2017

The Relationship Between Teacher Autonomy and Middle School Students' Achievement in Science

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Walden University
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Abstract

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ME, Florida A & M University, 1994

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The pressure to have students perform well on standardized tests can serve as a stressor to some teachers in their efforts to autonomously teach their students, particularly those of low socioeconomic status (SES). However, the relationship between teachers' sense of autonomy, teachers' attitudes and behaviors, SES, and student's academic success remains unclear. The purpose of this quantitative study was to examine the relationship between teachers' autonomy to make decisions about classroom teaching practices and specific science curricula, school-wide student achievement in science, and students' SES. Freire's empowerment theory served as the theoretical framework. The research questions investigated the extent that student SES background moderated the relationship between teacher autonomy, curricula, and school district science achievement. Data sources were student Florida Comprehensive Assessment Test science achievement scores and teacher autonomy data from 108 eighth grade science teachers in 16 school districts. Data were analyzed using hierarchical linear regression analysis. Results revealed no significant relationships between eighth-grade science teachers' perceptions of their autonomy, teaching practices, their science curriculum, and district eighth-grade science achievement scores ($p > .001$). Although the results were not significant, this study provides insights into 8th grade science education which may benefit students, teachers, and administration. Factors such as SES and teacher perception of autonomy can be advantegeously considered in science classes to increase student achievement. Such considerations can influence positive social change by increasing the science capacity of students at all SES levels.

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Dedication

I dedicate my doctoral study to my beautiful wife, Junia Taylor Gurganious. Her love, support, and motivation helped me stay strong through my pain when I could not see the end of the road. My wonderful wife understands my hopes and dreams. I knew she was there with the love of God that I could count on always. A kind of caring that made me feel warm and secure. Therefore, this journey was worth every year, day, hour, minute, and second.

To my parents, Elias Gurganious and Thera Wells, thank you for bringing me into this world and demonstrating a great work ethic on how not to give up but continue to work hard and complete your goals in life. I want to let you know that your parenting was not in vain.

Acknowledgments

First, I give honor to God with total praise for the strength and endurance to complete this journey. Without God, this journey would have ended before it started. I would like to thank and acknowledge Dr. Thomas Thompson, who was my committee chair before leaving Walden University. Dr. Thompson and I started this process together; you helped me find my passion; thank you for supporting me. I would like to acknowledge and thank my present committee chair, Dr. John Flohr, for taking on another student, accepting the responsibility of making sure that I completed this process, and offering patience and guidance along the way. Dr. Flohr, you never gave up on me, and I am so humble. Thank you so much for your dedication and support. Dr. David Stein, my past methodologist, I thank you for your support. To my present methodologist, Dr. Shannon Decker, thank you for taking on this great responsibility as well as your support.

I would like to acknowledge Dr. Zerric Clinton, who is a true friend. He inspired me not to give up but stay on this journey. In addition, to my colleague Dr. Carol Ikard, thank you for your encouraging and motivating words of inspiration. Also, to my Academic Advisor Neil Blumberg thank you for staying on this journey and believing in me.

I would like to acknowledge my wife Junia, whose infinite support, patience, and encouragement in this endeavor made it all possible. You always believed in me and offered reassurance throughout the process when I felt I would not finish. You gave me the strength and clarity to keep going. I could not have done this without you! I would

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Chapter 1: Introduction to the Study

A review of the student achievement data in science indicates that students' performance in the United States is low and began to decline after implementing an accountability system that consists of a restricted curriculum for classroom teaching practices (Bailey, 2014). Teachers have been accustomed to having autonomy and control over their classroom activities and decision-making but now believe that their autonomy is considerably limited under the stress of the prevailing accountability system mandates (Feldmann, 2011; Grenville-Cleave & Boniwell, 2012). Furthermore, in the school system, student achievement is the only measure that determines the success of students, teachers, and schools.

Approximately 22 countries around the world outperformed the U.S. student achievement scores in science (Chappell, 2013). Researchers have demonstrated the impact of classroom teaching practices improving students' scores on standardized tests in science (Chappell, 2013; Mervis, 2011; Weiss, 2013). However, few researchers have addressed the effects of science teachers' autonomy as a predictor on achievement outcomes for middle school students. To address this gap in the literature, I examined the relationships between eighth grade science teachers' perceptions of their autonomy and student learning outcomes. I also examined effective teaching practices in science education and high-stakes testing may influence student achievement scores. The results of this study may affect positive social change by emphasizing the significance of teacher autonomy in the classroom as a predictor of student achievement scores.

Chapter 1 includes background information for the study, the problem statement, purpose statement, research questions and hypotheses and the theoretical foundation. Also included in the chapter is an overview of the analysis of student performance in science and research on teacher autonomy. I discuss why it is important to determine if there is a relationship between my study variables. The end of the chapter includes a summary of key points.

Background

High-stakes testing is part of an aggressive accountability system grading negative outcomes for states, school districts, and schools accountable for students' performance that targets students learning. The accountability system mandate for high-stakes testing in the U.S. has led teachers to change their teaching practices, which has restricted their effectiveness in the classroom. Schinkel (2010) argued that teachers could not flourish under government interference with the curriculum, thereby reducing autonomy. Administrators in schools where testing is emphasized exert some level of control over teachers' teaching practices, all of which limit the development of teacher autonomy (Au, 2011; Bailey, 2014; Schinkel, 2010; Smith & Kovacs, 2011). Some teachers reported being micromanaged due to prescriptive policies of a curriculum that is so rigid that the requirements undermine job satisfaction and the perception of teachers as skilled professionals who have earned a degree of public trust in their ability to teach (Chaudhari, 2012; Ingersoll & Merrill, 2011; Ozturk, 2012). Other teachers in a high-stakes testing environment believe they spend more time preparing for high-stakes testing than engaging students in effective learning activities, emphasizing rote learning rather

than critical thinking skills (Deniston & Gerrity, 2010; Ezzi, 2012; Smith & Kovacs, 2011; Thibodeaux, Labat, Lee, & Labat, 2015). Such a restrictive environment, according to Feldman (2011), creates feelings of demoralization, alienation, and disgrace among teachers.

Assessment of Student Academic Achievement in Science

Before the accountability system mandates on high-stakes testing, the National Assessment of Educational Progress (NAEP) served as the nation's measure of academic progress of student achievement in science. Campbell, Hombo, and Mazzeo (2000) conducted a 30-year review in the U.S. from 1969-1999. The 30-year review trend is the U.S. middle school science student achievement. The beginning of the 30-year review started from 1970-1976 where students scored five points above the U.S. national average in middle school science. From 1977-1981, students' scores decreased eight points below the U.S. national average. From 1982-1999, students' scores increased 16 points, bringing them back above the U.S. national average (Campbell et al., 2000). Based on the 30-year review finding, middle school students' science scores were above the national average before the accountability system mandates (Campbell et al., 2000). When the accountability system for high-stakes testing became a priority, growth in student achievement in many of the other areas suffered, as might be expected, The NAEP results identified science as one of those subject areas.

According to international rankings for student academic achievement in middle school science, U.S. students do not know enough about science (Mervis, 2011). Results from the 2012 Program for International Student Assessment confirmed that U.S.

students' achievement in science is below average when compared to students in other developed countries (Chappell, 2013). Florida eighth grade students' performance in science on the NAEP was 3 points below the national average, (National Center for Education Statistics [NCES], 2014, 2011; FLDOE, 2014). Moreover, Florida's NAEP national average for eighth grade students' science assessment was lower than 29 states, assessment scores higher than 13 states, and the average score demonstrated no difference in 13 states in the United States (FLDOE, 2014; NCES, 2014, 2011). In addition, Florida eighth grade students who were on free and reduced lunch scored lower than students who did not get free and reduced lunch (FLDOE, 2014; NCES, 2014, 2011). For my research study, I selected Florida middle school eighth grade science teachers. The focal point is the relationship among teacher autonomy, student achievement, and socioeconomic background under a high-stakes testing environment. I wanted to gain an insight on whether teachers' perception of their autonomy in the classroom affects student achievement.

Significance of Socioeconomic Background in Schools

Socioeconomic status (SES) is an interaction of educational, income, and occupational factors and often an indicator of the social standing or class of a person or persons (Ikeda & Garcia, 2014). Students from lower SES groups appear to experience slower intellectual development than higher SES groups of students (Benner & Wang, 2014). For instance, students from lower socioeconomic backgrounds usually begin their schooling with minimal literacy (Benner & Wang, 2014). The home learning environment of lower SES students may differ from that of their peers (Benner & Wang,

2014; Buckingham, Wheldall, & Beaman-Wheldall, 2013). Contributing factors include not receiving proper rest, missing school, and receiving less support from parents and caregivers (Benner & Wang, 2014; Buckingham, Wheldall, & Beaman-Wheldall, 2013; Fischer, Adisch, & Schüpbach, 2014). In a study of SES that centered on cultural differences, Bourdieu (as cited by Edgerton, Lance, & Peter, 2013) argued that SES has a disproportionate affect on students' academic practices and, consequently, their level of achievement. Thus, students from all SES backgrounds deserve a quality education needed for future academic successes to be productive in this society. There is no consensus in the education community that the accountability system mandates on high-stakes testing has been effective.

In addition to having a negative effect on teachers, many in the educational community feared that the accountability system mandates on high-stakes testing would widen the achievement gap. The main task of every school is to contribute to student learning and achievement. Researchers like Dzever (2015) and Ikeda and Garcia (2014) argued that the increased accountability requirements would result in impoverished students not having access to the same type of curriculum as their wealthier counterparts. Bécares and Priest (2015), Benner and Wang (2014), and Thibodeaux et al. (2015) further explained that students in the high SES schools will reap the benefits of a rich curriculum and instruction that is consistent with best practices. On the other hand, students in low SES schools will be no better off than they were before the implementation of high-stakes testing (Bécares & Priest, 2015; Benner & Wang, 2014; Thibodeaux et al., 2015). I

believe impoverished students want the same education success, but the pressures of day-to-day challenges in their lives negatively affect their academic performance.

However, the pressure of high-stakes testing has influenced U.S. schools in general. U.S. schools are not adequately educating students to be competitive in a global environment instead teachers spend more time worrying about preparing students for state tests (Bailey, 2014; Chappell, 2013). Moreover, teachers believe high-stake testing restricted their quality of teaching eliminating instructional decisions and autonomy in the classroom and reducing instructional time (Bailey, 2014). In addition, researchers have often found schools in low socioeconomic communities have an increase in student dropout, decrease in educational resources, high teacher turnover rate, and the teachers may not be highly qualified (Ärlestig, & Törnsen, 2014; Benner & Wang, 2014). Furthermore, many teachers attempt to raise test scores by using narrow or scripted curricula, eliminating enrichment courses (Ärlestig, & Törnsen, 2014; Croft, Roberts, & Stenhouse, 2016; Edgerton et al., 2013; Thibodeaux et al., 2015). The main task of every school is to contribute to student learning and achievement.

Research on Teacher Autonomy

Evidence shows that teacher autonomy is important to the instructional process. Pearson and Hall (1993) defined teacher autonomy "as teachers' feelings about whether they control themselves and their work environments" (p. 173). Teacher autonomy pertains to the freedom and power of teachers to make decisions about their professional activities (Feldmann, 2011). The recognition of school administrators for teachers is essential to ensure that they properly perform their duties and do their assignments

(Ozturk, 2012). Teacher autonomy is pivotal to teacher empowerment and successful professional learning opportunities (Bodman, Taylor, & Morris, 2012).

Ozturk (2012) agreed that a certain amount of autonomy is necessary for teachers to adjust their teaching practices and curriculum to accommodate each student and to engage students. Some teachers believe they have limited autonomy over classroom activities and decision-making (Feldmann, 2011; Grenville-Cleave & Boniwell, 2012). As a result, teachers' performance may change in the classroom and cause them to lose their jobs because of poor evaluation. Feldmann (2011) added that a lack of professional autonomy undermines teachers' perceptions of the teaching profession and their well-being, which contributes to increasing attrition rates in the teaching profession. Teachers have shifted their focus from teaching for learning. However, Husband and Hunt (2015) noted that teachers are concerned that the curriculum has become too narrow. Some teachers view themselves as being unable to cover a wide-range of enriching topics and to be innovative with their lessons because of a high-stakes testing environment (Smith & Kovacs, 2011; Thibodeaux et al., 2015). A high-stakes testing environment stifles creativity, reduces diversity, and rewards those who conform to standardized testing practices but penalizes those who deviate.

Educational researchers have conducted studies on classroom teaching practices and improving students' scores on standardized tests in science. However, at this point, educational researchers have not conducted studies addressing the relationship of teacher autonomy and student achievement at any school level with any subjects. Neither does any study address the influence of autonomy on science achievement in the middle

school environment. My rationale for conducting this study was to increase teaching quality at the middle school level, provide better insight to improve student achievement within the classroom, and provide teachers with useful findings in my study to strengthen and advocate for their own professional lives. Science is an important subject particularly with the focus now on Science Technology Engineering and Mathematics (STEM) subjects. The results of this study may help Florida educators gain knowledge of strategies they can use for improving student interest and achievement in science.

Problem Statement

Lack of teacher autonomy may decrease students' academic success. I chose to study this issue because the accountability mandates on high-stakes testing has restricted teachers' autonomy and professional judgment of their students' educational needs relative to decision-making, teaching practices, and curriculum. Few researchers have examined the relationship among teacher autonomy, student achievement, and socioeconomic background under a high-stakes testing environment. Therefore, a gap in the literature exists on the relationship between teacher autonomy and student achievement in eighth grade science and the extent that such factors as schools' SES and selected teacher characteristics could affect the relationship. There is evidence that teacher autonomy is important to the instructional process.

