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Teachers' Perceptions About the Influence of High-Stakes Testing on Students

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Walden University

College of Education

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Sharon Wisdom

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Walden University

2018

Abstract

Teachers' Perceptions About the Influence of High-Stakes Testing on Students

by

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MA, Georgian Court University, 1998

BS, Montclair State University, 1982

Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

October 2018

Abstract

Teachers in a New Jersey suburban high school noticed an increase in students' stress and anxiety associated with high-stakes testing, and they were struggling to find strategies and interventions to help. The purpose of this study was to investigate high school English and mathematics teachers' current knowledge, experiences, and perceptions about students' preparation and responses to high-stakes testing and to explore teachers' perceptions about teaching strategies they needed to reduce student test anxiety. Liebert and Morris's bidimensional components of anxiety, emotionality, and worry form the conceptual framework that guided this study. The research questions focused on teachers' perceptions about students' high-stakes testing readiness, students' testing behaviors, and teachers' training needs. A case study design was used to capture the insights of 12 high school English and math teachers through semistructured interviews and a focus group interview; a purposeful sampling process was used to select the participants. Emergent themes were identified through open coding, and the findings were developed and checked for trustworthiness through member checking, rich descriptions, and researcher reflexivity. The findings revealed that teachers recognize that students react in different ways to testing, that students who are prepared for the tests demonstrate greater confidence and less anxiety, and that teachers want more professional development specific to reducing students' anxiety and stress. A professional development project was created to provide teachers with strategies and approaches to prepare students for high-stress testing situations. This study has implications for positive social change by creating a structure to provide teachers with strategies for managing students' test anxiety.

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Dedication

This doctoral study is dedicated to my parents, Jack B. Lewis, Sr. and Florence M. Lewis. To my father, the late Jack B. Lewis, Sr., I want to thank you for all of the love and support that you gave me while pursuing my doctorate degree. Thank you for teaching me and showing me what it means to have a strong work ethic and to always “finish what you start”. Although you are not here, I know that you have been with me, the whole way, pushing me forward and cheering me on! Thanks “Father”! I love you and miss you so much! To my mother, Florence M. Lewis. Thank you for all of your prayers and your constant love, support, and encouragement as I have gone through my doctoral journey. Also, thank you for always being there for me and for being one of my biggest cheerleaders! I love you so much!

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Section 1: The Problem

The Local Problem

The problem that prompted this study was that students in a local high school were showing signs of stress and anxiety related to high-stakes tests, and while high school English and mathematics teachers observed these behaviors, they were not equipped with teaching strategies and techniques to prepare students to confront and perform confidently on these tests. Teachers recognized that the pervasiveness of high-stakes tests has led to students experiencing a lack of self-assurance when testing and feelings of low self-worth (J. Robinson, personal communication, March 2015). Prior to test administration, students also expressed worry and fear of failure to their teachers regarding the anticipation of taking assessments and voiced concerns about the pressures of passing the tests (H. James, personal communication, March 2015). Anxiety in the evaluative setting creates interference with the cognitive and attentional progression for students when attempting to complete the performance of a task (Karatas, Alci, & Aydin, 2013). Moreover, anxieties associated with high-stakes testing have contributed to students' emotionality and worry during testing periods, and they have been related to lower grade point average, poor academic achievement levels, and decreased social functioning for students (Cassady & Johnson, 2002).

Teachers in the local school reported that students were showing signs of illness, worry, and nervousness while participating in testing situations. These behaviors were most apparent during the Partnership for Assessment of Readiness for College and

Careers (PARCC) testing sessions. At a faculty meeting during the 2015-16 school year, a lively discussion took place during which most teachers agreed that students showed signs of worry and stress during testing situations (school faculty meeting, personal communications, March 2015). A staff member explained, “In my classroom, I have witnessed physical and emotional student responses to testing. I can see many students affected by increased anxiety” (T. Acevedo, personal communication, March 2015). She further stated, “There has been no professional development around test anxiety reduction or interventions, and I believe that many of us would benefit from this.”

Within the local school district, there was a gap in practice in the professional development (PD) of teachers in regard to preparing students and building their confidence to take high-stakes tests. This study was important because teachers witnessed students’ concerns about test performance, and they noted warning signs among students of anxiety symptoms, such as nausea, flushed skin, headaches, and stomachaches (K. Allen, personal communication, March 2016). Currently, there was a lack of information, resources, and PD training provided to teachers to aid students with confidence building and strategies for high-stakes testing in this local school district. The absence of such information created discussions among teachers and administrators about how teachers could more effectively prepare students for testing and reduce anxiety during test administrations.

