00461520902832368>

Efficacy of schoolwide programs to promote social and character development and reduce problem behavior in elementary school children. (2011). Washington, DC: Social and Character Development Research Consortium, National Center for Education Research, Institute of Education Sciences, US Department of Education.

Evans, G. W., & Kim, P. (2013). Childhood poverty, chronic stress, self-regulation, and coping. *Child Development Perspectives*, 7(1), 43-48. 10.1111/cdep.12013 *Handbook of social and emotional learning- Research and practice* (2015). In Durlak J. A., Domitrovich C. E., Weissberg R. P. and Gullota T. P. (Eds.). New York: Guilford Press.

<https://doi.org/10.1111/cdep.12013>

Every Student Succeeds Act, (2015).

Flay, B. R., Allred, C. G., & Ordway, N. (2001). Effects of the positive action program on achievement and discipline: Two matched-control comparisons. *Prevention Science*, 2(2), 71-89. <https://doi.org/10.1023/A:1011591613728>

Florida Standards Assessments 2014-2015 volume 4 evidence of reliability and validity. (2015). Tallahassee, FL: Florida Department of Education.

Florida Standards Assessments 2015-2016 volume 4 evidence of reliability and validity.(2016). (Annual Technical Report). Tallahassee, Florida: Florida Department of Education.

Florida Standards Assessment 2016-2017 volume 4 evidence of reliability and validity. (2017). Tallahassee, FL: Florida Department of Education. Retrieved from

<http://www.fldoe.org/core/fileparse.php/5663/urlt/V4FSA1617TechRpt.pdf>

- Florida Standards Assessment 2017-2018 volume 4 evidence of reliability and validity.* (2018). Tallahassee, FL: Florida Department of Education. Retrieved from <http://www.fldoe.org/core/fileparse.php/5663/urlt/V4-FSA-1718-TechRpt.pdf>
- Florida Standards Assessment 2017-2018 volume 1 annual technical report.* (2018). Tallahassee, FL: Florida Department of Education. Retrieved from <http://www.fldoe.org/core/fileparse.php/5663/urlt/V1-FSA-1718-TechRpt.pdf>
- Forgaill, D. (1912). *Be Thou my vision* (M. E. Byrne, E. H. Hull Trans.).
- Frequently asked questions. (2017). Retrieved from <http://fsassessments.org/students-and-families/faqs/>
- Galindo, C., & Sonnenschein, S. (2015). Decreasing the SES math achievement gap: Initial math proficiency and home learning environments. *Contemporary Educational Psychology*, (43), 25-38. doi:10.1002/tl.20110 <https://doi.org/10.1002/tl.20110>
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). In Burvikovs A. E. (Ed.), *Educational research- An introduction* (8th ed.). Boston, MA: Pearson Education, Inc.
- Galloway, T., Lippman, L., Burke, H., Diener, O., & Gates, S. (2017). *Measuring soft skills & life skills in international youth development programs: A review and inventory of tools.* Washington, DC: U.S. Agency for International Development.
- Gayl, C. L. (2017). How state planning for the Every Student Succeeds Act (ESSA) can promote student academic, social, and emotional learning: An examination of five key strategies. Retrieved from <http://www.casel.org/wp-content/uploads/2017/04/ESSA-and-SEL-Five-Strategies-April-2017-041717.pdf>
- Grade 5 English Language Arts item specifications.* (2018). Tallahassee, FL: Florida Department of Education. Retrieved from

https://fsassessments.org/core/fileparse.php/3031/urlt/2018_Fall_G5_ReadingandWriting_Item_Specifications_APPROVED_508.pdf

Grade 5 mathematics item specifications. (2018). Tallahassee, FL: Florida Department of Education. Retrieved from https://fsassessments.org/assets/documents/G5M_Item-Specifications_Sept2018_Final.pdf

Greenberg, M. T., & Kusché, C. A. (1998). Preventive interventions for school-age deaf children: The PATHS curriculum. *Journal of Deaf Studies and Deaf Education*, 3(1), 49-63. <https://doi.org/10.1093/oxfordjournals.deafed.a014340>

Greenberg, M. T. (2006). Promoting resilience in children and youth: Preventive interventions and their interface with neuroscience. *Annals of the New York Academy of Science*, 1094, 139-150. <https://doi.org/10.1196/annals.1376.013>

Greenberg, M. T., Domitrovich, C. E., Weissberg, R. P., & Durlak, J. A. (2017). Social and emotional learning as a public health approach to education. *The Future of Children*, 27(1), 13-32.

Gregory, A., Hafen, C. A., Ruzek, E., Mikami, A. Y., Allen, J. P., & Pianta, R. C. (2016). Closing the racial discipline gap in classrooms by changing teacher practice. *School Psychology Review*, 45(2), 171-191. retrieved from <http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/1831200690?accountid=12085>. *School Psychology Review*, 45(2), 171-191. <https://doi.org/10.17105/SPR45-2.171-191>

Griggs, M. S., Rimm-Kaufman, S. E., Merritt, E. G., & Patton, C. L. (2013). The responsive classroom approach and fifth grade students' math and science anxiety and self-efficacy. *School Psychology Quarterly*, 28(4), 360-373. doi:10.1037/spq0000026

- Griner, A. C., & Stewart, M. L. (2013). Addressing the achievement gap and disproportionality through the use of culturally responsive teaching practices. *Urban Education, 48*(4), 585-621. doi:10.1177/0042085912456847
- Guarino, M. (2011, December 9). Virginia Tech shooting: How universities helped avoid another massacre. *The Christian Science Monitor*, Retrieved from <http://www.csmonitor.com/USA/2011/1209/Virginia-Tech-shooting-how-university-helped-avoid-another-massacre>
- Handbook of social and emotional learning- Research and practice* (2015). In Durlak J. A., Domitrovich C. E., Weissberg R. P. and Gullota T. P. (Eds.). New York: Guilford Press.
- Hall, E. (2017). *Identifying a school Quality/Student success indicator for ESSA: Requirements and considerations*. Washington, DC: Council of Chief State School Officers.
- Hecht, M. L., & Shin, Y. (2015). Culture and social and emotional competencies. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg & T. P. Gullotta (Eds.), *Handbook of social and emotional learning- research and practice* (pp. 50-64). New York: The Guilford Press.
- Heckman, J. J., & Kautz, T. (2012). Hard evidence on soft skills. *Labour Economics, 19*, 451-464. <https://doi.org/10.1016/j.labeco.2012.05.014>
- Holsen, I., Smith, B. H., & Frey, K. S. (2008). Outcomes of the social competence program Second Step. *School Psychology International, 29*, 71-91. <https://doi.org/10.1177/0143034307088504>
- Home- Child Trends. (2018). Retrieved from <https://www.childtrends.org/>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. <https://doi.org/10.1080/10705519909540118>

Hurd, N., & Deutsch, N. (2017).SEL-focused after-school programs. *The Future of Children*, 27(1), 95-115.

IBM SPSS statistics for Macintosh, version 25.0 [computer software] (2016). IBM Corporation.

Jain, A. (2016). Skill development: The key to economic prosperity. *International Journal of Research in Commerce, Economics and Management*, 6(3), 62-63.

Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79, 491-525. <https://doi.org/10.3102/0034654308325693>

Jones, S. M., & Bouffard, S. M. (2012). Social and emotional learning in schools: From programs to strategies. *Social Policy Report*, 26(4), 1-22.

Jones, S. M., Bouffard, S. M., & Weissbourd, R. (2013).Educators' social and emotional skills vital to learning. *Phi Delta Kappan*, 94(8), 62-65.
<https://doi.org/10.1177/003172171309400815>

Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health*, 105, 2283-2290. doi:10.2105/AJPH.2015.302630

Jones, S. M., & Doolittle, E. J. (2017). Social and emotional learning: Introducing the issue. *The Future of Children*, 27(1), 3-11.

Jones, S., Barnes, S., Bailey, R., & Doolittle, E. (2017). Promoting social and emotional competencies in elementary school. *The Future of Children*, 27(1), 49-72.