For instance, Kaur, Hashium, and Noman (2015) found that teacher autonomy provides teachers freedom in planning, instruction, and assessment. Ingersoll and Merrill (2011) stated that teachers with high levels of autonomy and decision-making enjoy teaching and stay in the profession longer than teachers who have no voice in school-

based decisions. Some teachers who have autonomy in decision-making may be empowered and may be more effective instructors, which can affect student achievement (Berry, Daughtrey, & Wieder, 2010; Hulpia, Devos, & Van Keer, 2010). In contrast, teachers who work in a controlled school climate may be demotivated and powerless over their teaching practice (Roness, 2011; Wang & Zang, 2014). This apparent control over teachers certainly affects their autonomy and suppresses their decision-making process. Administrators know that when teachers are motivated, the education community benefits.

Researchers have studied the affects of teacher autonomy on teaching practices and student academic achievement. A restricted curriculum, limits teachers' decision-making ability in the classroom (Mertler, 2011). Additionally, teachers have difficulty finding methods to present information to students when educational leaders set limits on teachers' autonomy to make decisions in their classrooms (Carl, 2014; Sleegers, Thoonen, Oort, & Peetsma. 2014). Teachers should not have limits on their autonomy in the classroom because they are in the best position to make decisions about students' educational progress.

Some researchers have demonstrated that autonomy in the classroom allows teachers to gear instruction to students' interests and personal preferences, acknowledge their perspectives, express value for learning tasks, and provide meaningful rationale for activities (Augusto-Navarro, 2015; Feldmann, 2011; Froiland, 2011). Autonomy empowers teachers with the freedom to make decisions in their classrooms and encourages students to interact with their peers through cooperative learning (Kaur et al.,

2015). Some teachers who have a high degree of autonomy uses instructional techniques

such as differentiation, scaffolding, personalize learning, student-centered learning, and

student engagement that motivated student learning and improve performance (Lau &

Chen, 2013). In addition, teacher autonomy improves teacher commitment and allows

students to become engaged in their learning process (Schinkel, 2010). Moreover,

autonomy in the classroom creates a positive environment for teachers and students.

Purpose of the Study

The purpose of this quantitative hierarchical regression study was to examine the

extent to which SES of the school moderates the relationship between teacher autonomy

and school district science achievement scores. The independent variables for the

hierarchical linear regression were *district-wide teachers' perception of their autonomy to*

make decisions about teaching practices and *the specific science curriculum,* and the

dependent variable was *district eighth grade science achievement scores*. The moderator

variable was the *SES of the school district*. This study relied on data from a Teaching

Autonomy Scale (TAS) survey (see Appendix A) and statistics from the FLDOE website

to assess teacher autonomy in teaching science. This study enhances the body of research

that examined teacher autonomy, student academic achievement in science, and school

district science achievement scores.

Research Questions and Hypotheses

The central research question for this study: To what extent does SES of students

in a school moderate the relationship between teacher autonomy and school district

science achievement scores. The subquestions were:

RQ1. To what extent is there a relationship between district eighth grade science teachers' perception of their teaching autonomy and the district's eighth grade science achievement scores?

RQ2. To what extent does SES of the school district moderate the relationship between the district's eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and the district's eighth grade science achievement scores?

RQ3. To what extent does SES of a school district moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and the district's eighth grade science achievement scores?

In my effort to answer RQ1, I tested the following hypotheses:

$H_0 1$: There is no relationship between districts eighth grade science teachers' perception of their teaching autonomy and district eighth grade science achievement scores.

$H_a 1$: There is a relationship between district eighth grade science teachers' perception of their teaching autonomy and district eighth grade science achievement scores.

The following hypotheses correspond to RQ2.

$H_0 2$: School district SES of the school district moderates the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and district eighth grade science achievement scores.

H_a2: School district SES of the school district does not moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and district eighth grade science achievement scores.

The following hypotheses correspond to RQ3.

H_03: School district SES of a school district moderates the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and district eighth grade science achievement scores.

H_a3: School district SES of a school district does not moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and district eighth grade science achievement scores.

Theoretical Foundation for the Study

Freire's (2011) theory of empowerment served as the framework for this study. According to Freire, empowerment is a concept of consciousness placing individuals in the center of their lives so that they can understand their personal circumstances and the social environment where they live. Empowerment involves autonomy, which refers to the sense of freedom to make decisions (Short & Rinehart, 1993).

Freire's (2011) framework of empowerment in education influences teacher effectiveness by proposing pedagogical practices in which teachers challenge students by setting high standards, demanding introspection and hard work, and presenting new information to fit learning styles. Teacher empowerment involves a transformation in

personal awareness by giving power that allows the individual greater capacity for decision-making (Gulcan, 2011). When teachers are empowered through participation in the decision-making process, they are motivated to excel in their teaching process and educational practices (Amoli & Youran, 2014; Gulcan, 2011). Empowerment gives teachers a voice to set high standards to help students reach goals, connect the curriculum to students' lives, and participate in ongoing professional development (Fry & Dewit, 2011). Teachers become a stabilizing force for effective teaching and learning when school leaders value and respect teacher input in the full operation of the school (Chang, 2013; Rink, 2013).

Nature of the Study

I used a quantitative design to examine the relationship between variables using statistical data. Quantitative methods consist of testing hypotheses using variables to determine whether a relationship or theory exists (Wahyuni, 2012). In quantitative methodology, researchers use numerical data to extract data about the research problem through statistical analysis of numerical variables (Cooper & Schindler, 2013).

I used a hierarchical linear regression research method. The variables for the hierarchical linear regression included general teaching autonomy, curriculum autonomy, eighth grade students' performance on the state standardized achievement test in science, and the SES of the school district. Woltman, Feldstain, MacKay, and Rocchi (2012) stated that the "hierarchical linear model is a form of ordinary least squares regression used to analyze variance in the outcome variables based on the variance of the predictor variables" (p. 52). Quantitative researchers use hierarchical linear regression to examine

the association between categorical variables (Hoth et al., 2015). Researchers use the hierarchical linear regression to investigate the relationship among hierarchical levels of group data (Woltman et al., 2012). Therefore, hierarchical linear regression was the appropriate method for this study.

The population was public middle school eighth grade science teachers in Florida. I retrieved school wide student's science achievement data from the FLDOE Statistics Department. To conduct the study, I employed random sampling to select school districts in Florida to participate in the study by administering the TAS survey using a link to Survey Monkey (http://www.surveymonkey.com). I used the IBM Statistical Package for Social Sciences (SPSS) 21.0 software to analyze the data from the eighth grade middle school science teachers' responses to each of the items from the TAS survey.

The regression model measures the predictor variables, general teaching autonomy, and curriculum autonomy for analysis. To determine if there was a relationship between the two variables within the regression calculations, I separated the data among the TAS survey and the SES of the schools. I separated variable X into two or more elements $X_1, X_2,$ or X_3. The small beta (β) demonstrates each of the X variables as the predictor or criterion variable. Some of the X variables will contribute more or less within the regression model (Johnson & Christensen, 2013). Previous researchers have defined teaching autonomy as a measurable and quantifiable construct (Pearson & Hall, 1993; Pearson & Moomaw, 2006). As a result, I used the TAS instrument to compute a quantitative measure of teachers' perceptions of their ability and authority to make important decisions regarding the science curriculum and their teaching practices. I ran

multiple regressions on all variables and reported the descriptive statistics. Because of the nature of the research questions, this quantitative study included the measure of the relationship between teachers' perception of autonomy and school-wide student achievement on the Florida Comprehensive Assessment Test (FCAT). I provide a detailed explanation of the research methodology in Chapter 3.

Definitions

I used the following key terms and definitions in the study:

Autonomy: The freedom and power teachers have in their classrooms to make independent decisions (Feldmann, 2011).

Measurement scores: TAS instrument computed quantitative measure of teachers' perceptions (Pearson & Hall, 1993).

Socioeconomic status (SES): The interaction of educational, income, and occupational factors and is often an indicator of the social standing or class of a person or persons (Ikeda & Garcia, 2014).

Assumptions

Assumptions are views the researcher accepts as true but that require further examination (Edmondson & D'Urso, 2009). The first assumption underlying this study was the participants would answer questions honestly. The second assumption was the teachers would voluntarily participate in this research study. The third assumption was that participating teachers would complete the study independently without discussing information with their colleagues.

Scope and Delimitations

The scope and delimitations for this study pertain to specific aspects of the relationship between teacher autonomy in the classroom, student achievement at the middle school level, and the boundaries observed about the various aspects of the study. Performance on the state test from the most recent year represented the student achievement scores of the participants. I specifically addressed the extent that middle school teachers' participation in decision making about the curriculum and teaching practices used to influence student performance in science. The selected participants in this study of teacher autonomy included only eighth grade science teachers from public middle schools in Florida.

Limitations

One limitation of this study was the sample of public school eighth grade science teachers in Florida during the time of the research, which may limit the generalization of the findings to other age groups, nonpublic schools, or other states. The focus of this study was specifically on science educators at the middle school level, and the collected data are not applicable to science educators at the elementary and high school levels. In addition, the data may not have represented educators in other core subjects at all school levels. The second limitation was the participants might not represent all science educators in Florida and other areas of the United States. I used a random sampling method to select the school districts publicly listed on the FLDOE website. In addition, I selected eighth grade science teachers employing random sampling from a list of names provided by the school principals.

The third limitation of this study was the use of student achievement scores of the participants from standardized tests to identify academic placement and students' academic support needs. Guisbond, Neill, and Schaeffer (2012) stated that standardized tests have replaced in-depth and comprehensive instruction, which in turn has narrowed test preparation and fails to provide meaningful accountability. In addition, I relied on statistics from the FLDOE about the SES of the school. The fourth limitation of this study was I employed a self-reported process using of the TAS to measure teacher autonomy as descriptive of the actual environment within the school. To address the limitations of this study, I made efforts to use the most up-to-date statistics available at the time of the writing of the dissertation report. These limitations may be significant to the current gap in the literature.

Significance

Contribution to Education Practice

The results of this study address the gap in the current literature about the relationship between teacher autonomy and student achievement in eighth grade science and the extent to which such factors as school SES affect the relationship. The findings of this study could potentially unveil differences in participatory decision making in high SES versus low SES schools, which could promote additional discussion about strategies for reducing the achievement gap in science. This study may be significant to the practice of science education by providing insight into the influence that freedom to make decisions over curriculum and instruction in science can have on student achievement.

Implications for Social Change

Study findings may help educators to increase students' awareness of the importance of science and careers in the field, resulting in potential positive social change. The results of this study might contribute to social change by informing educational leaders, personnel related to curriculum programs, and policy makers on how freedom to make decisions about curriculum and instruction can enhance student achievement in science. Schools can become organizations where empowerment, participatory decision-making, and distributive leadership facilitate teaching and learning to become the entire school community responsibility.

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Summary

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Chapter 1 included the foundation for the study, which consisted of a description of the research problem and the study variables. I provide a detailed discussion of the purpose and nature of the study and the theoretical framework. Chapter 2 consists of a review of the research literature related to teacher autonomy and student achievement.

Chapter 2: Literature Review

In the U.S., the accountability system has led teachers to change their teaching practices restricting their own professional judgment for their students' educational needs. This undermines teachers' autonomy and students' performance in the classroom. In preparing for this study, I conducted an extensive review of the literature on the relationship between school SES, teacher autonomy, and school district science achievement scores. I discovered researchers have conducted few studies addressing these variables. The accountability system has caused teachers to change their teaching practices with restrictions on their ability to be effective in the classroom. My purpose in this study was to fill this gap by examining the extent to which the students' SES of the school may moderate the relationship between teacher autonomy and science achievement scores in the school districts.

In Chapter 2, I review scholarly literature related to the key concepts in the study. The review describes the education policies affecting teacher autonomy and student achievement. I also included a discussion of challenges faced by middle school science teachers regarding teacher autonomy in making decisions about classroom practices and curricula.

Literature Search Strategy

Several electronic databases contributed to my literature review on teacher autonomy and school district science achievement scores in middle schools. I used the following databases: (a) Education from SAGE, (b) Education Research Complete, (c) Education Research Starters, and (d) ProQuest Central database. In addition, I also used

Google Scholars. The first search for relevant literature in each database consisted of

using keywords and terms. The keywords I used to gather literature on the research topic

consisted of the following keywords: *empowerment theory*, *leadership*, *leadership*

practices, *education leadership*, *teacher empowerment*, *teacher autonomy*, *education*

reform, *accountability*, *common core standards*, *standardize testing*, *high-stakes test*,

science curriculum, *classroom practices*, *eighth grade students*, *middle school*, *student*

achievement, *economic disadvantage*, and *socio-demographic*,

 The literature search included the following select topics regarding empowerment

in public middle schools: (a) leadership structure in public schools, (b) teacher

empowerment and autonomy in general classroom practices, (c) teacher empowerment

and autonomy in curriculum selection, (d) education reform and accountability issues for

public middle schools, (e) high-stakes standardize testing for public middle schools, and

(f) student achievement issues regarding in science. I established parameters to limit my

results to peer-reviewed articles. As a result, the current literature review only has 90

peer-reviewed articles. In addition, I extended the scope of the search to include

government websites and seminal works when I could find little current research on a

topic.

Theoretical Foundation

 I based my study on Freire's (2011) theory of empowerment. Theory of

empowerment is a concept of consciousness placing individuals in the center of their

lives so that they can understand their personal circumstances and the social environment

where they live (Freire, 2011). In addition, the knowledge teachers provide for students in

the classroom empowers them to be open and honest about their way of life, environment, and academic experiences (Freire, 2011). Therefore, teachers have a positive outcome on students they may instruct and on teachers with whom they may collaborate supporting an excellent educational experience (Freire, 2011). Empowering teachers, schools can become powerful places for teaching and learning.

Empowerment occurs when teachers feel fully engaged in decision-making and when administrators support them in a classroom setting (Fletcher, 2014). Furthermore, Rodgers and Skelton (2014) agreed that teachers are more open with their thoughts about school reform, school effectiveness, and school improvement. Amoli and Youran (2014) explained when school administrators value and respect teachers' input in the full operation of the school, empowerment occurs and teachers are successful. Teachers have begun to empower themselves in the classroom by serving as researchers, colleagues, advisors, mentors to new teachers (Melville, Dowdle, & Campbell, 2015). Teachers are also expanding their own careers by becoming master teachers and, in the process, expanding their confidence in decision-making (Melville et al., 2015). This may involve a transformation in personal awareness by giving power that allows teachers greater capacity for decision-making and a greater autonomy over their work.