Test driven stress and anxiety can disrupt a student’s ability to perform well and can cause high levels of pressure, low self-esteem, poor grades, and negative views of

school (Driscoll, 2015). Researchers for the American Test Anxieties Organization (ATAA; 2016) further stated, “Most students need a training experience, which can provide more positive thought patterns and more adaptive responses” (para. 2). Teachers were seeking the resources and strategies to provide students with test taking practices that might offer this. According to Althaus (2015), teacher PD increases pedagogical knowledge, demonstrates best practices, and focuses teachers’ thoughts on students’ learning needs.

Achievement testing has become a dominant practice in schools, and school administrators expect teachers to prepare students to attain passing scores (Von der Embse, Bateria, & Segool, 2013). According to Von der Embse and Hasson (2012), high-stakes testing is used by school leaders and school districts to make important decisions regarding students, teachers, and school districts. The student test score data derived from this type of testing is additionally pertinent to the evaluation of teacher performance, student promotion, and graduation (Von der Embse, Mata, Segool, & Scott, 2014). The main goal of high-stakes testing is teacher accountability to ensure that students are being educated properly and effectively (Von der Embse & Hasson, 2012). Federal legislation such as No Child Left Behind Act of 2001 (NCLB) and Every Student Succeeds Act of 2015 (ESSA) have educational assessments at their core, which define the meaning of success in schools. Policies developed from legislation have increased the amount and importance of testing in schools; this has created a surge of test anxiety and pressures among students (McDonald, 2001; Von der Embse & Hasson, 2012).

In North America, an estimated 10 million children are affected by test anxiety. Researchers have suggested that there is a greater level of test anxiety experienced by students for tests connected to high-stakes accountability rather than conventional classroom tests (Von der Embse & Witmer, 2014). Members of the ATAA (2016) stated that test anxieties seem to be consistently intensifying with the heightened focus on standardized testing in the United States.

According to the Anxiety and Depression Association of America (2016), symptoms of student test anxiety can be physical, behavioral, cognitive, and emotional. Common physical symptoms include things such as headaches, stomachaches, rapid breathing, and light-headedness. Students who suffer from test anxiety experience what is known as “state anxiety” (Salend, 2012, p. 20) or a “situation-specific personality trait” that transpires before, during, and after a testing period (Karatas et al., 2013, p. 920). The product of this type of anxiety is an increased level of nervousness unique to testing (Salend, 2012). Lowe (2015) stated that anxiety symptoms are associated with impairment of memory and cognitive functions and can contribute to poor school performance and academic failure. In addition to how test anxiety can negatively impact test performance, if left untreated, the anxiety can continue into adulthood, causing interference with career decisions and creating a poorer quality of life (ATAA, 2016).

Cassady (2010) has estimated that 25% to 40% of students’ experience test anxiety in an evaluative setting. More recently, the ATAA (2016) approximated that 20% of students appear to have high or severe test anxiety, while another 16% of students

might be considered to have moderately high-test anxiety. In a study of college campus students, it was disclosed that 15%-40% of post-secondary students encounter test anxiety during their educational experiences (Gerwing, Rash, Gerwing, Bramble, & Landine, 2015). As a result, test anxiety has negatively impacted grade point average, academic and exam outcomes, and led to student withdrawal from competitive programs and 15%-20% of withdrawals during the first two years of college (Connon et al., 2016). A study of university nursing students revealed that the demand for achievement and attainment of high academic performance in challenging and rigorous courses has created worry and high stress levels, developing test anxiety during final exams (Dawood, Ghadeer, Mitsu, Almutary, & Alenezi, 2016). This type of anxiety may impair a student's ability to successfully take a test by interfering with course content knowledge, thus causing poor test performance.

Rationale

This study was conducted in a regional, 4-year public high school in central New Jersey. The district was in a suburban community that has one high school with a total enrollment of 974 students and is staffed with 93 full-time teachers. The student population was diverse, consisting of many racial and ethnic groups.