Kalbfleisch, P. J. (2009). Effective health communication in native populations in North America. *Journal of Language and Social Psychology*, 28(2), 158-173.
<https://doi.org/10.1177/0261927X08330607>

- Kam, C., Greenberg, M. T., & Kusché, C. A. (2004). Sustained effects of the PATHS curriculum on the social and psychological adjustment of children in special education. *Journal of Emotional and Behavioral Disorders, 12*, 66-78.
<https://doi.org/10.1177/10634266040120020101>
- Klapp, A., Belfield, C., Bowden, B., Levin, H., Shand, R., & Zander, S. (2017). A benefit-cost analysis of a long-term intervention on social and emotional learning in compulsory school. *The International Journal of Emotional Education, 9*(1), 3-19.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Lewis, M., & Michalson, L. (1983). *Children's emotions and moods: Developmental theory and measurement*. New York: Plenum. <https://doi.org/10.1007/978-1-4613-3620-4>
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist, 57*(9), 705-717.
- Maister, L., & Tsakiris, M. (2014). My face, my heart: Cultural differences in integrated bodily self-awareness. *Cognitive Neuroscience, 5*(1), 10-16.
<https://doi.org/10.1080/17588928.2013.808613>
- Marchesi, A. G., & Cook, K. (2012). *Social and emotional learning as a catalyst for academic excellence. White paper*. ICF International.
- Markow, D., Macia, L., & Lee, H. (2013). *The MetLife survey of the American teacher- Challenges for school leadership*. (No. 542202). MetLife.
- Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Burnchinal, M., Early, D. M., . . . Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development, 79*, 732-749. <https://doi.org/10.1111/j.1467-8624.2008.01154.x>

- Mass shootings at Virginia Tech- Report of the review panel presented to Governor Kaine Commonwealth of Virginia.* (2007). Arlington, VA: Virginia Tech Review Panel.
- Matsumoto, D., Yoo, S. H., & Nakawa, S. (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psychology*, 94(6), 925-937.
<https://doi.org/10.1037/0022-3514.94.6.925>
- Mayer, J., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey, & D. Shuyter (Eds.), *Emotional development and emotional intelligence* (pp. 3-31). New York: Basic Books.
- Mayer, J., Salovey, P., & Caruso, D. (2000). Emotional intelligence as zeitgeist, as personality, and as a mental ability. In R. Bar-On, & J. Parker (Eds.), *The handbook of emotional intelligence* (pp. 92-117). San Francisco: Jossey-Bass.
- McClelland, M., Tominey, S., Schmitt, S., & Duncan, R. (2017). SEL interventions in early childhood. ,27(1), 33-47. retrieved from <http://>. *The Future of Children*, 27(1), 33-47.
- McKown, C. (2017). Social-emotional assessment, performance, and standards. *The Future of Children*, 27(1), 157-178.
- Melnick, H., Cook-Harvey, C. M., & Darling-Hammond, L. (2017). *Encouraging social and emotional learning in the context of new accountability*. Palo Alto, CA: Learning Policy Institute.
- Morris, I. D. (2016). *Florida's core standards and assessments: A phenomenological exploration of Florida's alternative education teachers' lived experiences with pedagogical practices*. (Doctor of Philosophy). Available from ProQuest Dissertations & Theses Global. (1785824290).
- Ottmar, E. R., Rimm-Kaufman, S. E., Berry, R. Q., & Larsen, R. A. A. (2013). Results from a randomized controlled trial: Does the responsive classroom approach impact the use of

- standards-based mathematics teaching practices? *Elementary School Journal*, 113(3), 434-457.
- Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities.* (2009). Washington, DC: National Academies Press.
- Pellegrino, J. W., & Hilton, M. L. (Eds.). (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century.* Washington, DC: The National Academies Press.
- Pisa 2015 results in focus. (2018). Paris, France: Organisation for Economic Co-operation and Development. Retrieved from <http://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf>
- Raver, C. C., Garner, P., & Smith-Donald, R. (2007). The roles of emotion regulation and emotion knowledge for children's academic readiness: Are the links causal? In R. C. Pianta, M. J. Cox & K. L. Snow (Eds.), *School readiness and the transition to kindergarten in the era of accountability* (pp. 121-147). Baltimore, MD: Brookes.
- Raver, C. C., Li-Grining, C., Bub, K., Jones, S. M., Zhai, F., & Pressler, E. (2011). CSRP's impact on low-income preschoolers' preacademic skills: Self-regulation as a mediating mechanism. *Child Development*, 82(1), 362-378. <https://doi.org/10.1111/j.1467-8624.2010.01561.x>
- Redefining low income - A new metric for K-12 education data - data collection/information services.(n.d.).Retrieved from <http://www.doe.mass.edu/infoservices/data/ed.html>
- Report of the Surgeon General's Conference on Children's Mental Health.* (2000). Washington, DC: Department of Health and Human Services.
- Research starters: The GI bill (2019). Retrieved from <https://www.nationalww2museum.org/students-teachers/student-resources/research-starters/research-starters-gi-bill>

- Rimm-Kaufman, S. E., & Chiu, Y. I. (2007). Promoting social and academic competence in the classroom: An intervention study examining the contribution of the responsive classroom approach. *Psychology in the Schools, 44*(4), 397-413. <https://doi.org/10.1002/pits.20231>
- Rimm-Kaufman, S. E., Fan, X., Chiu, Y. J., & You, W. (2007). The contribution of the Responsive Classroom approach on children's academic achievement: Results from a three-year longitudinal study. *Journal of School Psychology, 45*(4), 401-421. <https://doi.org/10.1016/j.jsp.2006.10.003>
- Rimm-Kaufman, S. E., Larsen, R., Curby, T., Baroody, A., Merritt, E., Abry T., & Decoster, J. (2014). Efficacy of the responsive classroom approach: Results from a three-year, longitudinal randomized control trial. *American Educational Research Journal, 51*(3), 567-603. <https://doi.org/10.3102/0002831214523821>
- Rimm-Kaufman, S. E., & Hulleman, C. S. (2015). SEL in elementary school settings- identifying mechanisms that matter. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg & T. P. Gullotta (Eds.), *Handbook of social and emotional learning- Research and practice* (pp. 151-166). New York: The Guilford Press.
- Roeser, R. W., Skinner, E., Beers, J., & Jennings, P. A. (2012). Mindfulness training and teachers' professional development: An emerging area of research and practice. *Child Development Perspectives, 6*, 167-173. doi:10.1111/j.1750-8606.2012.00238.x
- Saarni, C. (1999). *The development of emotional competence*. New York: The Guilford Press.
- Scarupa, H. J. (2014). *Measuring elementary school students' social and emotional skills: Providing educators with tools to measure and monitor social and emotional skills that lead to academic success*. (No. 2014-37). 7315 Wisconsin Avenue Suite 1200W, Bethesda, MD20814: Child Trends.

- Schick, A., & Cierpka, M. (2005). Faustlos: Evaluation of a curriculum to prevent violence in elementary schools. *Applied and Preventive Psychology, 11*(157), 165
<https://doi.org/10.1016/j.appsy.2005.05.001>
- Schonert-Reichl, K., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). Enhancing cognitive and Social-Emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Developmental Psychology, 51*(1), 52-66.
 doi:10.1037/a0038454
- Schonert-Reichl, K. (2017). Social and emotional learning and teachers. *The Future of Children, 27*(1), 137-155.
- Schonfeld, D., Adams, R. E., Fredstrom, B. K., Weissberg, R. P., Gilman, R., Voyce, C., & Speese-Linehan, D. (2015). Cluster-randomized trial demonstrating impact on academic achievement of elementary social-emotional learning. *School Psychology Quarterly, 30*(3), 406-420. doi:<http://dx.doi.org/10.1037/spq0000099>
- Second Step suite- Evidence-based SEL program- Second Step. (2018). Retrieved from
<http://www.secondstep.org/second-step-suite>
- Simpson, J. L., & Carter, K. (2008). Muslim's women's experiences with health care providers in a rural area of the united states. *Journal of Transcultural Nursing, 19*(1), 16-23.
<https://doi.org/10.1177/1043659607309146>
- Skinner, E. A., Kindermann, T. A., Connell, J. P., & Wellborn, J. G. (2009). Engagement and disaffection as organizational constructs in the dynamics of motivational development. In K. R. Wentzel, & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 223-245). New York: Routledge.