Successful teachers are not afraid of an increased level of responsibility to make greater contributions in the classroom once they have the respect and trust of their administrators (Amoli & Youran, 2014; Langhout, Collins, & Ellison, 2014). Empowerment is essential to make the classroom setting more autonomous for teachers (Amoli & Youran, 2014). Autonomous teachers can produce autonomous learners and

bring desired changes to the teaching and learning environment of the students (Ravikumar, Abdullah, & Aziah, 2015). Autonomous learners benefit from this teaching style because students are an active part of the learning and decision-making process (Ravikumar et al., 2015). Decisions are most effective and longer lasting when individuals own and are responsible for the decisions they make from participating in the decision-making process (Klein, 2016).

Through teacher empowerment, schools can become powerful places for teaching and learning. Teachers may become more loyal when they know their jobs are secure (Thoonen, Sleegers, Oort, Peetsma, & Geijsel, 2011). As job satisfaction increases, teachers' loyalty toward the education system may increase (Bogler & Nir, 2012). Teachers become empowered by widening their skills in problem solving (Lee et al., 2014). They become sensitive to the needs of a diverse population of learners whom they teach (Lee et al., 2014). Teachers take their job seriously; they want all students to have a great educational experience.

When teachers' job satisfaction increases, teacher performance may enhance their quality of working life, organizational effectiveness, and subsequently their students' academic performance (Skaalvik & Skaalvik, 2011). As researchers have indicated, teachers who remain in the teaching profession attribute this decision to being in an environment that gives them autonomy in the decision-making process (Emo, 2015; Quinn & Owen, 2016; Thornburg & Mungai, 2011). Thus, teacher empowerment incorporates participative decision-making and distributive leadership (Bogler & Nir, 2012). Moreover, teacher empowerment strengthens teachers' commitment in their

pursuit to involve students in learning environments that inspire lifelong learning and to

provide them with the skills necessary to be successful in the 21st century (Salmasi &

Bohlooli, 2014; Singh, 2015). Thus, empowering teachers to be leaders in the school will

give them a voice to make decisions in the education community and classroom.

Teacher Voice

Teacher voice may be defined as an opportunity for teachers to express their

opinion verbally with serious consideration for their views from others (Grant, 2016).

Teachers who have the power to voice their opinions directly influence students' learning

and the educational decision-making process (Grant, 2016). Teachers should have a

voice, teachers know their students' educational needs as they work closely with the

students' parents. Ng (2013) further noted that teachers are expected to work in

collaborative with school administrators' partnership with parents and, in return, should

be included as members with a voice on the educational decision-making team. Grant

also stated that teacher voice is critical in curriculum development, student assessment,

the delivery of instruction, and overall school improvement. Fredin, Fuchsteiner, and

Portz (2015) purported that building skills such as communication and decision-making

to connect with students is a key component of a realistic approach to academic success.

Teachers' having a voice in decision-making in the classroom creates a positive learning

environment for their students.

First, a teacher's voice in educational decision-making is valued by many teachers

and is often looked upon as a privilege (Levknecht, 2014), which, in turn promotes

teacher support and responsibility for decisions that are made (Grant, 2016; Hoerr, 2013).

Secondly, teachers are responsible and accountable for student learning and must engage in expressing the teaching managerial process of their students (Grant, 2016). Moreover, teachers' voice not only expressed and heard in areas of the curriculum and instruction, but in policy-making decisions (Chung, Hong, & Sohn, 2015). Policy-makers should want teachers apart of their decision-making when creating policies. Teachers' decision-making in the classroom is consistently creating strategies every day to meet all students' needs.

Decision-Making

Teachers' decision-making is significant to this study. When teachers have autonomy to carry out their duties in the classroom, they have a shared responsibility in the development of their classroom objectives (Varatharaj, Abdullah, & Ismail, 2015). Teachers with high levels of autonomy and decision-making authority enjoy teaching and they stay in the profession longer than teachers who feel that they have no voice in school-based decisions (Srivastava & Dhar, 2015). There is a significant relationship between the levels of autonomy in decision-making (Hoerr. 2013; Varatharaj et al., 2015). For instance, when teachers motivate students towards learning, they may connect better with their students (Boiché & Stephan, 2014). In contrast, Alsalahi (2015) teachers have minimal participation in decision-making, teachers often feel disempowered, lose interest in school improvement, and lower their educational expectations. It seems that teachers are not able to express their beliefs.

The importance of teachers expressing their opinions regarding academic instruction for students is important for teachers to have a voice in decision-making

(Grant, 2016). Instructional leaders use teacher content knowledge to build consensus in instructional decision-making to improve school performance (Lemoine, McCormack, & Richardson, 2014). Teachers exercise their professional expertise they need to be empowered to make instructional decisions (Angelle & Teague, 2014). Teachers building communication and decision-making skills of those in direct contact with students are a key component of a realistic approach to academic success (Fredin et al., 2015). Many teachers value having a voice in educational decision-making consider it a privilege to have their opinions acknowledged (Grant, 2016; Mendels, 2012).

Khan (2015) and Thornburg and Mungai (2011) conducted research that supports teachers attribute and their decision to stay in the profession being in an environment that allows them to be a part of an organization that gives them a voice. In addition, the decision-making process was also important to their quality of working life (Khan, 2015; Thornburg & Mungai, 2011). If teachers can provide input in decision-making, they may well experience a sense of autonomy and responsibility resulting in enhanced teacher support (Hoerr, 2013). Teachers who have support from their administrator most likely have autonomy to make decisions at their school.

Literature Review Related to Key Variables and/or Concepts
Historical View of Teacher Autonomy

A historical review of the literature on teacher autonomy revealed that work autonomy related to teachers existed as far back as colonial times. The passing of laws in colonial New England in the middle 1600s required townships to maintain educational establishments, which transferred the responsibility of education from the family to the

community (Cicarelli, 2016; Duyar, Ras, & Pearson, 2015). The community had to select a trusted teacher to educate its youth. Once teachers came under contract, the lay board did regular visits at the schoolhouse, making sure teachers carried out their duties (Cicarelli, 2016). There were few constraints on teachers' authority to conduct their day-to-day duties. During the colonial period, only men were teachers in a growing educational system physically separated from the community (Cicarelli, 2016).

However, another historical review of the literature, teacher autonomy has multiple meanings. For instance, teachers having autonomy may experience a sense of loneliness (Brauckmann & Schwarz, 2014). Educators might characterize autonomy as self-determination (Schinkel, 2010). Teachers may have a choice to grow in the education community or achieve duties expanding outside of the school system (Sleegers et al., 2014). Many teachers may succeed with freedom, while others could fail to succeed and perceive autonomy as a way for principals to circumvent their duties (Brauckmann & Schwarz, 2014; Sleegers et al., 2014; Waller & Barrentine, 2015). Teachers are empowered to fulfill their own personal goals (Flint, 2014). Teacher empowered is appropriate when teachers actually possess the skills to teach with limited supervision (Flint, 2014; Oostlander, Güntert, & Wehner, 2014).

Researchers distinguished the difference between power and autonomy (Amoli & Youran, 2014). The original perception of teacher autonomy supports self-determination. However, teachers having a right and freedom to be heard will make a difference in students' educational needs (Amoli & Youran, 2014; Sussman, 2014). However, for this sense of autonomy to occur, officials must eliminate traditional bureaucratic education

structures to give teachers authority in their classrooms (Killmister, 2013; Roth &
Weinstock, 2013). Teachers must have input in making substantial changes in their
classroom environment. Kious (2015) described autonomous people as individuals who
understand the accountability of their personal future. These individuals tend to have
autonomy or freedom of decision, fluency, and a high-level assessment of individual self-
sufficiency (Kious, 2015). This description applies to autonomous teachers and generally
to autonomous individuals (Kious, 2015). Teachers with autonomy have high expertise in
their field (Ravikumar et al., 2015). In fact, teachers have the right to alter lessons
supporting their students' needs and create individualized plans endorsed by regulations
that permit them to function freely inside their classrooms (Ravikumar et al., 2015).

Accordingly, Sullivan (2015) specifically addressed autonomy and its relationship
to innovative teaching, stating that creativity becomes an issue when the administration
controls the direction of the school. However, teachers need the autonomy to teach
diverse learners based on their skill level. Kious (2015) and Sullivan related innovation,
thoughts, and imagination to the significance of teacher autonomy. However, Kious
found that non-autonomous people tend to demonstrate little originality in their thinking
because they are not responsive to various objectives. Then Sullivan reported that sense
of autonomy is essential for inventiveness and imagination developing in a classroom
setting. As a result, when teachers display their inventiveness and imagination with their
students, administrators should not condemn the teachers' creativity.

Carl (2014) and Sullivan (2015) pointed out that not all teachers inquire about
autonomy with equal persistence. Some teachers are not ready to have autonomy or

freedom in the classroom and they still need guidance from their school administrators. Al Nuaimi, Chowdhury, Eleftheriou, and Katsioloudes (2015) concluded that even in schools where shared decision-making is encouraged, participation is sometimes low. A reason may well be that teachers with certain personality types shy away from making decisions on critical issues and would rather be told what to do (Al Nuaimi et al., 2015).

Characteristics of Teacher Autonomy

Teacher autonomy engages and regulates learning activities (Lee & Heinz, 2016). There is no isolation because of the confluence of autonomy with other constructs, such as teacher job satisfaction, teacher professionalism, and teacher motivation (Lee & Heinz, 2016). Teachers have an array of preferences in the workplace that statistically associate with autonomy and these preferences for characteristics of the work place vary across schools (Boyd et al., 2011). Some of these preferences include academic achievement and accountability measures, such as annual yearly progress (AYP) status, that mediate teacher preferences regarding which schools they would select as their workplace and have the potential to affect teacher perception of autonomy (Bailey, 2014; Ravikumar et al., 2015). In the following subsections, I discuss teacher professionalism, teacher job satisfaction, teacher empowerment, and teacher motivation, which constitute teacher autonomy characteristics.

Teacher Professionalism

A professional model for teachers includes the following three elements: technical knowledge gained through education and training, service ethic toward client, and an occupation-wide enforcement of standards (Emo, 2015; Ingersoll & Merrill, 2011;

Ravikumar et al., 2015). Professionalism is a central feature of self-determination among public employees (Diseth & Samdal, 2014). Autonomy in connection with self-determination relates to self-choices of goals and acts not made compulsory by internal or external forces (Kaur et al., 2015). Teachers feel more autonomous and competent in their environment. Self-determination theory connects with teachers on the job performance with a sense of choice promoting intrinsic motivation (Amado et al., 2014; Diseth & Samdal, 2014; Emo, 2015).

Emo (2015) noted that the benefit of professional autonomy is similar; that is, when the formal structural organization of teachers' practice provides for self-efficacy, teachers have a greater opportunity to both improve their practice and overcome problems within the profession. Ingersoll and Merrill (2011) purported that some of the best ways to professionalize teaching is for teachers to increase their knowledge and skills. For others, the focus shifts to organizational conditions under which teachers work. Thus, the foundation of a profession is the attitude of practitioners toward their work, and the excellent method toward professionalized teaching is to create a culture of public service and hold teachers to high standards (Ingersoll & Merrill, 2011).

Other scholars also supported a theoretical foundation of teachers as professionals and teacher professionalism with empirical studies that capture the relationship between teacher autonomy and professionalism. The educational universe centers on teachers' professionalism. Khan (2015) and Kirkpatrick and Johnson (2014) noted that teachers with autonomy have a high degree of professionalism and are able to make decisions based on their teaching experience. Furthermore, competency and autonomy inspires

teachers to make teaching practices more effective in the classroom (Okas, van der Schaaf, & Krull, 2014). Teachers who have the freedom to carry out their responsibility reflect on their work and demonstrate greater work satisfaction, and have less on-the job stress (Quartz, Kawasaki, Sotelo, & Merino, 2014; Ravikumar et al., 2015; Rodgers & Skelton, 2014).

The two constructs of autonomy and professionalism are distinct. In other words, teachers found that autonomy and professionalism are related constructs in teaching, and they value autonomy but perceive themselves as professionals (Quartz et al., 2014). Even so, teachers perceived the influence of No Child Left Behind (NCLB) on their practices in the classroom and their status as professionals (Ravikumar et al., 2015). Teachers apply professional autonomy over their syllabi, teaching, and evaluation when confronting NCLB and policy makers (Ravikumar et al., 2015; Rodgers & Skelton, 2014). Furthermore, NCLB and other national level policies have mandated that all early career teachers receive some form of induction into the teaching profession (Pogodzinski, 2015).

In addition, teachers expressed several benefits from NCLB policies in the classroom, such as an increase in teacher expectations of student learning but, on the other hand, teachers also, expressed concerns about a script and narrowed curriculum forcing them to teach to the test, which subsequently decreases their autonomy and professionalism (Husband & Hunt, 2015; Moran, 2015; Quartz et al., 2014). Furthermore, NCLB policy lacks understanding of teachers' skills, experience, and their professionalism (Husband & Hunt, 2015). Therefore, teachers' job performance in the

classroom setting tends to decrease (Carl, 2014; Husband & Hunt, 2015). Finally, the
study showed that teachers need professional guidance to educate them on the
professional autonomy they possess to make the teaching profession better (Rodgers &
Skelton, 2014; Sleegers et al., 2014). Most professional growth for teachers on their job
occurs in the classroom as they teach their students, regardless of the professional
development programs offered to teacher.