At a guidance meeting last year, a discussion between the school counselors and director took place about the apparent effects of high-stakes testing on students and the need for teacher PD to increase teacher knowledge about test-taking preparation and techniques to reduce student test anxiety behaviors. A school counselor stated, "I had a

student come into my office today crying hysterically about the PARCC test. The student was panicked and worried about what would happen to her college plans if she did not pass.” The student also mentioned that having help from the teacher with test taking strategies and learning how to not be so nervous for the test would be beneficial to her (M. Patterson, personal communication, April 2015). Several other concerned students have visited the guidance office to meet with their school counselors with this same fear (G. Marino, personal communication, April 2015). During a meeting of the school child study team, team members expressed concerns about how students worry because they are required to pass the PARCC test before they can graduate from high school. One learning consultant claimed, “Because of the pressure associated with passing PARCC to graduate, one of my students had to stop and leave the testing site due to extreme nausea” (D. Carroll, personal communication, November 2015).

Students reported feeling overwhelmed when a major test was announced. In an appointment with the student assistance counselor, an 11th grade student shared that she totally blanked out as soon as she saw the test on the screen and that taking the PARCC test is too stressful (S. Gibson, personal communication, April 2016). A school psychologist stated that a 10th grade student had confided in him about how “worried she was about her scores on the English language arts/literacy portion of PARCC. Her plan was to be in honors English next year and with a poor performance, she will not be recommended” (B. Francis, personal communication, May 2016).

School health office records during the 2015 PARCC testing sessions, indicated increases over the usual number of student requests to visit the school nurse of between 20% to 30%, and school attendance records showed increases of 10%-12% in student absenteeism and early dismissals during PARCC testing. Appointments associated with test anxiousness, stress, and worry also increased by 15% with school counselors and with the student assistance counselor during the 2015-16 period of testing.

The purpose of this study was to investigate high school English and mathematics teachers' current knowledge, experiences, and perceptions about students' preparations and responses to high-stakes testing and to explore teachers' perceptions about teaching strategies they needed to reduce student test anxiety. The incidence of testing increased each year over the past 3 years; student discomfort during testing was evidenced by records of increased health office visits, attendance records (showing poor attendance), and elevated numbers of school counselor and school child study team appointments with students. In this local high school, test anxiety issues became a regular discussion among teachers, parents, and students. There was a need for greater understanding of how teachers could better prepare students for high-stakes testing situations and how they could reduce symptoms of test anxiety.

Definition of Terms

High-stakes testing: High-stakes testing refers to school exams often required by federal and state government agencies and school districts that are used to make key decisions pertaining to students, teachers, and school (Von der Embse & Hasson, 2012).

No Child Left Behind Act (NCLB) of 2001: The NCLB Act was an educational restructuring signed into law by George W. Bush in 2002. It was created to improve student achievement by using student test performance data to transform the culture of schools in the United States (Von der Embse et al., 2014). This reform was replaced by Every Student Succeeds Act in 2015.

Every Student Succeeds Act (ESSA) of 2015: A new law enacted by the Obama administration replaced NCLB and reauthorized the Elementary and Secondary Education Act of 1965, which focused on equal opportunity for all students. The main objective of this law is to prepare all students for success in college and careers (Menken, 2017).

Test anxiety: Test anxiety is the emotional, behavioral, and physiological reaction that occurs before and during an evaluative situation (Karatas et al., 2013).

Partnership for Assessment of Readiness for College and Careers (PARCC): The PARCC tests are English language arts/literacy and mathematics assessments developed by a consortium of 24 states to determine whether students are on the right track for being successful in college and careers (Hinchman & Moore, 2013).

Significance of the Study

This study investigated high school English and mathematics teachers' perceptions about students' preparation and responses to high-stakes assessment situations and explored the teaching strategies that may reduce student test anxiety. The study was germane because it highlighted educators' concerns about not having the

necessary understanding and knowledge to supply students with strategies and techniques to successfully and confidently participate in high-stakes testing.

Results of this study provided teachers with effective methods and techniques to improve test preparation of students for high-stakes tests, offered approaches to build students' self-assurance, and introduced ways to reduce test anxiety symptoms. Equipping teachers with strategies to enhance test taking readiness for students may create a less stressful learning environment, which may lead to improved student test performance. This study fostered positive social change in the educational testing culture by examining the gap in teachers' knowledge and perceptions about preparing students for high-stakes tests and examining the influence of that testing on students.