- Sklad, M., Diekstra, R., De Ritter, M., & Ben, J. (2012). Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools*, 49(9), 892-909. <https://doi.org/10.1002/pits.21641>
- Solomon, D., Battistich, V., Watson, M., Schaps, E., & Lewis, C. (2000). A six-district study of educational change: Direct and mediated effects of the child development project. *Social Psychology*, 4(1), 3-51.
- Statewide assessment program information guide*. (2019). Tallahassee, FL: Florida Department of Education. Retrieved from <http://www.fldoe.org/core/fileparse.php/7540/urlt/swapig.pdf>
- Stevens, J. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). New York: Taylor & Francis Group, LLC.
- Suh, E., Diener, E., Oishi, S., & Triandis H. C. (1998). The shifting basis of life satisfaction judgments across cultures: Emotions versus norms. *Journal of Personality and Social Psychology*, 74(2), 482-493. <https://doi.org/10.1037/0022-3514.74.2.482>
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, 88(4), 1156-1171. doi:10.1111/cdev.12864
- Title I, part A program. (2017). Retrieved from <https://www2.ed.gov/programs/titleiparta/index.html?exp=0>
- The majority of children live with two parents, Census Bureau reports*. (2016). (Press Release No. CB16-192). The United States Census Bureau. Retrieved from <https://www.census.gov/newsroom/press-releases/2016/cb16-192.html>

Trumble, S. (2010). Fight or flight. *The Clinical Teacher*, 7(3), 151-152. doi:10.1111/j.1743-498X.2010.00390.x

Understanding Florida Standards Assessments reports 2017. (2017). Tallahassee, FL 32399-0400: Office of Assessment Florida Department of Education. Retrieved from <http://www.fldoe.org/core/fileparse.php/5662/urlt/UndFSARports17.pdf>

Vogel, S., & Schwabe, L. (2016). Learning and memory under stress: Implications for the classroom. *Science of Learning*, 1, 1-10. <https://doi.org/10.1038/npjscilearn.2016.11>

Vygotsky, L. S. (1987). In Vygotsky L. S., Rieber R. and Carton A. S. (Eds.), *The collected works of L. S. Vygotsky, vol. 1: Problems of general psychology*. New York: Plenum

Press. Warner, R. M. (2013). In Knight V., Habib L., Gleason L., Dickens G., & Hutchinson A. (Eds.), *Applied statistics- from bivariate through multivariate techniques* (2nd ed.). Thousand Oaks, California: SAGE Publications, Inc.

Washburn, I. J., Acock, A., Vuchinich, S., Snyder, F., Li, K., & Ji, P. ... Flay, B. R. (2011). Effects of a social-emotional and character development program on the trajectory of behaviors associated with social-emotional and character development: Findings from three randomized trials. *Prevention Science: The Official Journal of the Society for Prevention Research*, 12(3), 314-323. <https://doi.org/10.1007/s11121-011-0230-9>

Welch's test- Real statistics using Excel. (2019). Retrieved from <https://www.real-statistics.com/one-way-analysis-of-variance-anova/welchs-procedure/>

What is SEL? (2017). Retrieved from <http://www.casel.org/what-is-sel/>

Yeager, D. (2017). Social and emotional learning programs for adolescents. *The Future of Children*, 27(1), 73-94.

Zhang, L. (2006). Communication in academic libraries: An East Asian perspective. *Reference Services Review*, 34(1), 164-176. <https://doi.org/10.1108/00907320610648842>

APPENDIX A: School District Authorization

November 6, 2018
 Mr. David Salvatelli
 3100 NE 49th Street, #509 Fort Lauderdale, FL 33308

Dear Mr. Salvatelli :

I am pleased to inform you that the Research Review Committee (RRC) of Miami-Dade County Public Schools (M-DCPS) has granted you approval for your request to conduct your study “Casual-Comparative Study of Social-Emotional Skills and Academic Achievement Among Fifth Grade Students” in order to fulfill the requirements of your dissertation at LibertyUniversity.

This approval letter is granted with the following conditions:

Participation in this study is at the discretion of the principal of each targeted school. Please note that even with the approval of the RRC, it is still the responsibility of the Principal, as the gatekeeper of the school, to decide whether or not to participate. As stated in the Board rule 2605, “...**the principal of the individual school has the privilege of deciding if RRC-approved research will be conducted within his/her school.**”

A copy of this approval letter must be presented and shared with the Principal of each targeted school.

Before **physically entering** any M-DCPS site to collect any data, a researcher who does not have a valid Level 2 security clearance from the Florida Department of Law Enforcement and the Federal Bureau of Investigation, must obtain a level 2 background security clearance from the M-DCPS Fingerprinting Office. The application for District security clearance can be found at:

<http://oer.dadeschools.net/ResearchReviewRequest/ResearchReviewRequest.asp>

The participation of all subjects is **voluntary**. All necessary **consent (Principals, Teachers, and Parents)** and **Assent (Students)** forms must be obtained before any targeted individual can participate in the study.

The purpose of this study is to provide evidence of the impact of social-emotional competence on academic achievement (Mathematics and Reading and Language Arts).

This study will involve approximately 150 students in 5th grade at various schools **whose principals voluntarily** Agree to allow their schools to participate in the study.

Disruption of the school’s routine by the data collection activities of the study must be kept at a minimum. Data collection activities must not interfere with the district’s testing schedule. No instructional time will be used to collect any data.

It should be emphasized that the approval of the Research Review Committee does. Not constitute an endorsement of the study. It is simply a permission to request the voluntary cooperation of select M-DCPS individuals.

It is your responsibility to ensure that appropriate procedures are followed in requesting an individual’s cooperation, and that all aspects of the study are conducted in a professional manner. The approval number for your study is 2316. This number should be used in all communications to clearly identify the study as approved by the Research Review Committee. The approval

expires on 06/30/2019. During the approval period, the study must adhere to the design, procedures and instruments which were submitted to the Research Review Committee.

Finally, as indicated in your application, please send an abstract of the research findings to the RRC by June 2019.

If there are any changes in the study as it relates to MDCPS, the RRC must be notified in writing. Substantial changes may necessitate resubmission of the research request.

If you have any questions, please call me at 305-995-7091. On behalf of the Research Review Committee, I want to wish you every success with your study.

Sincerely,

Chairperson Research Review Committee

APPROVALNUMBER:2316	APPROVALEXPIRES:06/30/2019(*)
---------------------	-------------------------------

(*): Liberty University IRB – 3411-091418 approved September 14, 2018.

Note: The researcher named in this letter of approval will be solely responsible and strictly accountable for any failure to follow the research study as approved by the RRC. M-DCPS will NOT be held responsible for any damage resulting from this study.

APPENDIX B: Principal's Consent

CONSENT FORM: PRINCIPAL

CAUSAL-COMPARATIVE STUDY OF SOCIAL-EMOTIONAL SKILLS AND ACADEMIC ACHIEVEMENT AMONG FIFTH GRADE STUDENTS

David Frederick Salvatelli
Liberty University
School of Education

Fifth grade teachers and fifth grade students in Title I schools in Miami-Dade County Public Schools have the opportunity to participate in a study on the effects of social and emotional skills on academic achievement. Teachers and students in Title I schools in Miami-Dade County Public Schools were selected as possible participants because they are fifth grade teachers and students in Title I schools in a large, metropolitan, public school district located in Florida enrolled during the 2018 – 2019 school year. Please read this form and ask any questions you may have before agreeing to authorize the study in (INSERT SCHOOL NAME).