Teacher Job Satisfaction

A job is a major component of most people's lives (Skaalvik & Skaalvik, 2011;
Tickle, Chang, & Kim, 2011). Employees often indicate that positive feelings are a major
component of job satisfaction (Amoli & Youran, 2014). In fact, Skaalvik and Skaalvik,
(2011) conducted a study on the relationship between school context variables such as
teacher job satisfaction, emotional exhaustion, sense of belonging, and attrition with
2,569 Norwegian elementary and middle school teachers (Skaalvik & Skaalvik, 2011). In
the related work context factors of supervisory supports student behavior and
relationships with colleagues, parents, and job satisfaction (Skaalvik & Skaalvik, 2011).
Skaalvik and Skaalvik also posit that teachers with strong administrative support, few
student discipline problems, and good collegial relationships with co-workers were more
satisfied and less motivated to leave the teaching profession. On the other hand, teachers
with little administrative support and excessive discipline problems were more motivated
to leave the profession and experienced less job satisfaction (Skaalvik & Skaalvik, 2011).
Results showed that the teachers' sense of belonging indirectly mediated work context

factors (Skaalvik & Skaalvik, 2011). Teachers feel a sense of belonging when they have a strong collegial relationship and a strong administrative support system.

Teachers' jobs become much easier when they have support from the administration. Tickle et al. (2011) noted that administrative support is a strong reason for teachers to be satisfied with their employment. Teachers become more committed to their career and demonstrate a positive attitude that gains the respect of the administration (Amoli & Youran, 2014; Chaudhari, 2012). Teachers can have autonomy when school leaders value and respect their input (Chaudhari, 2012). Then teachers become empowered and remain inspired and enthusiastic (Capraro & Nite, 2014). When empowerment occurs, teachers become a stabilizing force that promotes effective teaching and learning (Chang, 2013; Owen, 2014).

Teacher Empowerment

In the review of the literature, I found that teacher autonomy and teacher empowerment generally relate (Bogler & Nir, 2012). Empowered teachers are informed teachers (Fletcher, 2014). Further, school administrators in schools with a culture of empowerment encourage teacher autonomy and participation, teamwork, and egalitarianism, and redesign work so that it is meaningful (Fletcher, 2014). In addition, empowerment is the basis of intrinsic motivation that advances and assists changes in teacher practices (Kimwarey, Chirure, & Omondi, 2014; Rodgers & Skelton, 2014). Teacher practices consist of an instructional approach with materials used within the curriculum and teaching procedures that result in better student learning outcomes (Ilie,

2014). Moreover, students' learning then increases as teachers' attitudes and beliefs evolves into a student-centered environment (Ilie, 2014; Raes & Schellens, 2015).

Researchers have been clear that when it comes to successful schools and improved student learning, teachers make the difference (Heck & Hallinger, 2014). Because of the influence of change in school reform, teacher autonomy and teacher empowerment are at the forefront of successful teachers and schools (Bogler & Nir, 2012). Traditional schools no longer exist. Therefore, the efficacies of progressive schools continue to grow. Progressive schools give power to their teachers and invest in their development (Fletcher, 2014). Furthermore, teachers find satisfaction and significance in their work when they make use of their energy and talents in the school setting (Fletcher, 2014). Teachers who have autonomy for learning and collaboration are more committed to their students (Ravikumar et al., 2015). In addition, teachers with clear boundaries and goals respond consistently to foster students' ability to experience and achieve appropriate learning goals within the classroom environment (Essien, 2015).

Lee, Yin, Zhang, and Jin (2011) conducted a quantitative study of the relationship of system-wide, national curriculum change in basic education in China to teacher empowerment. Lee et al. (2011) surveyed 1,646 teachers from six provinces regarding their receptivity to and perceived outcomes of the change. Female teachers reported greater empowerment and receptivity to the curriculum reform (Lee et al., 2011). The perceived positive outcomes of curriculum reform and teachers' participation in decision-making enhanced their professional growth (Lee et al., 2011). The results showed that the majority teachers were receptive and expressed positive views of reform outcomes.

Bogler and Nir (2012) investigated teacher empowerment and the teachers' perception of their schools supporting their intrinsic and extrinsic job satisfaction. Bogler and Nir (2012) found in the literature review that teacher empowerment demonstrates different correlations when considering intrinsic versus extrinsic type of satisfaction. The most powerful facet of empowerment foreseeing is teacher intrinsic satisfaction a self-efficacy psychosomatic familiarized variable (Bogler & Nir, 2012; Iqbal & Hashmi, 2015). Another powerful element of empowerment foreseeing is extrinsic job satisfaction an earned status and respect sociological-oriented variable (Bogler & Nir, 2012; Iqbal & Hashmi, 2015). Teacher empowerment has a much stronger influence on teacher satisfaction when it takes place in an organizational framework that sustains individuals (Bogler & Nir, 2012; Iqbal & Hashmi, 2015). In addition, educators are motivated to focus more on diverse attributes of teacher empowerment, depending on the significance satisfaction teachers needed to promote (Amed, Nawaz, Ali, & Ilam, 2015; Bogler & Nir, 2012; Iqbal & Hashmi, 2015).

Teacher Motivation

Motivation is the force that leads people to attempt to satisfy their needs based on their fundamental goals (Kruglanski, Chernikova, & Schori-Eyal, 2014; Raes & Schellens, 2015). Research on teacher motivation indicates that teachers who do not have adequate knowledge of the subject and who are not motivated themselves to continue to learn will have difficulty motivating their students to learn (Sutriyantono & Rubin, 2013). In addition, the effect of teacher and student motivation in teaching and learning found to be reciprocal (Boiché & Stephan, 2014; Lapp, Fisher, & Frey, 2015). Meaning that when

teachers effectively motivate students towards more mature participation in learning, they may better connect with their students and be more motivated and reinvigorated with a sense of purpose and meaning (Boiché & Stephan, 2014; Lapp, Fisher, & Frey, 2015). Based on the close relationship between teacher motivation and student motivation, several researchers have implied that teachers demonstrating higher morale are more likely to have higher achieving students (Astuti, 2016; Hung, Badejo, & Bennett, 2014).

In the literature, Nichols and Zhang (2011) explored a classroom model of student motivation, the elements of which included internal mechanisms and structures and student and teacher interactions in the classroom. In this study, the participants included elementary students and secondary teachers (Nichols & Zhang, 2011). Teachers finalized a 40-item survey that centered on four classroom dimensions: Affirmation, Rejection, Student Empowerment, and Teacher Control. The factor analysis ranged from 0.52 to 0.91. All the items were significantly correlated ranging from 0.70 to .85 (Nichols & Zhang, 2011). The results demonstrated a statistically significant positive correlation between the dimension of student empowerment and the model's elements of positive classroom environment, and teacher and student interaction (Nichols & Zhang, 2011).

Grenville-Cleave and Boniwell (2012) surveyed 150 teachers and 148 participants from other professions on their perception of control over career activities and well-being. Grenville-Cleave and Boniwell found that teachers tend to have lower perceived control and lower well-being, which results in their inadequacy in dealing with changes. Eyal and Roth (2011) also found empirical evidence supporting the idea that principals with transformational leadership styles increased teachers' autonomous motivation and

subsequently decreased burnout. The existing literature has suggested that teachers used to have more autonomy and control over their classroom activities, but such professional autonomy has been considerably limited under the stress of the prevailing accountability system (Feldmann, 2011; Grenville-Cleave & Boniwell, 2012). A lack of professional autonomy may result in teachers' lack of purpose in the teaching profession, undermine their well-being, and contribute to increasing attrition rates in the teaching profession (Feldmann, 2011).

The literature supports the argument that schools and the education system as a whole benefit from motivated teachers. For example, Sleegers et al. (2014) used a mixed-model analysis of longitudinal data over a 4-year period to examine 862 elementary teachers from a Dutch school system. The purpose of the study was to test the effect of school improvement and instructional practices. Sleegers et al. (2014) found that organizational-level conditions and teacher-level conditions both play important roles. The factors mainly influence changes, which include teachers' classroom practices and organizational factors enhancing teacher motivation and teaching (Sleegers et al., 2014). However, as teachers' motivation decreases, teachers' tendency to leave the teaching profession increases (Lapp et al., 2015). Finally, motivated teachers staying in the profession are valuable assets to schools because of their continued effectiveness in the classroom (Emo, 2015).

Teacher Effectiveness

Teacher effectiveness is the preparation for teaching practices related to standards, curriculum goals, and student needs (Rink, 2013). Teaching practices is a

contributing factor to teachers, school, and student achievement in the classroom

(Stewart, Scalzo, Merino, & Nilsen, 2015; Straková & Simonová, 2015). The literature

indicates that effective teaching is the most important correlation to student achievement

(Chang, 2013; Straková & Simonová, 2015; Ward, 2013). A study measuring effective

teaching was a point of contention as educators and legislators sought to quantify teacher

effectiveness (Husband & Hunt, 2015). Other researchers used a value-added model to

construct equations to measure teacher quality (Ford & Rice, 2015; Ward, 2013).

However, the pressure associated with standardization and accountability undermined

teacher identity and morale (Croft et al., 2016).

Major contributors establishing teacher effectiveness consist of the daily

experiences teachers encounter in the classroom and the experience teachers have with

stakeholders in the school as well as the community (Stewart et al., 2015). These

experiences encourage teachers to build and predict the effectiveness in similar

experiences (Straková & Simonová, 2015). In fact, teachers often view their effectiveness

by how well students perform academically and how well students behave in an academic

setting (Straková & Simonová, 2015). Furthermore, as Webster, Erwin, and Parks (2013)

noted, teachers observe others to ascertain effective or ineffective methods. Therefore,

assessing teacher effectiveness is essential (Webster et al., 2013).

Teacher effectiveness in the classroom increases job satisfaction, attitude, and

student achievement (Korb, Selzing-Musa, & Skinner-Bounat, 2016). Furthermore, Korb,

Selzing-Musa, and Skinner-Bounat (2016) examined the influence of effective classroom

teachers and student learning. The authors found that the NCLB highly qualified teacher

provision is insufficient for ensuring teachers who are efficient in elevating student success in the classrooms (Korb, Selzing-Musa & Skinner-Bounat, 2016). However, to assemble this goal, instructive strategies are directed toward improving aspects of teaching, teaching practices, and teacher attitudes. Upon examining teacher effectiveness, Angelle and Teague (2014) found a positive relationship between high levels of collective teacher effectiveness and student achievement. Like, Duyar, Gümüş, and Bellibaş (2013) noted to enhance teacher performance, quality of working life, and organizational effectiveness, and student performance, teachers must have increased job satisfaction.

In addition to the aforementioned studies, several researchers examined whether standards-based testing influenced pedagogy in elementary and middle schools. As demands for standards-based direct instruction increased, creativity decreased (Brown & Lee, 2014; Cil, 2015; Erskine, 2014; Husband & Hunt, 2015). An essential element in developing effective pedagogy is to reflect on what has worked well and to determine the practices that were unsuccessful (Ärlestig & Törnsen, 2014; Bravo, Mosqueda, Solis, & Stoddart, 2014). With limited time for reflection, teachers lack a defined learning style or philosophy (Bravo et al., 2014). However, researchers found a correlation between effective teaching and teacher expectations (Tleuzhanova & Madenyatova, 2014). Several researchers extended this conversation, purporting that a decrease in teacher effectiveness may lead to decreased morale and increased teacher attrition and burnout rates (Kariuki, Ndirangu, Sang, & Okao, 2014; Van Maele & Van Houtte, 2015).

Teacher Autonomy in the School Environment

During the late 1980s and early 1990s, two studies conducted by Pearson and Hall (1993) was contributed greatly to the advancement of teacher autonomy and the development of an instrument, TAS, that was used to measure teachers' perceptions of the degree of autonomy in their schools (Pearson & Hall, 1993). However, Teaching Environment Scale (TES) was the original instrument developed by Hall in the summer of 1988 at the University of South Florida (Pearson & Hall, 1993). The first study focused on faculty members in the College of Education at the University of South Florida (Pearson & Hall, 1993). Each faculty member responded twice to the TES first from an educator perception of high in autonomy and second from an educator perception of low in autonomy to determine if the responses were sensitive to the attributes (Pearson & Hall, 1993). In fact, the questions split into positive and negative items (Pearson & Hall, 1993).

The second study targeted public elementary, middle school, and high school teachers (Pearson & Hall, 1993). Moreover, the second study added teacher demographic variables such as gender, age, years of teaching experience, highest degree earned, and the most years taught, and exploring their relationship to teaching autonomy (Pearson & Hall, 1993). Because the second study added more variables, Pearson and Hall changed the original instrument name to TAS (Pearson & Hall, 1993).

One proposal was developing teachers' knowledge based on their competencies and skills (Amoli & Youran, 2014). An experiment showed that participants with poor performance have low autonomy as opposed to their counterparts who had high

autonomy (Duyar et al., 2015). Furthermore, the task accomplishment had a negative influence on performances among those individuals who worked previously with low autonomy (Duyar et al., 2015).

Pennington (2014) argued that most teachers experience difficulty managing their own teaching because of their working conditions. Duyar et al. (2015) and Feldmann (2011) noted that a lack of autonomy and support has contributed to increasing attrition rates in the teaching profession. Moreover, Lai and Lo (2011) argued that expectations are the best predictor of how progressive teachers are in their roles as educators. The expectations of stakeholders heavily influence the way that teachers perform because they know their survival in the field depends on performance (Lai and Lo, 2011). Even though this is the case, teacher autonomy is still important if teachers are regarded as professionals with the input to say what students need to learn (Ozturk, 2012; Ravikumar et al., 2015; Sutrop, 2015).

Autonomy over Teaching Practices

The TAS instrument measures two components: autonomy over general teaching practices and autonomy over curriculum (Pearson & Hall, 1993). The assessment of general teaching autonomy includes classroom standards of conduct and on-the-job decision-making. General teaching autonomy is consistent with the notion that every teacher need to have control over their work environment, remain satisfied with their job, and stay committed to the teaching profession (Pearson & Hall, 1993). In addition, TAS factors in with teachers critical thinking and creativity on the job (Emo, 2015; Lee & Heinz, 2016; Ravikumar et al., 2015).