Research Questions

Based on the current, increased incidence of high-stakes testing within the school setting, students displayed behaviors of worry, stress, and anxiety during the examination period. Teachers were troubled by their observations of these student behaviors, and they were concerned that they were not equipped with the proper knowledge to prepare students for high-stakes testing situations and lowering test anxiety. The following research questions guided my study as I attempted to capture high school English and mathematics teachers' knowledge, experiences, and perceptions about students' preparations and responses to high-stakes testing and to identify teaching strategies that may reduce student test anxiety:

RQ1: What are high school English and mathematics teachers' experiences and perceptions about their current practices of preparing students for high-stakes testing?

RQ2: What are high school English and mathematics teachers' perceptions of observed student behaviors during test administration?

RQ3: What knowledge and strategies do high school English and mathematics teachers need to assist students with test anxiety reduction?

Review of the Literature

Conceptual Framework

The conceptual framework of this study was based on the test anxiety construct of Liebert and Morris (1967). Liebert and Morris (1967) introduced the bidimensional components of anxiety: emotionality and worry. These anxiety components, although interrelated, are produced and supported by different testing circumstances (Morris, Davis, & Hutchings, 1981). Emotionality is the physiological elevation of symptoms resulting from the stimulation of the autonomic nervous system during testing situations (Liebert & Morris, 1967). Even though worry and emotionality are connected elements of test anxiety, there is evidence that emotionality plays a distinctive and independent part in test anxiety (Morris et al., 1981). The experience of emotionality occurs most often during specific testing circumstances and lasts for a short period of time. The prominent elements of emotionality involve the induction of the initial, nonevaluative, high-stakes testing prompts, such as the proctor passing out the tests, students' discussing the

impending test, and students' actual fear of the evaluative situation (Deffenbacher, 1980). Once these actions take place, the attention is focused back on the test and the level of emotionality decreases (Morris et al., 1981). Consequently, when students encounter heightened levels of worry, emotionality can be debilitating. It can cause students to experience inward-focused attention and create a distraction from test items, resulting in poor test performance (Wine, 1980). Physiological responses manifested through emotionality include increased perspiration, rapid heart rate, lightheadedness, and feelings of fear or alarm.

Worry is identified by student cognitive reactions before, during, and after an evaluative occurrence (Morris & Liebert, 1970). Consistent research has supported the direct connection between poor performance outcomes on high-stakes tests and high levels of worry (Eysenck & Calco, 1992; Hembree, 1988; Hong, 1999). Other research done in real-life settings has indicated that cognitive interference, such as worry, is a major causation of lower test performance in highly test-anxious students (Marlett & Watson, 1968; Sarason & Stoops, 1978). Some of the cognitive responses associated with this component involve the student's debilitating thoughts and concerns about their performance on the test (e.g., consequences of failure, social humiliation, low confidence levels, and self-doubt).

This conceptual framework served as a means for researching, investigating, and understanding the local problem of test anxiety and supporting the PD of teacher knowledge in this area. Additionally, this conceptual framework supported my study

because it placed emphasis on the need for equipping teachers with interventions and techniques to aid in decreasing student test anxiety problems during testing situations, while also addressing current teacher practices and approaches to preparing students for undertaking high-stakes tests. Furthermore, the conceptual framework promoted the exploration, collection, and analysis of data driven by the research questions presented.

Review of the Broader Problem

Introduction

To explore the concepts that were pertinent to my study, I used the following search engines and databases to find peer-reviewed and seminal literature sources: Walden Library; education databases (Education Source and ERIC), multidisciplinary databases (SAGE Journal, Taylor and Francis Online, ProQuest Central), and related subject databases (PsycInfo and SocIndex with Full Text). To search for additional relevant literature, I also incorporated Google Scholar and Google into my method of literature exploration. I used the following key words and key terms in my search: *high-stakes tests/testing*, *standardized tests/testing*, *test anxiety*, *evaluation stress*, *exam anxiety*, *test stress*, *test anxiety strategies/interventions*, *test anxiety treatments/programs*, *study-skills*, and *test-taking strategies*. By using variations and combinations of these terms, I found more than 50 suitable sources for my review and study.

The alignment of the literature review highlights the main topics and methods used for searching the literature. The history and implementation of high-stakes testing provided the background information necessary to discuss how high-stakes tests have

influenced educational practices and student behaviors. Student problems related to high-stakes tests emerged as symptomatic of increased attention to test scores. This was explored in the second section of this review. Finally, I examined test anxiety intervention programs and teacher strategies that have been attempted to help students.