My name is David Salvatelli and I am conducting a study as part of my doctoral studies in the College of Education at Liberty University. As a lifelong educator, I have invested a career supporting the success and wellbeing of children and youth. I am committed to safeguarding the wellbeing of all participants in the study.

Background Information: The purpose of this study is to investigate how social and emotional skills relate to academic achievement. Five social and emotional skills will be examined in the study: academic self-efficacy, persistence, self-control, mastery learning, and social competence.

Research is showing that these skills are critical for success in school and even contribute to success and happiness as an adult. Research also shows that social and emotional skills are teachable in school. The study may shed light on the particular skills that contribute most to academic achievement.

Procedures: Participation of students is subject to parent/guardian consent. Parent/guardians will consent to: 1.) allowing their child to complete a survey (as described below) and, 2.) granting researcher access through the participating school to their child's most recent FSA math and English scores. An overview of procedures of the study are:

Participating fifth grade students will complete one 14-question survey. The survey will ask the child how he/she assesses his/her own social and emotional skills. The child's teacher will administer the survey in October 2018 to all the student participants from his/her class in a single 20-minute session.

Participating fifth grade teachers will complete a similar survey about how they rate their participating students' social and emotional skills levels. Teachers will complete the survey in November 2018.

After I collect the data from the student and teacher surveys, I will statistically analyze the data along with participating students' most recent Florida Standards Assessment math and English

Language Arts scores to identify significant relationships. Data analysis will take place in December 2018 through January 2019.

I will write up and share with principal, teachers, and parents of participating students the results of the study during January and February 2019.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life. An example of the risks would be if data from the study were lost or stolen. All data from the study will be kept in a secure location. There are no significant risks of psychological harm from participating in the study for teachers or students. As with all educators in the state of Florida, the researcher is required to report child abuse, child neglect, or intent to harm self or others if such were to come to light.

Benefits:

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include:

Increasing the knowledge and understanding of how social and emotional skills impact academic achievement.

Generating evidence about whether teaching social and emotional skills to students is a worthwhile strategy for increasing the academic achievement of all students in general as well as for particular groups of students (male/female, African American/Hispanic/Caucasian, participates in Free & Reduced Lunch/does not participate in Free & Reduced Lunch).

Compensation:

Teachers participating in the study will be compensated in amounts up to \$150 (\$50 per 10 student participants) as an expression of appreciation for their time completing the teacher surveys. Payment of compensation to teachers will occur in December 2019.

Compensation will not be provided for participants who do not complete the study.

Confidentiality: All records pertaining to 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 participant by name. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data. Participants' names will be assigned a number to protect the privacy of the participants. The number will be used to identify participants throughout data analysis. Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted. [Note: Per federal regulations, data must be retained for three years upon completion of the study.]

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to consent to voluntary participation of your fifth grade teachers and fifth grade students in the study will not affect your current or future relations with your school district, Liberty University, or any other school.

Contacts and Questions: The researcher conducting this study is David Salvatelli You may ask any questions you have now. If you have questions later, you are encouraged to contact him at davids@onehope.net or (954) 605-2826. You may also contact the researcher's faculty chair, Dr. Gary Kuhne, at gwkuhne@liberty.edu.

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., Green Hall Ste. 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information 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 participate in the study.

Signature of Consenting Principal

Date

Printed Name

E-mail Address

School Name

David F. Salvatelli, Sr.
Signature of Investigator

Date

APPENDIX C: Teacher's Consent

The Liberty University Institutional Review Board has approved this document for use from 11/8/2018 to 11/7/2019 Protocol # 3411.110818

CONSENT FORM: TEACHER

CAUSAL-COMPARATIVE STUDY OF SOCIAL-EMOTIONAL SKILLS AND ACADEMIC ACHIEVEMENT AMONG FIFTH GRADE STUDENTS

David Frederick Salvatelli, Liberty University School of Education

Fifth grade teachers and fifth grade students in Title I schools in Miami-Dade County Public Elementary Schools have the opportunity to participate in a research study on the effects of social and emotional skills on academic achievement. You were selected as a possible participant because you are a fifth grade teacher in a Title I school in a large, metropolitan, public school district located in Florida enrolled during the 2018 – 2019 school year. Please read this form and ask any questions you may have before agreeing to participate in the study.

My name is David Salvatelli and I am conducting a study as part of my doctoral studies in the School of Education at Liberty University. As a lifelong educator, I have invested a career supporting the success and wellbeing of children and youth. I am committed to safeguarding the wellbeing of all participants in the study.

Background Information: The purpose of this study is to investigate how “social and emotional skills” relate to academic achievement. Five social and emotional skills will be examined in the study: academic self-efficacy (how much a child believes he/she can be successful), persistence

(never giving up), self-control, mastery learning orientation (love of learning), and social competence (how well a child interacts in social situations).

Research is showing that these skills are critical for success in school and even contribute to success and happiness as an adult. Research also shows that these “social and emotional skills” are teachable in school. I hope that the study will shed light on which specific skills contribute most to achievement. I also hope that the study will contribute to more schools teaching these skills to children and youth.

Procedures: If you agree to participate, you will be asked to do the following:

Participating fifth grade teachers will complete one 12-item survey per participating student about how they rate their participating students’ social and emotional skills. An example of a Teacher Survey item: (The student) sat still when s/he was supposed to. The teacher selects: none of the time, a little of the time, most of the time, all of the time. The survey requires approximately five minutes to complete for each participating student. Teachers will complete the survey in November 2018.

Participating fifth grade students will complete one teacher-administered computer- based 14-question survey. (Participation of students is subject to parent/guardian consent/assent.) The survey will ask the child how he/she assesses his/her own social and emotional skills. The child’s teacher will administer the computer-based student survey in October 2018 to all the student participants from his/her class in a single 20-minute session.

I collect the data from the student and teacher surveys, I will statistically analyze the survey data along with participating students’ most recent Florida Standards Assessment math and English Language Arts scores and students’ demographic information (i.e., gender, ethnicities,

and participation/non-participation in Free/Reduced Lunch program) to identify significant relationships. Data analysis will take place in December 2018 through January 2019.

I will write up and share with principal, teachers, and parents of participating students the results of the study during January and February 2019.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life. An example of the risks would be if data from the study were lost or stolen. All data from the study will be kept in a secure location. There are no significant risks of psychological harm from participating in the study for teachers or students. As with all educators in the state of Florida, the researcher is required to report child abuse, child neglect, or intent to harm self or others if such were to come to light.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society may include:

Increasing the knowledge and understanding of how social and emotional skills impact academic achievement.

Generating evidence about whether teaching social and emotional skills to students is a worthwhile strategy for increasing the academic achievement of all students in general as well as for particular groups of students (male/female, African American/Hispanic/Caucasian, participates in Free & Reduced Lunch/does not participate in Free & Reduced Lunch).

Compensation: Teacher participants will be compensated for participating in this study. Teachers participating in the study will be compensated in amounts of \$50 per 10 student participants who complete the survey. Compensation is provided as an expression of appreciation for teachers' time required for participation in the study. Payment of compensation to teachers will occur in December 2019.

Compensation will not be provided for participants who do not complete the study.

Confidentiality: All records pertaining to 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 participant by name. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data. Participants' names will be assigned a number to protect the privacy of the participants. The number will be used to identify participants throughout data analysis. Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted from the study.

Nature of the Study: Participation in this study is voluntary. Your decision whether or not to consent to participation in the study will not affect your current or future relations with your school, Liberty University, or any other school. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw data collected from you will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is David Salvatelli. You may ask any questions you have now. If you have questions later, you are encouraged to contact him at

davids@onehope.net or (954) 605-2826. You may also contact the researcher's faculty chair,

Dr. Gary Kuhne, at gwkuhne@liberty.edu.

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., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information 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 participate in the study.