Research by Angelle (2010) has shown that when those who may not see themselves as leaders have the opportunity to lead, they develop leadership skills that produce joint responsibility for the purpose of the organization and student achievement. Angelle conducted a case study on one middle school where distributed leadership practiced during the 2007-2008 school year with 507 students in grades 5-8. Angelle's case study results proved that through the development of leadership skills and opportunities available across organizations to administrators, teachers, parents, and community members, student test scores improve from year to year. Accordingly, Angelle decentralization of leadership within a school or district helps inform the role of the teacher and contributes to the development of teachers in the decision-making process. However, in the middle school, the principal and other administrators rely on the teachers' expertise. For this reason, teachers understand their student needs and with the best teaching practices to meet their student needs.

Teachers who are more engaged in professional learning activities tend to have better teaching practices and higher quality instruction (Sleegers et al., 2014). Teachers provide students with a certain learning experience that influence the development of students' competences (Sleegers et al., 2014; Thoonen, Sleegers, Oort, & Peetsma, 2012). The competencies related to the classroom practices and conditions by the teaching practices of the teachers, teachers' subject content knowledge, or by the teachers' conceptions of teaching and learning (Peltonen, 2015; Ruskovaara & Pihkala, 2013). Teaching practices further enhance students' academic and social development peer relations and motivation to learn (Finelli, Daly, & Richardson, 2014). Finally, teachers'

practices and interaction with students influence the way that students learn the curriculum when they are in elementary school (Orzulak, Lillge, Engel, & Haviland, 2014).

Teachers consider student performance taken into account and maximize teaching time to enhance students' learning (Hlas & Hlas, 2012). When teaching time is not maximized, teachers must notice how they use their instructional time to better promote classroom interaction and understanding (Hlas & Hlas, 2012). Teachers should be concerned about their quality of teaching, which includes honest feedback on their strengths and weaknesses (Ezzi, 2012). Without a true picture of the teacher's strengths and weaknesses, improving their teaching practices is difficult.

High-stakes accountability has turned teachers into drones. Teachers are reading a scripted curriculum that has narrowed their content to test-defined content (Erskine, 2014). Furthermore, the scripted curriculum has increased the use of teacher-centered practices instead of creative instruction to meet their students' needs (Erskine, 2014). Critics of this dominant pedagogy have voiced concerns because its practices only measure a certain type of low-level knowledge and fail to promote critical thinking (Bailey, 2014; Bennett & Brady, 2014; Erskine, 2014). As a result, high-stakes testing practices have not raised standards but instead have had a dumbing-down effect on teachers, public schools, and teacher preparation programs (Croft et al., 2016).

The emphasis on test preparation has over powered authentic teaching that is contrary to what teachers thought was best teaching practices for their students (Palmer & Rangel, 2011). Moreover, a series of interviews with 16 teachers from a Texas school

district, shared the same sentiments (Palmer & Rangel, 2011). Teachers expressed that

the test preparation is draining, boring, and frustrating. In addition, teachers felt that test

preparation takes out the authenticity of teaching students (Palmer & Rangel, 2011).

Similarly, a survey for a large majority of teachers saw their effort of preparing students

for testing reduced their quality of teaching (Smith & Kovacs, 2011). Others added, when

the quality teaching reduced to test preparation rather than active learning, rote

memorization became the focal point (Deniston & Gerrity, 2010). Mertler (2011)

conducted a survey of teachers' NCLB perceptions and found that the state tests

influenced teacher practice more than state standards.

Autonomy over Curriculum

Curriculum autonomy is the second component of the TAS (Pearson & Hall,

1993). Curriculum autonomy pertains to the selection of supplies and materials and the

sequencing of instruction (Pearson & Hall, 1993; Ravikumar et al., 2015). Flexibility in

performing instructional tasks is critical in elevating teaching to a professional status. In

fact, flexibility allows teachers to define and control instruction internally (Emo, 2015;

Lee & Heinz, 2016; Ravikumar et al., 2015).

A curriculum requires planning activities and finalizing the actual delivery of

instruction in the classroom (Ärlestig & Törnsen, 2014; Ozturk, 2012). In other words, an

effective curriculum has content that stimulates mental habits and thinking skills of

elementary, middle, and high school students (Atkinson, 2015). Furthermore, an effective

curriculum promotes teacher collaboration and student learning and assessment that

enable all students to be academically successful (Atkinson, 2015; Costello, 2012).

A curriculum that ties into relevant situations in the students' lives is necessary in today's classrooms to gain and maintain the interest of the students regardless of gender, cultural background or age (Thornburg & Mungai, 2011). Teacher empowerment is a necessary component of the decision-making process in terms of how the curriculum may be presented to make it more effective. Furthermore, the curriculum has to stimulate students' critical thinking and develop their analytical skills (Bogler & Nir, 2012; Lee et al., 2011). However, to make the curriculum relevant, all class work should be purposeful and rigorous enough to develop skills that students can use in situations that extend beyond the classroom (James-Hassan, 2014). There should also be formal and informal assessments to understand what students know, assess what they are learning in relation to the learning goals, place the needs and capabilities of students at the center of the curriculum, and provide students with active and engaging opportunities (Palmer & Rangel, 2011; Stevens, 2012). Teachers are able to have the autonomy to do research-based instruction that could serve all students, even students who are socioeconomically disadvantaged (George, 2012).

Socioeconomic Status (SES) and Student Achievement

Substantial research connects SES and student achievement. Researchers indicated that students from lower SES groups build literary ability more slowly than privilege SES groups (Benner & Wang, 2014; Buckingham et al., 2013; Fischer et al., 2014). Moreover, Husband and Hunt (2015) affirmed that academic achievement is receptive to poor quality level of teaching. However, SES related to lower standard quality of teaching in the schools (Husband & Hunt, 2015). Some schools have fewer

resources for instructional expenditures, thereby limiting their budget choices (Gaddah, Munro, & Quartey, 2015). The lack of resources could cause a decrease in education and ultimately affect society as a whole (Marchetti et al., 2016; Nakajima & Nakamura, 2012).

The measure of SES is often based on the percentage of students who receive free or reduced priced lunch (Brown & Lee, 2014). At least 40% of the student population in the United States is eligible for free or reduced-priced lunch (Malburg, 2011). Eligibility for free and reduced lunch is available if the family's household income falls within 130% and 185% of the poverty level (Dykstra et al., 2016). NCES (2011) researchers have shown on statewide test that students from these households scored an average of 25 points lower compared to students who were not eligible free or reduce lunch.

On the other hand, Behar-Horenstein et al. (2015) determined the SES as determined by the percentage of free or reduced price lunch was the predictor. In addition, Behar-Horenstein et al. (2015) used the socioeconomic measure as a factor to research its influence on the FCAT. Educators have mixed feelings on using SES as a measure for these variables, stating that reduced or free lunch eligibility is a poor SES measure in educational research (Behar-Horenstein, Hudson-Vassell, Hudson-Vassell, & Garvan, 2015; Benner & Wang, 2014). Husband and Hunt (2015) found a correlation between academic achievement poverty level, teacher turnover, and neighborhood SES. Moreover, Husband and Hunt (2015) argued that these variables lower the standard and quality of teaching in the schools. On the other hand, Benner and Wang (2014) and Fischer et al. (2014) believed free or reduced lunch eligibility is a useful measure because

SES statistics are easily accessible and show a connection to the federal poverty levels of the NCLB standards.

Summary and Conclusions

In preparing for this study, I conducted an extensive review of the literature on the relationship between SES of the school and the relationship between teacher autonomy and school district science achievement scores. I discovered that researchers have conducted few studies addressing teacher autonomy and student achievement. My purpose in this hierarchical regression study was to fill this gap by examining the extent to which SES of the school moderates the relationship between teacher autonomy and school district science achievement scores.

In Chapter 2, I reviewed scholarly literature related to the key concepts in the study. I focused on the educational reforms policies affecting teacher autonomy and student achievement. I also included a discussion regarding the challenges faced by middle school science teachers regarding teacher autonomy in making decisions about classroom practices and curriculums. Chapter 2 included a brief discussion of the change in focus from STEM subjects to math and reading for high-stakes testing.

In Chapter 3, I describe the research design, the research procedure, a description of the sample size, the procedures for recruitment and participation, the instrumentation, data analysis procedures, and the ethical protection of the participants. Furthermore, I explain data collection procedures and data analysis methods and the ethical protections used for this study.

Chapter 3: Research Method

The purpose of this quantitative hierarchical regression study was to examine the extent that school district SES may moderate the relationship between teacher autonomy and school district science achievement scores. In addition, I studied the influences of teachers' effectiveness of pedagogical practices that challenge students with high standards and help students present new information in ways that fit students' learning styles. In Chapter 3, I focus on the research design, research procedure, sampling procedures, recruitment and participation, instrumentation, data collection and analysis, and protection of participants.

Research Design and Rationale

Research Design

For this study, I used a quantitative research approach. A quantitative research approach quantifies the problem by generating numerical data which is transformed into a usable statistics define variables to generalize results for a large sample population. Quantitative data is much more structured. I did not use other approaches such as qualitative, case study, phenomenology, or grounded theory because these methods are unstructured or without formal organization. The focus of this study was to examine the relationships between the independent variables, which are the district-wide teachers' perception of their autonomy to make decisions about teaching practices and the specific science curriculum. The dependent variable is the district eighth grade science achievement scores. In addition, SES of the school district represents the moderator variable.

Research Method

I used hierarchical linear regression to analyze the relationship between teacher autonomy in the classroom and student achievement in science at the middle school level. Use of the hierarchical linear model allows researchers to identify the relationship between predictor and outcome variables by considering the relationship between level one regression, level two regression, and relationships across other levels of regression (Woltman et al., 2012). Quantitative researchers conduct hierarchical linear regressions using SPSS 21.0 software to test hierarchical models involving interaction effects (Paillé, Chen, Boiral, & Jin, 2014). Hierarchical linear regression allows researchers to minimize the clustering effects between variables during analysis (Shi, Wang, & Lee, 2014). My choice of a hierarchical linear regression method was appropriate because it established structure and formal organization. My objective in using this method was to examine the relationship between a predictor variable (general teaching autonomy and curriculum autonomy) and a criterion variable (the eighth grade students' performance on the state standardized test). I used the IBM SPSS 21.0 to analyze the hierarchical regression model.

Methodology

I designed this study to examine the relationship between teacher autonomy in the classroom and student achievement in middle school. In addition, I examined if SES had any influence on the relationship. In this section, I describe the procedures used for data collection and analysis.

Population

The general population for potential participants included public middle school teachers in Florida, whereas the selected participants consisted of individuals meeting the criteria of an eighth grade science teacher. There are 4,370 public middle school science teachers based on data from the FLDOE (2014). I researched the FLDOE website to identify school districts and obtain contact information for school superintendents.

Sampling and Sampling Procedures

To conduct the study, I used random sampling to select school districts and eighth grade science teachers in Florida to participate in the study. A random sampling allows participants to have an equal chance to be selected (Johnson & Christensen, 2013). I generated a list using a computer program to select random numbers with a range from "1 to 69". The school districts were signed a number from "1 to 69" based on an alphabetized list provided by the FLDOE. The 121 participating eighth grade science teachers were selected based on the alphabetized list of random numbers.

Administrators in their school districts identified all eighth grade science teachers. These eighth grade science teachers were invited to complete the TAS survey. The state of Florida has 997 public middle schools with an average of four science teachers per grade (FLDOE, 2013). To determine the number of eighth grade science teachers for the study, I took the total population of middle schools in Florida ($N = 997$) and calculated through Excel (f_x = STDEV (D1:D997) = DIV 10.84); I rounded up to 11 (always round up when calculating N) and then squared the total STDEV $(11)^2$. The number 121 represented the number of eighth grade science teachers needed for the research study.

Procedures for Recruitment, Participation, and Data Collection

Teaching eighth grade science at a Florida public school was the only criterion to become a participant in this study; therefore, the participants were public school eighth grade science teachers at a public school in Florida. I received Walden University Institutional Review Board (IRB) approval (10-16-15-0018744). To gain access to the potential participants, I identified the school districts by researching the FLDOE. I made initial contact with the school district superintendents by telephone giving clear details about the purpose of the study and request permission to perform research within the school district.

At the request of the superintendents, I emailed the IRB approval letter to the superintendents requesting permission to conduct the research study. After receiving superintendents' permission to access the research site and recruit participants, I e-mailed the middle school principals a copy of the superintendents' permission letters (see Appendix B) and courtesy letter explaining the intent of the research study (see Appendix C). The principals provided me with a listing of the eighth grade science teachers' names and contact information.

To establish a relationship with participants, I sent a copy of the IRB approval letter, school district approval letter, and consent form to the eighth grade science teachers, which served as the invitation to participate in the research study. Furthermore, if participants had any questions or research-study-related problems they were able to contact me via email or phone, and contact my committee chair via email or by phone. The consent form includes information about the background information of the study,

procedures of the study, risk, and benefits of being in the study, voluntary participation and their right to withdraw at any time. The consent form had a link to the Survey Monkey home page that opened the TAS survey. Participants indicated their consent to participate by clicking the link to the TAS survey.

Once I received approval from the selected school districts, I emailed the letters to the middle school principals requesting permission to recruit eighth grade science teachers to participate in the research study (see Appendix C). The principals provided me with a listing of the teachers' names and contact information. Furthermore, I obtained SES data from the FLDOE and student achievement school-wide data from the eighth grade science performance on the FCAT.

Instrumentation and Operationalization of Constructs

The instrument was the TAS created by Pearson and Hall in 1993 (see Appendix A). I obtained permission to use the TAS instrument from Dr. Carolyn Pearson (see Appendix E). Pearson and Hall (1993) created the TAS for the initial or original study for teacher autonomy using a continuing construct validation of TAS. It was evident that teachers in the middle schools had autonomy and teachers in the elementary schools and high schools did not (Pearson & Hall, 1993). Pearson and Hall (1993) found that teachers who have autonomy become more progressive in their teaching practices. Pearson and Hall also expressed that teacher autonomy provides teachers with the choice to explore and solve problems whatever addressed in the curriculum.