Printed Name of Teacher Participant

Signature of Teacher Participant Date

Signature of Investigator Date

APPENDIX D: Parent Consent

The Liberty University Institutional Review Board has approved this document for use from

11/8/2018 to 11/7/2019 Protocol # 3411.110818

CONSENT FORM: PARENT

CAUSAL-COMPARATIVE STUDY OF SOCIAL-EMOTIONAL SKILLS AND ACADEMIC ACHIEVEMENT AMONG FIFTH GRADE STUDENTS

David Frederick Salvatelli Liberty University School of Education

Fifth grade students in Miami-Dade County Public Schools have the opportunity to participate in a research study on the effects of social and emotional skills on academic achievement. Your child was selected as possible participants because they are a fifth grade student in a Title I school in a large public school district in Florida. Please read this form and ask any questions you may have before consenting to your child's participation in the study.

My name is David Salvatelli and I am conducting a study as part of my doctoral studies in the School of Education at Liberty University. As a lifelong educator, I have invested a career supporting the success and wellbeing of children and youth. I am committed to safeguarding the wellbeing of all participants in the study.

Background Information: The purpose of this study is to investigate how "social and emotional skills" relate to academic achievement. Five social and emotional skills will be examined in the study: academic self-efficacy (how much a child believes he/she can be successful), persistence (never giving up), self-control, mastery learning orientation (love of learning), and social competence (how well a child interacts in social situations).

Research is showing that these skills are critical for success in school and even contribute to success and happiness as an adult. Research also shows that social and emotional skills are

teachable in school. The study may shed light on the particular skills that contribute most to academic achievement.

Procedures: Participation of students is subject to parent/guardian consent. Parent/guardians will consent to: 1.) allowing their child to complete a survey (as described below), 2.) granting the researcher access through the participating school to their child's most recent Florida Standards Assessment (FSA) math and English scores, and , 3.) demographic information, namely, their child's gender, ethnicity, and whether or not their child participates in

Free/Reduced Lunch program. An overview of procedures of the study are:

Participating fifth grade students will complete one 14-question survey. The survey will ask the child how he/she assesses his/her own social and emotional skills. The child's teacher will administer the survey in October 2018 to all the student participants from his/her class in a single 20-minute session.

Participating fifth grade teachers will complete a similar survey about how they rate their participating students' social and emotional skills levels. Teachers will complete the survey in November 2018.

After I collect the data from the student and teacher surveys, I will statistically analyze the data along with participating students' most recent Florida Standards Assessment math, English Language Arts scores, and demographics to identify significant relationships. Data analysis will take place in December 2018 through January 2019.

I will write up and share with principal, teachers, and parents of participating students the results of the study during January and February 2019.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life. An example of the risks would be if data from the study were lost or stolen. All data from the study will be kept in a secure location. There are no significant

risks of psychological harm from participating in the study for teachers or students. As with all educators in the state of Florida, the researcher is required to report child abuse, child neglect, or intent to harm self or others if such were to come to light.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society may include:

Increasing the knowledge and understanding of how social and emotional skills impact academic achievement.

Generating evidence about whether teaching social and emotional skills to students is a worthwhile strategy for increasing the academic achievement of all students in general as well as for particular groups of students (male/female, African American/Hispanic/Caucasian, participates in Free & Reduced Lunch/does not participate in Free & Reduced Lunch).

Compensation: Students will not be compensated for participating in this study. However, parents of participants will receive a confidential report prepared by the researcher. The report will summarize the child's social and emotional skills levels and provide recommendations for how you can help your child be more successful in school. Parents of student participants will receive their custom report in January 2019.

Reports will not be provided for participants who do not complete the study.

Confidentiality: All records pertaining to 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 participant by name. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from your child for use in future research studies or with other researchers; if I share the data that I collect about your child, I will remove any information that could identify your child, if applicable, before I share the data.

Participants' names will be assigned a number to protect the privacy of the participants. The

number will be used to identify participants throughout data analysis. Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to consent to your child's participation in the study will not affect you or your child's current or future relations with your child's school, Liberty University, or any other 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.

How to Withdraw from the Study: If you or your child choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw data collected from your child will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is David Salvatelli. You may ask any questions you have now. If you have questions later, you are encouraged to contact him at davids@onehope.net or (954) 605-2826. You may also contact the researcher's faculty chair, Dr. Gary Kuhne, at gwkuhne@liberty.edu.

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., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information 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/Guardian Date

Printed Name

Name of School Where Child Attends

Signature of Investigator Date

APPENDIX E: Student Assent

The Liberty University Institutional Review Board has approved this document for use from 11/8/2018 to 11/7/2019 Protocol # 3411.110818

ASSENT OF CHILD TO PARTICIPATE IN A RESEARCH STUDY

What is the name of the study and who is doing the study?

The name of the study: “Causal-comparative Study of Social-Emotional Skills and Academic Achievement Among Fifth Grade Students”

Who is doing the study: David Salvatelli is the researcher. Mr. Salvatelli is a doctoral student at Liberty University.

Why are we doing this study?

We are interested in helping students do their best in school.

Why are we asking you to be in this study?

You are being asked to be in this research study because you are a fifth grader in Florida public schools.

If you agree, what will happen?

If you are in this study you will complete a survey about yourself and your teacher will fill out a survey about you.

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.

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

David Salvatelli, Researcher Email: davids@onehope.net Phone: (954) 605-2826

Gary W. Kuhne, Dissertation Chair Email: gwkuhne@liberty.edu

Liberty University Institutional Review Board,

1971 University Blvd, Green Hall 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

APPENDIX F: Permission to Use Child Trends Social and Emotional Skills Surveys

Battery

On 4/10/19, 8:32 AM, "Kelley Bennett" <kbennett@childtrends.org> wrote:

Hi David,
The contracts team at Child Trends is fine with moving forward with this permissions letter.
All the best,
Kelley

Kelley Bennett | Communications Assistant
7315 Wisconsin Ave, Ste 1200W | Bethesda, MD 20814
ph: (240) 223-9205 | kbennett@childtrends.org

To get the latest research on children and youth, sign up for our newsletter here.

-----Original Message-----

From: David S <davids@onehope.net>
Sent: Tuesday, April 09, 2019 2:39 PM
To: Kelley Bennett <kbennett@childtrends.org>
Subject: Re: Contact from ChildTrends Website

Please find letter attached. Let me know if you need anything else. Thanks again for your help, Kelley.

On 4/9/19, 11:54 AM, "Kelley Bennett" <kbennett@childtrends.org> wrote:

Wonderful, thanks David! I'll pass that along to our Contracts team when it comes in.
Best,
Kelley

Kelley Bennett | Communications Assistant
7315 Wisconsin Ave, Ste 1200W | Bethesda, MD 20814
ph: (240) 223-9205 | kbennett@childtrends.org

To get the latest research on children and youth, sign up for our newsletter here.

-----Original Message-----

From: David S <davids@onehope.net>
Sent: Tuesday, April 09, 2019 11:54 AM
To: Kelley Bennett <kbennett@childtrends.org>
Subject: Re: Contact from ChildTrends Website

That is so helpful! I will draft a letter. Thank you, Kelley.

Sent from my iPhone

On Apr 9, 2019, at 11:14 AM, Kelley Bennett <kbennett@childtrends.org> wrote:

Hello,

I've spoken with our contracts department, and they approve providing permission to use these materials as long as the work includes a proper citation. If you need some sort of documentation granting you permission, draft a letter stating that Child Trends is giving you permission to use our work and then send that back to me.

Best,
Kelley

Kelley Bennett | Communications Assistant
7315 Wisconsin Ave, Ste 1200W | Bethesda, MD 20814
ph: (240) 223-9205 | kbennett@childtrends.org

To get the latest research on children and youth, sign up for our newsletter here.

-----Original Message-----

From: DAVID SALVATELLI <no-reply@childtrends.org>
Sent: Friday, April 05, 2019 3:45 PM
To: Kelley Bennett <kbennett@childtrends.org>
Subject: Contact from ChildTrends Website

Someone has contacted you on the Child Trends website with the following details: <br Name: DAVID SALVATELLI; davids@onehope.net; 9546052826; Liberty University: This email is to ask for your assistance. I am a doctoral candidate in Curriculum & Instruction at Liberty University. My dissertation capstone study examines particular social and emotional skills possibly causally related to higher academic achievement among students from low-SES households. I am seeking permission to utilize the measurement tools (i.e., "Teacher Survey" and "Student Survey") developed by Child Trends for the Tauck Family Foundation. These tools were published in the Child Trends 2014 publication "Measuring Elementary School Students Social and Emotional Skills: Providing Educators with Tools to Measure and Monitor Social and Emotional Skills that Lead to Academic Success". Please, how may I proceed with soliciting authorization to utilize the Surveys?