Pearson and Hall (1993) used the Cronbach's alpha internal consistency coefficient computed with a statistical analysis software. Reliability of the survey was

determined to be $\alpha = .83$ for the 18-item total. Reliability of the curriculum autonomy and general teaching autonomy subscales was $\alpha = .80$ for both subscales, and the correlation between the subscales was $r = .49$. Pearson and Moomaw (2006) used the TAS as a method to analyze the correlation among teacher autonomy plus on-the-job stress, work satisfaction, empowerment, and professionalism. The researchers verified the existing two-factor structure of the TAS derived from a previous study (Pearson & Hall, 1993). Pearson and Moomaw (2006) found that replicating an earlier study yielded similar results, which sustained the internal reliability of the scores and the initial components of general teaching autonomy and curriculum autonomy.

In the TAS study, there were 18 questions with two subscales, which included general teaching autonomy and curriculum autonomy (see Appendix A). The general teaching autonomy subscale assessed classroom standards of conduct and on-the-job decision making; the curriculum autonomy subscale assessed classroom activity and materials selection and instructional planning and sequencing (Pearson & Hall, 1993; Pearson & Moomaw, 2006). The general TAS includes items 1, 2, 3, 4, 7, 9, 10, 11, 13, 15, 16, 17; the curriculum autonomy scale includes items 5, 6, 8, 12, 14, 18. The items in TAS use a 4-point Likert-type scale as follow: 1 (definitely agree); 2 (more or less agree); 3 (more or less disagree); and 4 (definitely disagree) to eliminate a neutral response. I measured each subscale as an independent variable. I obtained SES data from the FLDOE and student achievement school-wide data from the eighth grade science performance on the FCAT.

Data Analysis Plan

I analyzed the TAS survey, the FLDOE, SES of the school indices, and eighth

grade science scores as determined by student performance on the FCAT supplied the

data. I selected school districts first; eighth grade science teachers within those school

districts were included in the sample. I used IBM SPSS 21.0 software to collect the data

from the teachers' responses to each of the items from the TAS survey.

I measured the predictor variables, general teaching autonomy, and curriculum

autonomy with the TAS survey to address the central research question, to what extent

does SES of students in a school moderate the relationship between teacher autonomy

and school district science achievement scores? I used the regression model to analyze

the relationships between the variables to address the following research subquestions

and hypotheses for this research:

RQ1. To what extent is there a relationship between district eighth grade science

teachers' perception of their teaching autonomy and the district's eighth grade science

achievement scores?

$H1_0$: There is no relationship between districts eighth grade science teachers'

perception of their teaching autonomy and district eighth grade science achievement

scores.

$H1_a$: There is a relationship between district eighth grade science teachers'

perception of their teaching autonomy and district eighth grade science achievement

scores.

RQ2. To what extent does school district SES of the school district moderate the relationship between the district eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and the districts eighth grade science achievement scores?

H2₀: School district SES of the school district moderates the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and district eighth grade science achievement scores.

H2ₐ: School district SES of the school district does not moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and district eighth grade science achievement scores.

RQ3. To what extent does school district SES of a school district moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and district eighth grade science achievement scores?

H3₀: School district SES of a school district moderates the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and district eighth grade science achievement scores.

H3ₐ: School district SES of a school district does not moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and district eighth grade science achievement scores.

For the regression model, I used IBM SPSS 21.0 software, which is a diagnostic procedure for testing statistical data. The variables of interest include general teaching autonomy and curriculum autonomy and the eighth grade students' performance on the state standardized test. For every school district, there were achievement scores. The regression model is $Y = f(X, \beta)$, which comes from the following variables that were used in the study: (a) the unknown parameters, denoted as β, which may represent a scalar or a vector, and (b) the predictor variable is X, and (c) the criterion variable is Y (Rayyan, 2011). The regression model predicted one variable from one or more other variables in this study (Johnson & Christensen, 2013).

According to Field (2005), there are four steps to the diagnostic procedures to run a test on the regression model. The following steps includes: (a) verify data, the quality with preliminary analyses, (b) examine the continuous variables' descriptive statistics, (c) examine histograms of the continuous variables to verify the normality assumption, and (d) run the regression model with criterion and predictor variables, and revise the model after rerunning the analyses using steps a-d. The last step is to write the final regression equation and interpret the coefficient estimates.

A moderating variable represents a process or a factor that alters the influence of a predictor variable X on a criterion variable Y (Johnson & Christensen, 2013). The statistical analysis must measure and test the differential outcome of the predictor variable on the criterion variable as a function of the moderator (Kenny, 2013). Generally, an indicator of moderator effects is the interaction of criterion variable and moderator variable in explaining the predictor variable. The following regression

equation is estimated: $Y = aX + bM + cXM + E$. The regression equation is defined by $a =$ the main effect of X, $b =$ the main effect of M, and $c =$ the interaction between X and M, however, it is important to include both X and M in the model (Kenny, 2013).

<h3 style="text-align:center">Ethical Procedures</h3>

My role as the researcher was to identify the school districts, select the eighth grade science teachers, administer the TAS survey, and collect statistical data from the FDOE website. Ethical research practices require individuals to adhere to the Belmont Report protocol. The Belmont Report started in 1979, which identifies the protection of human subjects and research ethical principles and guidelines (Rogers & Lange, 2013). To comply with the ethical requirements of the Belmont Report, I completed an ethical training course and received certification from the National Institute of Health Office of Extramural Research (certificate number 1633729). Upon receiving Walden University IRB approval 10-16-15-0018744, the process to identify the school districts and eighth grade science teachers consisted of researching the FLDOE website. I made initial contact with the school district superintendents by telephone to explain the purpose of the study and request permission to perform research within the school district. At the request of the superintendents, I emailed the IRB approval letter to the Florida school districts superintendents requesting permission to conduct the research study. In addition, I submitted the TAS survey (see Appendix A), consent form for participants (see Appendix C), and the dissertation proposal for the research study. To receive approval from the selected school districts, I had to complete the school districts' research study application.

Because the principals provided information regarding the participants' identities during the research study, I used considerable effort to ensure confidentiality during all phases of data collection, analysis, and reporting. The written report did not include the names of the teachers and actual schools to protect their privacy and confidentiality. The data organization technique for survey responses included storage on a password-protected external portable memory drive. After storing data for 5 years, I will destroy the data by erasing the external portable memory drive

Summary

For this study, I used a quantitative hierarchical linear regression research design to determine if there is a relationship between teacher autonomy in the classroom and middle school student achievement in science. In Chapter 3, I described the research design, the research questions and hypotheses, the setting, the sample, instrumentation, and the procedures of the study. Furthermore, I explained the data collection procedures and data analysis methods, and the ethical protection that I used for this study. In Chapter 4, I provide the results, conclusions, and recommendations for future research studies on this topic. Chapter 5 consists of a detailed description of the interpretations of the findings. In Chapter 5, I include information regarding how the findings relate to theory of empowerment, implications, recommendations for practice and future research, and a summarized conclusion.

Chapter 4: Results

The purpose of this quantitative study was to explain the relationships among science teachers' perception of their autonomy to make decisions about general teaching practices in the classroom, the specific science curriculum they choose, district student achievement in science, and school district. The central research question for this study was: To what extent does SES of students in a school moderate the relationship between teacher autonomy and district-science achievement scores? The subquestions were:

RQ1. To what extent is there a relationship between district eighth grade science teachers' perception of their teaching autonomy and the district's eighth grade science achievement scores?

RQ2. To what extent does SES of the school district moderate the relationship between the districts eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and the districts eighth grade science achievement scores?

RQ3. To what extent does SES of a school district moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and the district's eighth grade science achievement scores?

To answer the research question, I used a hierarchical linear regression. Researchers use the hierarchical linear regression to determine if a relationship exists between two or more variables and to predict future values for the relationship (Johnson & Christensen, 2013). In addition to the study, the hypothesis is that student attending

schools without teacher autonomy will have lower scores on the science portion of the FCAT than student attending schools with teacher autonomy. In this chapter, I present the purpose, research questions, data collection process, data analysis, and results of the study. Tables assist in explaining how the data answered the research questions. I conclude with a chapter summary.

Data Collection

After receiving IRB approval from Walden University (approval number 10-16-15-0018744) on October 16, 2015, I emailed school district superintendents on November 16, 2015, to request permission to conduct my research study (see Appendix B). I included the IRB approval letter and supporting documents in my email. To complete my research study, I completed the selected school districts research study applications. In addition, I submitted the TAS survey (see Appendix A), consent form for participants, Walden IRB approval, and dissertation proposal for the research study.

After 3 weeks, school districts did not respond. However, the second time I emailed the school district superintendents on December 3, 2015, for permission to conduct my study, I received responses. Florida has 69 school districts. However, only 16 Florida school districts responded to the permission email letter allowing the research study to go through the approval process (see Table 1).

Once I received approval from the selected school districts, I emailed the letters to the middle school principals from the selected school districts requesting permission in recruit eighth grade science teachers to participate in the research study (see Appendix C). The eighth grade science teachers received a copy of the IRB approval letter, the

school district approval letter, and consent form (see Appendix D) inviting the eighth-grade science teachers to participate in the research study. The consent form provided the eighth grade science teachers information about the researcher, background information of the study, procedures of the study, risk and benefits being in the study, voluntary participation and their right to withdraw at any time. Furthermore, if they had any questions or research-study-related problems, they were able to contact me via email or phone and contact my committee chair via email or by phone.

Participant recruitment took 2 weeks, during which I emailed teachers the consent form (see Appendix D), which served as the invitation to participate. The consent form had a link to the Survey Monkey home page that opened the TAS survey. Participants indicated their consent to participate by clicking the link to the TAS survey electronically distributed via Survey Monkey home page. To protect the participants' privacy and confidentiality, they did not sign any documents to complete the TAS survey through Survey Monkey.

The selected school districts' science teachers completed the TAS survey electronically via Survey Monkey. Data collection occurred for 3 weeks, during which Survey Monkey collected TAS survey data from each selected school district eighth grade science teacher (see Table 1). The number of teachers who responded to the TAS survey was 108. After receiving all the teachers' responses, I formatted the TAS survey data into an Excel file and IBM SPSS 21.0 software for analysis. Additional data collection included information from the FLDOE web page regarding science FCAT scores and the economically disadvantaged status (EDS) scores from the selected school

districts. I configured the eighth grade science FCAT scores and the EDS scores into Excel and uploaded into the IBM SPSS 21.0 software version for analysis. I will keep the raw data for 5 years.

In Chapter 3 I discussed the number of eighth grade science teachers needed for the research study ($N = 121$). After three requests to complete the survey, 108 science teachers responded, for a return rate of 87 percent (see Table 1). Table 1 also shows the total number of eighth grade science teachers in each district and each district response rate. Table 1 has the sum of 407 eighth grade science teachers and a total response rate of 25% from the eighth grade science teachers.

Table 1

Districts and Respondents

District number	District name	Total number of 8th grade science teachers	District response rate	Number of teachers who agreed to participate in district responses
1	Calhoun	4	75%	3
2	Clay	12	25%	3
3	Dade	109	7%	8
4	Escambia	30	57%	17
5	Gulf	4	75%	3
6	Hardee	3	100%	3
7	Hillsborough	90	2%	2
8	Leon	13	69%	9
9	Manatee	20	55%	11
10	Marion	16	88%	14
11	Martin	10	10%	1
12	Osceola	24	29%	7
13	Santa Rosa	27	33%	9
14	Suwannee	2	100%	2
15	Taylor	4	100%	4
16	Volusia	39	31%	12
Total		407	27%	108

Descriptive Statistics for District Data

I calculated the mean scores for the TAS and the curriculum autonomy scale and then combined to form a mean score for the entire TAS instrument. I also collected SES indices and eighth grade FCAT science scores for each district. Table 2 shows the mean scores for the TAS, the curriculum autonomy scale, SES indices, and eighth grade FCAT science scores for each district.

Table 2

District Data

District number	District name	Teaching autonomy mean score 8th grade science teachers	Curriculum autonomy mean score 8th grade science teachers	Total mean TAS	FCAT science achievement score in 8th grade	SES score 8th grade
1	Calhoun	25.7	15.3	41.0	57	48
2	Clay	29.5	15.3	48.8	57	45
3	Dade	31.8	14.6	46.4	41	36
4	Escambia	32.6	13.8	46.4	46	35
5	Gulf	32.0	15.3	47.3	44	41
6	Hardee	31.5	15.3	46.8	34	30
7	Hillsborough	30.5	12.5	43.0	46	32
8	Leon	30.9	15.0	45.9	48	32
9	Manatee	32.2	15.0	47.2	42	30
10	Marion	32.2	14.4	46.6	42	34
11	Martin	13.0	80.0	21.0	55	35
12	Osceola	30.5	14.5	45.0	39	34
13	Santa Rosa	31.6	14.9	46.5	63	47
14	Suwannee	30.0	14.5	44.5	48	42
15	Taylor	32.4	15.1	47.5	52	48
16	Volusia	31.8	15.3	47.1	58	47

The TAS total mean score, which is the sum of the TAS, and the curriculum autonomy scale, mean score ranged from a low 21.0 to a high of 48.8. A score of 48.8 means the perception of eighth grade science teachers is that they have more freedom to make decisions about how they are to teach science and make decisions about the science curriculum. The TAS mean score represents the average score of the teachers in the district on the survey. Total score on the survey could range from a low of 18 to a high of 72 if the teacher responded to all questions. A score of 21.0 means the perception of

eighth grade science teachers is that they have little freedom to make decisions about how they are to teach science and make decisions about the science curriculum.

The FCAT achievement score-in eighth grade science results ranged from a low of 34 to high of 63, and the SES results ranged from a low of 30 to a high of 48. Inclusive in the following section is the results of the regression analysis (see Table 2). The FCAT measures the districts' eighth-grade science achievement scores. Scores can range from a low of 140 to a high of 260. A score of 34 means a low percentage of science achievement scores in the district that meets Florida standards on the science FCAT. The SES score range from a low of 20 to high of 100. The SES results of 48 means that nearly half of students in the district are on free or reduced lunches.

Results

I used the regression model on the data to determine the extent to which each scale on the TAS survey can be used to predict district eighth grade science scores as determined by student performance on the FCAT after controlling for the SES of the school district. The following research subquestions two and three were examined by two hierarchical linear regression analyses: (a) To what extent does SES of the school district moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and district eighth grade science achievement scores? (b) To what extent does SES of the school district moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and district eighth grade science achievement scores?

The independent variables of interest included district-wide teachers' perception of their autonomy to make decisions about teaching practices; and teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms. The dependent variable included district eighth grade science achievement scores; the moderator variable included SES of the school district. In addition, the main null hypothesis was that SES of the school district does not moderate the relationship between either eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and or eighth grade science teachers' perception about their autonomy to make decisions about the specific science curriculum and district science- achievement scores. The main alternative hypothesis was that SES of the school district does not moderate the relationship among either eighth grade science teachers' perception of their autonomy to make decisions about teaching practices, eighth grade science teachers' perceptions about their autonomy to make decisions about the specific science curriculum and district's science achievement scores. Table 3 depicts the descriptive statistics for the study variables. Table 4 depicts the regression summary of the first and second research sub-question and Table 5 depicts the regression summary for the third research sub-question.

Descriptive Statistics for Study Variables

Table 3 shows the confidence interval (at $p < .05$) for the regression statistic ranged from a low of 26.79 to a high of 31.53 with a mean of 29.89 and a standard deviation of 4.81 for the teaching practice variable, a mean of 14.3 and a standard deviation of 1.8 for the curriculum variable. It also indicates that the confidence interval

(at $p < .05$) for the SES variable ranged from a low 35.38 to a high of 41.62 with a mean

of 38.50 and a standard deviation of 6.76. In addition, from a low 44.50 to a high of 52.10

with a mean of 48.25 and a standard deviation of 8.05 this is for the science achievement

score variable. The teaching practices variable mean score 29.89 in the districts

demonstrates the perception of eighth grade science teachers have the freedom to make

decisions about how they are to teach science. The curriculum variable has a low mean

score 14.3 in the districts; therefore, the perception of eighth grade science teachers is

that they have less freedom to make decisions about the science curriculum. The SES

variable mean score 38.50 is the total number of students in the district on free and

reduced. The districts' eighth grade science achievement score variable mean score 48.25

represents the percentage of eighth grade science achievement scores in the districts that

meet Florida standards on the science FCAT.

Table 3

Descriptive Statistics for Study Variables (N=16)

Variable	*M*	*SD*	Bootstrap 95% CI lower	upper
Teacher autonomy (teaching practices)	29.89	4.81	26.79	31.53
Teacher autonomy (curriculum)	14.3	1.8		
Socioeconomic status	38.50	6.76	35.38	41.62
Science achievement score (8th grade)	48.25	8.05	44.50	52.10

Regression Summary Second Research Subquestion

Table 4 shows regression summary results for the second research sub-question. I

conducted a hierarchical linear regression summary to assess extent to which teachers'

perception of their autonomy to make decisions about teaching practices can predict

district eighth grade science achievement. Hierarchical linear regression tests specific

theory-base hypotheses with a common focus determining a set of predictors without

significantly reducing the R^2 coefficient. However, Petrocelli (2003) examined the degree

of standardized unit change in the criterion. In terms of the standardized unit change, his

predictor variable holds all other predictor variables in the model constant mean by the β

coefficient. On the other hand, Petrocelli argued that hierarchical linear regression focus

on the change in predictability. In other words, with the focus on the R^2 rather than on

the β coefficient less attention is given to how the predictor variables are reevaluated

based on their corresponding to the β coefficient when other predictors are added to the

analysis.

Table 4

Regression Summary Second Research Subquestion

Variable	B	SE B	β	R^2	ΔR^2
Step 1				0.106	.000
Teacher autonomy (teaching practices)	-0.545	0.424	-325	.219	
Step 2					
Teacher autonomy (teaching practices)	-0.561	0.248	-.335	0.716	0.610
Socioeconomic status	0.930*	0.176	0.781		
Step 3					
Teacher autonomy (teaching practices)	-1.612	2.499	-.961	0.720	0.004
Socioeconomic status	0.044	2.106	0.037		
Teacher autonomy (teaching practices) x SES	0.029	0.069	0.981		

Note. * $p = < .001$

The results of the first step indicated that the un-standardized regression coefficient for eighth grade science teachers' perception of their autonomy to make decisions about teaching practices was not statistically significant, (β = -.545, p = .219, R^2 = .106). The results led to the conclusion that there is no relationship between district achievement in science and district-wide eighth grade science teachers' perception of their autonomy to make decisions about teaching practices.

In the second step, the un-standardized regression coefficient for district SES, the moderator variable, was statistically significant, (β = .930, p < .001). Results indicated that on average district achievement in science tended to increase as the district's SES improved. The R^2 increase from .106 to .716 ($R^2 \Delta$ = .610) was also statistically significant, p = < .001, indicating that approximately 72% of the variance in achievement in science was accounted for by the school district SES variable.

However, in the third step, the moderator effect as evidenced by the small regression coefficient, was not statistically significant, (β = .029, p = .680). The R^2 increase from .716 to .720 ($R^2 \Delta$ = .004) was also non-significant, p = .680. Therefore, the null hypothesis was accepted since school district SES did not moderate the relationship between eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and district's eighth grade science achievement scores.

Regression Summary Third Research Subquestion

Table 5 show regression summary results for the third research sub-question. I conducted the hierarchical linear regression to assess the extent to which teachers'

perception of their autonomy to make decisions about the specific science curriculum

they teach in their classroom can predict district eighth grade achievement in science.

Table 5

Regression Summary Third Research Subquestion

Variable	B	$SE\ B$	β	R^2	ΔR^2
Step 1				0.014	.000
Teacher autonomy (curriculum)	-0.516	0.12	-0.117		
Step 2				0.736	0.722
Teacher autonomy (curriculum)	-1.7	0.656	-0.38		
Socioeconomic status	1.059*	0.178	0.889		
Step 3				0.743	0.007
Teacher autonomy (curriculum)	-10.984	16.224	-2.498		
Socioeconomic status	-2.968	7.011	-2.492		
Teacher autonomy (curriculum) x SES	0.267	0.465	4.5		

Note. * $p = <.001$

The results of the first step indicated that the relationship between eighth grade

teachers' perception of their autonomy to make decisions about the specific science

curriculum they teach in their classrooms was not statistically significant as evidenced by

the regression coefficient and *p* value, (β = -.516, *p* = .665, R^2 = 0.014). The results led to

the conclusion that there is no relationship between district achievement in science and

district-wide eighth grade science teachers' perception of their autonomy to make

decisions about science curriculum.

In the second step, the unstandardized regression coefficient for SES, the

moderator variable, was statistically significant, (β = 1.059, *p* < .001). Results indicated

that on average district achievement in science tended to increase as the district's SES improved. The R^2 increase from .014 to .736 ($R^2 \Delta = .722$) was also statistically significant, $p = < .001$, indicating that approximately 73% of the variance in achievement in science was accounted for by school district SES.

However, in the third step, the moderator effect as evidenced by the small regression coefficient, was statistically non-significant, ($\beta = .267$; $p = .576$). The R^2 increase from .736 to .743 ($R^2 \Delta = .007$) was also statistically nonsignificant, $p = .576$. Therefore, the null hypothesis was accepted because school district SES, when held constant, did not moderate the relationship between eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and district science achievement scores.

Summary

In this quantitative study, I examined the relationships between eighth grade science teachers' perception of their autonomy to make decisions about general teaching practices in the classroom, the specific science curriculum in their classrooms, district-science achievement scores, and SES of the school district. In this section, I presented data collected and results of a hierarchical linear regression conducted on the data.

The regression analysis resulted in the acceptance of the null hypotheses in research sub-questions two and three. Research sub-question one showed the regression analysis indicated no relationship between district-science achievement scores and eighth grade science teachers' perception of their autonomy to make decisions about teaching practices. Research subquestion two results confirmed when adding SES of the school

district as a predictor variable, the regression analysis significant increase the regression coefficient. Therefore, the results indicated that on average district achievement in science tended to increase as the district's SES improved.

However, when used as a moderator variable, school district SES did not moderate the relationship between district science-achievement scores and eighth- grade science teachers' perception of their autonomy to make decisions about teaching practices. Research subquestion three showed similar results regarding the effect of school district SES on the relationship between district science achievement scores and eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms.

In Chapter 5, I summarize the results from this study. I also review the literature related to the data results and the implications of those results. In Chapter 5, I also provide an interpretation of those findings, describe limitations of the study, suggest recommendations for further research, and discuss the study's implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative study was to explain the relationships among eighth grade science teachers' perception of their autonomy to make decisions about general teaching practices in the classroom, the specific science curriculum they choose, district student achievement in science, and school district SES. The central research question for this study: To what extent does SES of students in a school moderate the relationship between teacher autonomy and school district science achievement scores. The subquestions were:

RQ1. To what extent is there a relationship between district eighth grade science teachers' perception of their teaching autonomy and the district's eighth grade science achievement scores?

RQ2. To what extent does SES of the school district moderate the relationship between the districts eighth grade science teachers' perception of their autonomy to make decisions about teaching practices and the districts eighth grade science achievement scores?

RQ3. To what extent does SES of a school district moderate the relationship between district eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and the district's eighth grade science achievement scores?

The independent variables were eighth grade science teachers' perceptions of their autonomy to make decisions about teaching practices and the science curriculum used in their classrooms. The dependent variable was district eighth grade science

achievement scores; the moderator variable was school district SES. I used a hierarchical

linear regression model to answer the research questions. According to Johnson and

Christensen (2013), researchers use this statistical test to determine if a relationship exists

between two or more variables and to predict future values for the relationship. Sixteen of

the 69 school districts in Florida participated in the study, and, 87 percent of the eighth

grade science teachers who were contacted completed and returned the TAS survey.

This chapter contains a summary of key findings and conclusions that can be

drawn from them. I also offer implications of the study for school districts and educators

and recommendations for additional research. I also discuss potential implications of the

study results for social change.

Interpretation of the Findings

The three basic questions addressed the interaction between the study variables

(teaching autonomy, school district science achievement scores, and, SES of the school

district). The two components addressing teaching autonomy were (a) decisions

concerning teaching practices and (b) decisions concerning curriculum. Chapter 5

summarizes the results obtained from the hierarchical linear regression based on the data

collected from the 16 school districts. Furthermore, the regression analysis results are in

the acceptance of the null hypotheses.

The results of research subquestion one led me to conclude that there is no

relationship between district achievement in science and district-wide eighth grade

science teachers' perception of their autonomy to make decisions about teaching

practices. The teaching practices variable mean score 29.89 in the districts demonstrates

the perception of eighth grade science teachers having the freedom to make decisions about how they are to teach science. The curriculum variable has a low mean score 14.3 in the districts; therefore, the perception of eighth grade science teachers is that they have less freedom to make decisions about the science curriculum.

Research subquestion two results concluded, the regression coefficient for SES of the school districts, which is the moderator variable, was statistically significant. Results indicate that, on average, district achievement in science increases as the SES of the school districts improved. Using SES as a moderator variable resulted in a statistically significant change in the regression coefficient. The SES variable of the school districts accounted for approximately 72% of the variance in district achievement in science scores. However, the null hypothesis was accepted. The school district socioeconomic status did not moderate the relationship between eighth-grade science teachers' perception of their autonomy to make decisions about teaching practices and district eighth-grade science achievement scores.

For research subquestion three, the extent of SES of the school district moderates the relationship among the districts eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and the district's eighth grade science achievement scores, similar results to those above were found. The regression coefficient for district SES, the moderator variable, was statistically significant. Results indicated that on average district achievement in science tended to increase as the district's SES improved. Adding school district SES as a moderator resulted in a statistically significant change in the regression

coefficient, which indicated that the variance percentage is similar to subquestion two. Therefore, achievement in science was accounted for the school district SES. School district SES, when held constant, did not moderate the relationship among eighth grade science teachers' perception of their autonomy to make decisions about the specific science curriculum they teach in their classrooms and districts science achievement scores. As a result, the null hypothesis was accepted (see Table 5).

Because the null hypothesis for research subquestions two and three was accepted, I concluded that school district SES has little to no effect on the relationship among eighth grade science teachers' perception of their autonomy to make decisions about districts science achievement scores. The results associated with school district SES confirmed the abundance of research on the connection among SES and student achievement. For example, Husband and Hunt (2015) noted that measuring academic achievement is sensitive to poverty level, teacher turnover, and neighborhood SES. This will cause a decrease in education and ultimately affect society as a whole (Nakajima & Nakamura, 2012). Society benefits from capital gains in the United States and abroad (Marchetti et al., 2016). Teachers need the resources and capital, which are important ingredients for students' educational success (Marchetti et al., 2016; Nakajima & Nakamura, 2012). On the other hand, Fischer et al. (2014), Benner and Wang (2014), and Nakajima and Nakamura (2012) believed free or reduced lunch eligibility is a poor measure because it is easily accessible, inexpensive, and tied to federal poverty levels and NCLB standards.

The results in this study suggested that teacher autonomy has a negative effect on student achievement, which is inconsistent with much of the literature on high stakes testing and teacher effectiveness. For example, Erskine (2014) found that high-stakes accountability has turned teachers into drones. Teachers reading from a scripted curriculum and because of the pressures, teachers have narrowed their content to focus on test-defined content and increased the use of teacher-centered practices without regards to creative instruction to meet their students' needs. Critics of this dominant pedagogy have voiced concerns because its practices only measure a certain type of low-level knowledge and fail to promote critical thinking (Bailey, 2014; Bennett & Brady, 2014; Erskine, 2014). Amoli and Youran (2014), Chaudhari (2012), Ingersoll and Merrill (2011), and Ozturk (2012) noted that teachers felt micromanaged because of more prescriptive policies, greater administrative oversight, and the requirements of a rigid curriculum, which has negatively influence teachers' ability to teach. Such a restrictive environment, according to Feldmann (2011) like Grenville-Cleave and Boniwell (2012), creates feelings of demoralization, alienation, and disgrace among teachers. As a result, Croft et al. (2016) believed such practices have not raised standards; instead, they have had a dumbing-down effect on schools. Ezzi (2012) stated that only after teachers become aware of their skills and weaknesses could they address how to improve their teaching practices.