APPENDIX G: IRB Approval**LIBERTY UNIVERSITY**
INSTITUTIONAL REVIEW BOARD

November 8, 2018

David Frederick Salvatelli

IRB Approval 3411.110818: Causal-Comparative Study of Social-Emotional Skills and
Academic Achievement Among Fifth Grade Students

Dear David Frederick Salvatelli,

We are pleased to inform you that your study has been approved by the Liberty University IRB.

This approval is extended to you for one year from the date provided above with your protocol number. 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.

Your study falls under the expedited review category (45 CFR 46.110), which is applicable to specific, minimal risk studies and minor changes to approved studies for the following

reason(s):

Your study involves surveying or interviewing minors, or it involves observing the public behavior of minors, and you will participate in the activities being observed.

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. [45 CFR 46.101\(b\)\(2\)](#) and (b)(3). This listing refers only to research that is not exempt.)

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

Sincerely,

LIBERTY
UNIVERSITY.

LibertyUniversity/TrainingChampionsforChrist since1971

APPENDIX H: Data Set: Outliers Removed

Overview

Appendix H presents statistical findings for the MANOVA procedure executed using the data set featuring exclusion of outlier scores ($N = 103$). Research questions and null hypotheses are reviewed. Descriptive statistics in the form of means and standard deviations derived from MANOVA and ANOVA statistical procedures are presented as are results of those statistical procedures. Assumptions tests results are reported. Statistically significant results relating to the research questions are presented. Rejections and retentions of null hypotheses are reported.

Research Questions

RQ1: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ2: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ3: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ4: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ5: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ6: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

RQ7: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ8: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ9: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ10: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ11: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ12: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

Hypotheses

The null hypotheses for the study were:

H01: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H02: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H03: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

H04: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H05: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H06: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

H07: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H₀8: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H₀9: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

H₀10: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H₀11: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H₀12: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

Descriptive Statistics

Data are expressed as mean \pm standard deviation (see Table 11). Samples of students scoring at low levels of Persistence and Social Competence were of insufficient sizes ($N = 1$, $N = 1$, respectively) to conduct statistical analyses. Sample sizes were acceptable for statistical analyses at Low levels of Self-Control, Mastery Orientation, and Academic Self-Efficacy, and at Moderate and High levels of Academic Self-Efficacy, Persistence, Self-Control, Mastery Orientation and Social Competence.

Table 11

Means and Standard Deviations

FSA ELA			
	Levels	Mean	Standard Deviation
Persistence	1.0	314.00	
	2.0	306.81	21.79
	3.0	323.99	20.87
	Total	320.35	22.00
Self-Control	1.0	302.50	0.71
	2.0	309.18	15.36
	3.0	326.39	22.74
	Total	320.35	22.00
Academic Self-Efficacy	1.0	310.50	28.29
	2.0	313.58	18.67
	3.0	325.30	22.54
	Total	320.35	22.00
Social Competence	1.0	367.00	
	2.0	307.67	17.81
	3.0	323.70	21.36
	Total	320.35	22.00
Mastery Orientation	1.0	321.89	19.94
	2.0	322.13	20.99
	3.0	319.05	24.01
	Total	320.76	21.99
FSA Math			
		Mean	Standard Deviation
Persistence	1.0	297.00	
	2.0	308.19	16.50
	3.0	330.20	19.71
	Total	325.39	21.10
Self-Control	1.0	320.50	20.51
	2.0	314.26	14.94
	3.0	331.18	21.71
	Total	325.39	21.10
Academic Self-Efficacy	1.0	304.50	8.54
	2.0	318.13	16.68
	3.0	331.28	21.99
	Total	325.39	21.10
Social Competence	1.0	343.00	
	2.0	314.36	13.83
	3.0	328.74	21.94
	Total	325.39	21.10
Mastery Orientation	1.0	324.00	14.66
	2.0	321.26	19.57
	3.0	330.19	24.44
	Total	325.57	21.26

Results

Multivariate Analysis of Variance (MANOVA) was carried out. The MANOVA assumptions that the study feature two or more continuous dependent variables, a categorical

independent variable with two or more independent levels, and independence of observations were met. There were no extreme univariate outliers, as assessed by boxplots. New outliers were found when old outliers were removed; the outliers assumption remained violated. The assumption that data is normally distributed was not violated when outliers are removed ($p > .05$), as assessed by Shapiro-Wilk test; there was no multicollinearity, as assessed by Pearson correlation ($r = .634, p < .0005$); there was a linear relationship between ELA and Math scores in each level of the social-emotional skills, as assessed by scatterplots. As was the case when outliers were not removed, the sample size assumption that there be at least as many cases as the number of dependent variables (i.e., two) was violated in two instances; violations occurred in the Low (i.e., 1.0) levels of Persistence and Social Competence (see Table 12). There was homogeneity of variance-covariances matrices, as assessed by Box's test of equality of covariance matrices ($p = .437$); there was homogeneity of variances, as assessed by Levene's Test of Homogeneity of Variance ($p > .05$).

Table 12

Sample Sizes

<i>Between-Subjects Factors</i>		
		<i>N</i>
Persistence	1.0	1
	2.0	21
	3.0	78
Self-Control	1.0	2
	2.0	32
	3.0	66
Academic Self-Efficacy	1.0	4
	2.0	37
	3.0	59
Social Competence	1.0	1
	2.0	23
	3.0	76
Mastery Orientation	1.0	19
	2.0	38
	3.0	43

MANOVA yielded a statistically significant difference on the combined dependent variables in Persistence ($F(4, 124) = 2.681, p = .035, \text{Wilks' } \Lambda = .847; \text{partial } \eta^2 = .080$).

Because MANOVA found a significant result, follow-up univariate ANOVA was conducted to identify which independent variables, or combinations of independent variables, yielded differences in the dependent variables.

ANOVA requires that the data feature one dependent variable measured at the continuous level. This requirement was met by carrying out separate analyses for each dependent variable ELA scores and Math scores each of which are measured at the continuous level. Independent variables Academic Self-Efficacy, Self-Control, and Mastery Orientation were measured at three categorical levels of Low, Moderate, and High. Persistence and Social Competence were measured only at the Moderate and High levels due to insufficient sample sizes at the Low levels. Each of the independent variables was subjected independently to Analysis of Variance. As such, the ANOVA requirement that the data feature one independent variable with two or more categorical, independent groups was met. The ANOVA requirement: independence of observations was met.

ANOVA assumes that data feature no outliers. ANOVA found no extreme outliers, but found univariate outliers, as assessed by boxplots, signifying that the assumption that the data be free of outliers was violated. The assumption that data is normally distributed was met, as assessed by the Shapiro-Wilk test ($p > .05$). The ANOVA assumption of homogeneity of variances was met, as assessed using Levene's Test of Homogeneity of Variance ($p > .05$).

Hypotheses

The null hypotheses for the study were:

H₀₁: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

Follow-up univariate Analysis of Variance (ANOVA) showed a statistically significant difference among grade five mathematics scores on the Florida Standards Assessment Math scores (i.e., Math scores) by Persistence ($F(2, 63) = 4.421, p = .016$; partial $\eta^2 = .123$) levels, using a Bonferroni adjusted α level of .025. SPSS will not perform Tukey's post hoc tests for Persistence because one of the levels in Persistence has fewer than the number of dependent variables (IBM SPSS, 2016) (i.e., the study features two dependent variables and the Low level of Persistence had one case). Therefore, the significant difference in Persistence levels on Math scores was found for Moderate ($M = 308.19, SD = 16.50$) and High ($M = 330.20, SD = 19.71$) levels, a mean increase of 22.01. Null hypothesis one was rejected.