The literature on teacher effectiveness suggests that autonomy can have a positive effect on student achievement (Chang, 2013). Angelle (2010), for example, has shown that when those who may not see themselves as leaders have the opportunity to lead, they

develop leadership skills that construct dual accountability in favor of the principle of the

organization and student achievement. Angelle demonstrated that because of the

development of leadership skills and having opportunities available across the

organization to administrators, teachers, parents, and community members, student test

scores improved from year to year. Berry et al. (2010) noted that teachers who have

autonomy in decision making become teachers that are more effective. The results from

the Center for Teaching Quality (CTQ) survey of a large urban district in North Carolina,

which indicated teacher autonomy as a key factor in improving student achievement,

supported this idea (Berry et al., 2010). The literature indicates that the most important

factor to correlate to student achievement is an effective teacher (Chang, 2013; Straková

& Simonová, 2015; Ward, 2013). If teachers felt empowered by having autonomy over

integral parts of their job and are actively involved in decision-making, they will be more

effective and should have an effect on student achievement (Hulpia et al., 2010).

Student achievement in the classroom at the school level is founded on good

teaching practices. The literature confirms that teacher effectiveness involves teaching

practices that relate to standards, curriculum goals, and student needs. Teacher

effectiveness also includes contributing to colleagues and the school (Rink, 2013; Stewart

et al., 2015; Straková & Simonová, 2015). For this reason, the curriculum should

empower teachers to instruct in a manner that interests students and provides a level of

relevancy to their lives. The curriculum should apply to all students regardless of their

age, gender, or cultural background (Thornburg & Mungai, 2011). Teachers need the

power to make decisions about how to present the curriculum and effectively stimulate

students to think critically and enhance their analytical skills (Bogler & Nir, 2012; Lee et al., 2011). Costello (2012) and Atkinson (2015) noted that an effective curriculum has content that stimulates mental habits and thinking skills of elementary, middle, and high school students. Further, an effective curriculum promotes teacher collaboration and student learning and assessment that enable all students to be academically successful.

Limitations of the Study

A number of different factors that could have affected the outcome, including but not limited to, the size of the sample, the characteristics of the sample or population and the location, limited this quantitative study. First, the study used the FCAT scores as a measure of student achievement. The FCAT is the only statewide test Florida uses to measure student achievement once every school year. The most recent statistics available for the study was the 2015 school year FCAT science achievement scores, whereas posting of the current statistics 2016 will occur during the 2017 school year. The FCAT science achievement scores serve as the sole and primary basis for evaluating eighth grade science teachers and school effectiveness.

Second, there are 69 school districts in Florida. However, only $n = 16$ school districts participated. I determined through calculation the number of eighth grade science teachers needed for the research study in those selected Florida school districts, which was a population of $n = 121$ eighth grade science teachers. However, 108 eighth grade science teachers responded and completed the TAS survey. The small sample size of 16 school districts likely compromised the power of the statistical test employed in the study.

Third, this study only involved eighth grade science teachers taking the TAS survey through Survey Monkey, which I used to measure teacher autonomy. Fourth, I measured the SES of the school district using the FLDOE published data. The FLDOE calculates and reports the SES of the school district annually, but the current statistics were not available at the time of the study. As a result, I had to use the most up-to-date statistics available at the time of the writing of the dissertation report.

Recommendations

Based on the results of this study, I offer the following recommendations as possible ways to improve on its validity and reliability. All science teachers in the school contribute to the enhancement of student learning and the extent to which teacher autonomy exists in the school affects all teachers. As a result, future research may include the perceptions of all teachers at the middle school level. The perspective of sixth and seventh grade science teachers preparing their students for standardized testing could be different from eighth grade science teachers who have students preparing for high school. Using hands-on instructional practices, working with different learning styles and developing a climate both fun and relevant to their lives are helpful in preparing middle school students for high school. Middle school science teachers cover every aspect of the science curriculum at each grade level. The science teachers did not provide details about the science courses taught in the eighth grade that benefit the sixth and seventh grade science teachers. To ensure that students develop scientific knowledge and skills, science teachers continuously review and revise the curriculum.

Florida has 69 school districts, but only 16 of Florida school districts participated in this study. The small sample size likely compromised the power of the statistical test employed in the study. Increasing the number of districts involved in the study might yield different results. Increasing the sample size could involve other states and yield more valid and reliable results.

In this study, I did not seek to determine the extent to which teacher demographics (e.g. differences in race, gender, years of experience and educational preparation) or school anddistrict demographics (e.g., geographic location, size, and racial composition) might have affected the relationship between teacher autonomy and student achievement. Further study could emphasize the relationship between teacher autonomy and student achievement by comparing Florida eighth grade science teachers' results with eighth grade science teachers in other states in the Southeast region using a more diverse sample population.

Implications

In school systems that do not encourage accurate assessments and valid feedback, both teachers and students may fail. The essence of the accountability movement is dictating how teachers should teach and how students should learn. However, teachers need to be acknowledged and treated as professionals. Teachers who have the autonomy to do research-based instruction could serve all students, including students who are socioeconomically disadvantaged (Zhao, 2010). Bodman et al. (2012) argued that teacher autonomy is pivotal to successful professional learning opportunities that can offset the negative influence of policy decisions that have disempowered teachers.

My study focused on eighth grade science teacher autonomy and decision-making and student achievement on standardized testing. The results of the analysis indicated that the districts science achievement scores tended to increase, as teachers' perceptions of autonomy to make decisions about teaching practices increased. The districts science achievement scores increased, as teachers' perceptions of their ability to make decisions about the curriculum they teach in their classroom.

The results of this study contribute to social change by informing educational leaders, curriculum personnel, and policy makers on how freedom to make decisions about curriculum and instruction can enhance student achievement in science. As a result, schools can become organizations where empowerment, participatory decision-making, and distributive leadership allow issues related to teaching and learning to become the entire school community responsibility. Teachers could have a sense of autonomy and decision-making over their teaching. Teachers could bring creativity and enthusiasm while interacting with their students. Therefore, more support and resources should be available and given to teachers by assuring them a stable learning environment for all students to increase student achievement.

I plan to disseminate the results through ongoing presentations at regional, national, and international science education conferences specific to science education, such as the National Science Teacher Association Conference, Association Science Teacher of Education Conference, Science Teacher Engineering Mathematics Conference, Florida Association Science Teacher Conference, and the National Association Research Science Teacher of the Annual International Conference. In

addition, I will submit a paper on my study and the results in the most respected peer-reviewed science education journal, *Studies in Middle School Science.* Other publications specific to science education to which I would submit results of this study are *Problems in Education in the 21st Century, Science in School, The Journal of Science Teacher Education*, *International Journal of Science*, and other peer-reviewed science education journals.

Conclusion

In Chapter 5, I discussed the interpretation of the findings in relation to the review of literature and theoretical framework for the study. I also wrote about the implications for social change, and recommendations further study. The purpose of this quantitative study was to explain the relationships among eighth grade science teachers' perception of their autonomy to make decisions about general teaching practices in the classroom, the specific science curriculum they choose, school wide student achievement in science, and SES. The key findings of this study indicated in three subquestions were significantly predictive.

The regression summary for the second research subquestion results indicated that districts science achievement scores tended to increase, as eighth grade teachers' perceptions of their autonomy to make decisions about teaching practices increased. Therefore, the null hypothesis was accepted. The SES of the school district did not moderate the relationship between eighth grade science teachers' perceptions of their autonomy to make decisions about teaching practices and districts science achievement scores. The results in research subquestion three indicated that district science

achievement scores tend to increase do to eighth grade science teachers' perceptions of their ability to make decisions about the science curriculum they teach in their classroom. Therefore, the null hypothesis was accepted. SES of the school district did not moderate the relationship between eighth grade science teacher's perceptions of the specific science curriculum they teach in their classroom. The regression summary showed the best combination of variables to predict the relationships among eighth grade science teachers' perception of their autonomy to make decisions, which were teacher autonomy (teaching practices), teacher autonomy (curriculum), district SES, and district science achievement scores (eighth grade).

As the researcher of this study, I did not know what to expect from the outcome of this study. However, I am pleased with the findings predicted because the literature was consistent with teacher reports that standardized testing affected their classroom dynamics by influencing the curriculum and their teaching practices. In turn, teachers believed standardized testing affects the pacing of their instruction and infringes on their creativity. The key finding showed that if teachers are allowed autonomy, and make decisions about their teaching practices and curriculum in the classroom, student achievement scores increase.

Finishing this study has influenced my life as an educator, parent, colleague, and activist. I have gained knowledge as a lifelong learner. I will continue to influence school district leaders, principals, curriculum specialist, teachers, and the education community. In addition, I will broaden my research study by publishing articles and attending educational conferences.

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Appendix A: Teaching Autonomy Scale (TAS) (Pearson & Hall, 1993)

1 - Definitely agree   3- More or less disagree

2 - More or less agree   4 - Definitely disagree

1. I am free to be creative in my teaching approach. 1 2 3 4

2. The selection of student-learning activities in my class is under my control. 1 2 3 4

3. Standard of behavior in my classroom set primarily by me. 1 2 3 4

4. My job does not allow for much discretion on my part. 1 2 3 4

5. In my teaching, I use my own guidelines and procedures. 1 2 3 4

6. In my situation, I have little say over the content and skills selected for teaching. 1 2

    3 4

7. The scheduling of use of time in my classroom is under my control. 1 2 3 4

8. My teaching focuses on those goals and objectives I select myself. 1 2 3 4

9. I seldom use alternative procedures in my teaching. 1 2 3 4

10. I follow my own guidelines on instruction. 1 2 3 4

11. In my situation, I have only limited latitude in how major problems are solved. 1 2

    3 4

12. What I teach in my class is determined for the most part by myself. 1 2 3 4

13. In my class, I have little control over how classroom space is used. 1 2 3 4

14. The materials I use in my class are chosen for the most part by me. 1 2 3 4

15. The evaluation and assessment activities used in my class are selected by people other

    than myself. 1 2 3 4

16. I select the teaching methods and strategies I use with my students. 1 2 3 4

17. I have little say over the scheduling of use of time in my classroom. 1 2 3 4

18. The content and skills taught in my class are those I select. 1 2 3 4

Appendix B: Cover Letter to Superintendents

Dear Superintendent:

My Name is Norris Gurganious presently a doctoral student in General Education at Walden University. I am seeking permission to conduct this research study for my dissertation in your School District. Specifically, I am studying the relationship between teacher autonomy and student achievement in middle school science and the extent to which SES may influence the relationship. My research study approved from Walden University Institutional Review Board. My approved # is (10-16-15-0018744). The target group selected in your School District is Public Middle Schools eighth grade science teachers. Attached is the Teaching Autonomy Scale (TAS) survey that I plan to conduct this research study.

The eighth grade science teachers in your School District will be confidential. The names are not be recorded nor the instruments pre-coded in any manner to be able to relate the results of any instrument to any particular eighth grade science teacher. The researcher will have no direct contact with those eighth grade science teachers. This research study will be via email internet online.

The consent form is the invitation, which will be emailed to the participants for this research study. If the eighth grade science teachers voluntarily participate in this research study inside the consent form the eighth grade science teachers will click on the following link https://www.surveymonkey.com/r/TJ6F9YB to open Survey Monkey and complete the TAS survey. When the eighth grade science teachers complete the TAS survey they will click down to send the TAS survey back to the Survey Monkey link.

Survey Monkey will collect the data and form an excel spreadsheet. All participants will remain confidential. I estimate completion of the instrument will take no more than 10 minutes through Survey Monkey. I seek your approval. Once approval is obtained, I will email a courtesy letter to your Middle School Principals about the research study in your School District.

I understand the demands placed on your time and would be very grateful for your support. If a conference is needed I would be at your convenience to discuss the research project in more detail. Once this study is completed, the results of the study will be shared with the School District. Thank you for your attention to my request.

Sincerely,

Norris Gurganious

Appendix C: Courtesy Letter to Principals

Dear Principal:

I would like to welcome your eighth grade science teachers to participate in this research study. I am presently a doctoral student in General Education at Walden University conducting research for my dissertation. Specifically, I am studying the relationship between teacher autonomy and student achievement in middle school science and the extent to which socioeconomic status may influence the relationship. Walden University Institutional Review Board approved my study. My approved # is (10-16-15-0018744). This courtesy letter will explain my research study. This research study will help teachers increase their autonomy and make better-informed decisions about educational issues. Such information could promote additional discussion about strategies for reducing the achievement gap in science.

The target group will be eighth grade science teachers. This is an online research study using a Teaching Autonomy Scale survey. The Teaching Autonomy Scale survey will be administered through Survey Monkey. Here is the Survey Monkey link https://www.sureveymonkey.com/r/TJ6F9YB. This Survey Monkey link is the opening for the eighth grade science teachers to participate in the research study to take the Teaching Autonomy Scale survey. This 18-question Teaching Autonomy Scale survey will take 10 minutes to complete.

The eighth grade science teachers will be confidential. Their names will not be recorded nor the instruments pre-coded in any manner to be able to relate the results of any instrument to any particular eighth grade science teacher. I will trace those eighth

grade science teachers by their School District. Once this study is completed, the results

of the study is shared with the School District. Thank you for your attention to my

request.

Sincerely,

Norris Gurganious

Appendix D: Permission to Use Teaching Autonomy Scale Instrument

Norris, consider this email as my permission to use the TAS.

L. Carolyn Pearson

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