H₀₂: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

There was an increase in Math scores from the Low ($M = 304.50, SD = 8.54$) to the High level ($M = 331.28, SD = 21.99$), and from the Moderate ($M = 318.13, SD = 16.68$) to the High

level ($M = 331.28$, $SD = 21.99$) of Academic Self-Efficacy, mean increases of 27.25 and 13.50, respectively, which were statistically significant ($p = .018$, $p = .003$, respectively), as assessed by Tukey post hoc test. Null hypothesis two was rejected.

H03: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

There was an increase in Math scores from the Moderate ($M = 314.26$, $SD = 14.94$) to the High level ($M = 331.18$, $SD = 21.71$) of Self-Control, a mean increase of 17.38, which was statistically significant ($p < .0005$), as assessed by Tukey post hoc test. Null hypothesis three was rejected.

H04: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

There was no statistically significant difference in Florida Standards Assessment Math achievement test scores (i.e., Math scores) of fifth grade students between Low, Moderate, and High levels of Mastery Orientation. Null hypothesis four was not rejected.

H05: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

There was no statistically significant difference in Florida Standards Assessment Math achievement test scores (i.e., Math scores) of fifth grade students between Low, Moderate, and High levels of Social Competence. Null hypothesis five was not rejected.

H06: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of

proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

Univariate follow-up ANOVA did not show statistically significant differences using a Bonferroni adjusted α level of .025. Null hypothesis six was not rejected.

H₀7: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

Univariate follow-up ANOVA showed a statistically significant difference in ELA scores for Persistence ($F(2, 63) = 3.394, p = .040$; partial $\eta^2 = .097$), using a Bonferroni adjusted α level of .025. SPSS will not perform Tukey's post hoc tests for Persistence because one of the levels in Persistence has fewer than the number of dependent variables (i.e., the study features two dependent variables and the Low level of Persistence had one case) (IBM SPSS, 2016).

Therefore, the significant difference in Persistence levels on ELA scores was found for Moderate ($M = 306.81, SD = 21.79$) and High ($M = 323.99, SD = 20.87$) levels, a mean increase of 17.18.

Null hypothesis seven was rejected.

H₀8: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

There was an increase in ELA scores from the Moderate ($M = 313.58, SD = 18.67$) to the High level ($M = 325.30, SD = 22.54$) of Academic Self-Efficacy, a mean increase of 11.72, which was statistically significant ($p = .008$), as assessed by Tukey post hoc test. Null hypothesis eight was rejected.

H₀9: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

There was an increase in ELA scores from the Moderate ($M = 309.18$, $SD = 15.36$) to the High level ($M = 326.39$, $SD = 22.74$) of Self-Control, a mean increase of 17.21, which was statistically significant ($p < .0005$), as assessed by Tukey post hoc test. Null hypothesis nine was rejected.

H₀10: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

There was no statistically significant difference in Florida Standards Assessment ELA achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and High levels of Mastery Orientation. Null hypothesis ten was not rejected.

H₀11: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

There was no statistically significant difference in Florida Standards Assessment ELA achievement test scores (i.e., ELA scores) of fifth grade students between Low, Moderate, and High levels of Social Competence. Null hypothesis eleven was not rejected.

H₀12: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

ANOVA that was performed following MANOVA did not show statistically significant differences using a Bonferroni adjusted α level of .025. Null hypothesis twelve was not rejected.

APPENDIX I: 192 Participants (Includes Dissimilar Student – Teacher Ratings)

Overview

Appendix I presents statistical findings for the MANOVA procedure executed using the data set featuring inclusion of participants with dissimilar student – teacher ratings for Self-Control and Persistence ($N = 192$). Research questions and null hypotheses are reviewed. Descriptive statistics in the form of means and standard deviations derived from MANOVA and ANOVA statistical procedures are presented as are results of those statistical procedures. Assumptions tests results are reported. Statistically significant results relating to the research questions are presented. Rejections and retentions of null hypotheses are reported.

Research Questions

RQ1: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ2: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ3: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ4: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ5: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ6: Is there a difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

RQ7: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence?

RQ8: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy?

RQ9: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

RQ10: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation?

RQ11: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence?

RQ12: Is there a difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency

(low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence?

Hypotheses

The null hypotheses for the study were:

H01: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H02: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H03: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control?

H04: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H05: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H06: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

H07: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

H08: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

H09: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

H010: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

H011: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

H012: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

Descriptive Statistics

Data are expressed as mean \pm standard deviation (see Table 13).

Table 13

Means, Standard Deviations, Sample Sizes

FSA ELA				
	Levels	Mean	Standard Deviation	<i>N</i>
Persistence Code	1.0	296.80	20.60	10
	2.0	299.65	25.29	52
	3.0	323.78	23.00	130
	Total	315.80	26.11	192
Self-Control	1.0	306.00	9.80	6
	2.0	305.14	20.89	59
	3.0	321.13	27.23	127
	Total	315.80	26.11	192
Academic Self-Efficacy	1.0	310.57	23.34	14
	2.0	311.32	22.45	73
	3.0	319.64	28.34	105
	Total	315.80	26.11	192
Social Competence	1.0	325.33	36.36	3
	2.0	303.95	21.69	39
	3.0	318.61	26.25	150
	Total	315.80	26.11	192
Mastery Orientation	1.0	324.00	18.64	41
	2.0	317.19	24.53	70
	3.0	310.72	29.78	79
	Total	315.96	26.18	190
FSA Math				
		Mean	Standard Deviation	Count
Persistence Code	1.0	291.00	12.06	10
	2.0	304.02	23.52	52
	3.0	330.35	19.83	130
	Total	321.17	24.60	192
Self-Control	1.0	309.33	21.85	6
	2.0	311.42	20.60	59
	3.0	326.25	25.02	127
	Total	321.17	24.60	192
Academic Self-Efficacy	1.0	307.29	22.30	14
	2.0	315.00	20.88	73
	3.0	327.30	25.63	105
	Total	321.17	24.60	192
Social Competence	1.0	306.33	33.01	3

	2.0	312.03	16.17	39
	3.0	323.84	25.71	150
	Total	321.17	24.60	192
Mastery Orientation	1.0	324.90	20.10	41
	2.0	317.90	21.92	70
	3.0	322.25	28.83	79
	Total	321.22	24.72	190

Results

Multivariate Analysis of Variance (MANOVA) was carried out. The MANOVA assumptions that the study feature two or more continuous dependent variables, a categorical independent variable with two or more independent levels, and independence of observations were met. The assumption of normality was violated for all five independent variables at one or more levels, as assessed by Shapiro-Wilk test. There were no extreme outliers, as assessed by boxplots. There were univariate outliers for both dependent variables in at least one level of all independent variables. There was no multicollinearity, as assessed by Pearson correlation ($r = .694, p < .0005$); there was a linear relationship between ELA and Math scores in each level of the independent variables, as assessed by scatterplots. The sample size assumption was met. There was homogeneity of variance-covariance matrices, as assessed by Box's test of equality of covariance matrices ($p = .472$). The assumption of homogeneity of variances was met for ELA scores, as assessed by Levene's Test of Homogeneity of Variance ($p = .318$); the assumption of homogeneity of variances was not met for Math scores, as assessed by Levene's Test of Homogeneity of Variance ($p = .025$).

MANOVA yielded statistically significant differences on the combined dependent variables in Persistence ($F(4, 258) = 3.358, p = .011$, Wilks' $\Lambda = .903$; partial $\eta^2 = .049$), Social Competence ($F(4, 258) = 3.126, p = .016$, Wilks' $\Lambda = .910$; partial $\eta^2 = .046$), Persistence combined with Self-Control ($F(4, 258) = 3.391, p = .010$, Wilks' $\Lambda = .903$; partial $\eta^2 = .050$),

Persistence combined with Academic Self-Efficacy ($F(6, 258) = 2.247, p = .039, \text{Wilks' } \Lambda = .903; \text{partial } \eta^2 = .050$), and Persistence combined with Self-Control, Academic Self-Efficacy, and Mastery Orientation ($F(2, 129) = 6.383, p = .002, \text{Wilks' } \Lambda = .910; \text{partial } \eta^2 = .090$).

Because MANOVA found significant differences on the combined dependent variables, follow-up univariate ANOVA was conducted to identify the independent variables, or combinations of independent variables, yielded differences in the dependent variables. ANOVA requires that the data feature one dependent variable measured at the continuous level. This requirement was met by carrying out separate analyses for each dependent variable ELA scores and Math scores each of which are measured at the continuous level. Independent variables Academic Self-Efficacy, Self-Control, and Mastery Orientation were measured at three categorical levels of Low, Moderate, and High. Each of the independent variables was subjected independently to Analysis of Variance. As such, the ANOVA requirement that the data feature one independent variable with two or more categorical, independent groups was met. The ANOVA requirement: independence of observations was met.

ANOVA assumes that data feature no outliers. ANOVA found no extreme outliers, but found univariate outliers, as assessed by boxplots. One or more univariate outliers were found in each independent variable on scores for each dependent variable; the assumption that the data be free of outliers was violated. The assumption that the independent variable scores are normally distributed among dependent variables was violated, as assessed by the Shapiro-Wilk test: ELA scores featured a violation in Persistence at the High level ($p < .0005$); ELA scores featured violations in Self-Control at Moderate ($p = .011$) and High ($p < .0005$) levels; ELA scores featured violations in Academic Self-Efficacy at Moderate ($p = .007$) and High ($p = .001$) levels; ELA scores featured a violation in Social Competence at the High level ($p < .0005$); ELA scores featured a violation in Mastery Orientation at the High level ($p = .009$). Math scores featured a

violation in Social Competence at the High level ($p = .039$). The ANOVA assumption of homogeneity of variances was met for ELA scores, as assessed using Levene's Test of Homogeneity of Variance ($p = .318$). The ANOVA assumption of homogeneity of variances was not met for math scores, as assessed using Levene's Test of Homogeneity of Variance ($p = .025$).

Hypotheses

The null hypotheses for the study were:

H₀₁: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

Follow-up univariate Welch's Analysis of Variance (ANOVA) was conducted for Persistence. Welch's ANOVA is indicated when the homogeneity of variance assumption is violated (Welch's test, 2019), as is the case in this study for Math scores. Grade five mathematics scores on the Florida Standards Assessment Math scores (i.e., Math scores) were statistically significantly different for different levels of Persistence, Welch's $F(2, 27.776) = 57.206, p < .0005$ (see Table 14), using a Bonferroni adjusted α level of .025.

Table 14

Robust Tests of Equality of Means

FSA Math				
	Statistic ^a	df1	df2	Sig.
Welch	57.206	2	27.776	.000

a. Asymptotically F distributed.

There was an increase in Math scores for Persistence from the Low ($M = 291.00, SD = 12.06$) to the High ($M = 330.35, SD = 19.83$) levels ($p < .0005$), an increase of 39.68, as assessed by Tukey post hoc test. There was an increase in Math scores for Persistence from the Moderate

($M = 304.02$, $SD = 23.52$) to the High ($M = 330.35$, $SD = 19.83$) levels ($p < .0005$), an increase of 26.66, as assessed by Tukey post hoc test. Null hypothesis one was rejected for Persistence.

H02: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

There was an increase in Math scores for Academic Self-Efficacy from the Low ($M = 307.29$, $SD = 22.30$) to the High ($M = 327.30$, $SD = 25.63$) levels ($p = .002$), an increase of 20.21, as assessed by Tukey post hoc test. There was an increase in Math scores for Academic Self-Efficacy from the Moderate ($M = 315.00$, $SD = 20.88$) to the High ($M = 327.30$, $SD = 25.63$) levels ($p < .0005$), an increase of 12.48, as assessed by Tukey post hoc test. Null hypothesis two was rejected.

H03: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control

There was an increase in Math scores for Self-Control from the Moderate ($M = 311.42$, $SD = 20.60$) to the High ($M = 326.25$, $SD = 25.02$) levels ($p < .0005$), an increase of 15.14, as assessed by Tukey post hoc test. Null hypothesis three was rejected.

H04: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

Univariate follow-up ANOVA did not show statistically significant differences using a Bonferroni adjusted α level of .025. Null hypothesis four was not rejected.

H05: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

There was an increase in Math scores for Social Competence from the Moderate ($M = 312.03$, $SD = 16.17$) to the High ($M = 323.84$, $SD = 25.71$) levels ($p = .004$), an increase of 12.18, as assessed by Tukey post hoc test. Null hypothesis five was rejected.

H06: There is no statistically significant difference in Math (i.e., Florida Standards Assessment annual math achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

Univariate follow-up ANOVA did not show statistically significant differences using a Bonferroni adjusted α level of .025. Null hypothesis six was not rejected.

H07: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Persistence.

Univariate follow-up ANOVA showed statistically significant differences in ELA scores for Persistence ($F(2,130) = 5.682$, $p = .004$; partial $\eta^2 = 0.80$), using a Bonferroni adjusted α level of .025. There was an increase in ELA scores for Persistence from the Low ($M = 296.80$, $SD = 20.60$) to the High ($M = 323.78$, $SD = 23.00$) levels ($p < .0005$), an increase of 27.35, as assessed by Tukey post hoc test. There was an increase in ELA scores for Persistence from the Moderate ($M = 299.65$, $SD = 25.29$) to the High ($M = 323.78$, $SD = 23.00$) levels ($p < .0005$), an increase of 24.50, as assessed by Tukey post hoc test. Null hypothesis seven was rejected for Persistence.

H₀8: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Academic Self-Efficacy.

There was an increase in ELA scores for Academic Self-Efficacy from the Moderate ($M = 311.32$, $SD = 22.45$) to the High ($M = 319.64$, $SD = 28.34$) levels ($p = .020$), an increase of 8.55, as assessed by Tukey post hoc test. Null hypothesis eight was rejected.

H₀9: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Self-Control.

There was an increase in ELA scores for Self-Control from the Moderate ($M = 305.14$, $SD = 20.89$) to the High ($M = 321.13$, $SD = 27.23$) levels ($p < .0005$), an increase of 15.86, as assessed by Tukey post hoc test. Null hypothesis nine was rejected.

H₀10: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Mastery Orientation.

There was an increase in ELA scores for Mastery Orientation from the High ($M = 310.72$, $SD = 29.78$) to the Low ($M = 324.00$, $SD = 18.64$) levels, ($p = .003$), an increase of 13.28, as assessed by Tukey post hoc test. Null hypothesis ten was rejected.

H₀11: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in Social Competence.

Univariate follow-up ANOVA showed statistically significant differences in ELA scores for Social Competence ($F(2, 130) = 4.730$, $p = .010$; partial $\eta^2 = .068$), using a Bonferroni adjusted α level of .025. There was an increase in ELA scores for Social Competence from the

Moderate ($M = 303.95$, $SD = 21.69$) to the High ($M = 318.61$, $SD = 26.25$) levels ($p = .001$), an increase of 14.41, as assessed by Tukey post hoc test. Null hypothesis eleven was rejected.

H₀12: There is no statistically significant difference in ELA (i.e., Florida Standards Assessment annual English Language Arts achievement test) scores among grade five students by their levels of proficiency (low, moderate, high) in combinations of the independent variables: Persistence, Academic Self-Efficacy, Self-Control, Mastery Orientation, and Social Competence.

Univariate follow-up ANOVA showed a statistically significant difference in ELA scores for Persistence combined with Self-Control ($F(2, 130) = 5.070$, $p = .008$; partial $\eta^2 = .072$), and for Persistence combined with Academic Self-Efficacy ($F(3, 130) = 3.527$, $p = .017$; partial $\eta^2 = .075$), using a Bonferroni adjusted α level of .025. Null hypothesis twelve was rejected.