High-Stakes Tests

The high-stakes test movement began with *A Nation at Risk Report* (National Commission on Excellence in Education, 1983). This report changed the face of education and led states to develop state level commissions on education (Au, 2013). States increased graduation requirements and established educational reforms that focused on students meeting proficiency requirements on tests and expanding course load criteria (Au, 2013; Kornhaber & Orfield, 2001). By 1994, numerous states administered state-wide assessments and by 2000 all states except Iowa had implemented a state-mandated test (Jones, Jones, & Hargrove, 2003). When President George W. Bush took office in 2001, federal Title I funds were connected to high-stakes test score results (Kornhaber & Orfield, 2001). In 2002, the United States Congress passed NCLB (USDE, 2010). The NCLB law was centered upon mandated high-stakes testing and reaching 100% proficiency in reading and math for public school students in grades 3-8 and once during high school, with future testing in science (Au, 2013). In 2015, NCLB was replaced by ESSA. ESSA required that educators measure students' progress toward academic standards. Under the administration of President Obama, the focus on high-stakes tests continued and became more intensified with the creation of the Race to The

Top Program (RTT) and the forthcoming enactment of the Common Core State Standards (Karp, 2010). Standardized and high-stakes tests have evolved and changed over the years (Rodriguez & Arellano, 2016). As these tests have gone from standardized to high-stakes, administrators, teachers, and students have had to continuously keep up with the ever-changing federal policies and educational reforms (Dotson & Foley, 2016).

High-stakes tests serve a significant function in educational organizations (Rodriguez & Arellano, 2016). The tests are used as instruments of accountability for student achievement by state education department officials, district administrators, school officials, and teachers (Rodriguez & Arellano, 2016). Sarason (1959) stated that “We live in a test-conscious, test-giving culture in which the lives of people are in part determined by their performance” (p. 26). With the implementation of NCLB in 2001, there has been an increase in the use of high-stakes tests to measure student performance and to make educational decisions (Von der Embse & Witmer, 2014; Von der Embse et al., 2014).

High-stakes tests function as tools that give administrators, teachers, parents, and students unbiased data and which permit student achievement comparisons to be made among students and schools (Ashadi & Rice, 2016). Ashadi and Rice (2016) reported that high-stakes testing policies are instrumental in the promotion of the alignment of national, state, and core curricula. Data retrieved from testing can provide administrators with information about how effective teachers are delivering skills instruction to students (Collier, 2010). Results from state-mandated high-stakes tests are also used as a means to

place students into specific courses, such as remedial, gifted and talented, honors, or Advanced Placement (Tienken, 2015). Tienken (2015) stated that many state officials utilize testing outcomes in math and English to meet the Race to The Top Program grant and NCLB reporting requirements for principal and teacher efficiency. Government officials also use high-stakes test results to determine the college and career readiness of students (Tienken, 2015). For example, in New Jersey, high-stakes assessment scores in mathematics for Grade 11 students are used to measure the effectiveness of math teachers, school math programs, principals, and the strength of student math skills (Tienken, 2015). Test results have additionally become a part of federal and state performance report cards to assign school quality ratings (Tienken, 2015).

Across the United States, the accountability systems associated with high-stakes testing policies have created a trickle-down effect in which state departments of education apply pressure to school boards and superintendents, superintendents place pressure on school administrators, school administrators place the onus on educators, and then educators pass the responsibility on to students (Croft, Roberts, & Stenhouse, 2016). Croft et al. (2016) stated that due to accountability policies, principals and teachers are often threatened with the possibility of loss of employment if poor test score outcomes occur. Pressures placed on educators by principals to improve test scores have also led to practices such as teaching to the test, employing test related material for instruction, and using practice tests (Polesel, Rice, & Dulfer, 2014).

Nichols and Valenzuela (2013) stated that when students perform poorly on high-stakes assessments, all stakeholders, teachers, principals, and students are affected. The underperformance of students in schools that fail often results in sanctions of losing state or federal aid (Boardman & Woodruff, 2004; Rodriguez & Arellano, 2016). Local school educators can suffer reductions in funding and diminished status due to poor test performance by students (Rodriguez & Arellano, 2016). Schools that are deemed to have unsatisfactory performance ratings are usually monitored or managed by the state department of education officials in order to encourage student performance improvement (Cosner & Jones, 2016; Mintrop & Sunderman, 2009; O'Day, Bitter, & Gomez, 2011). When schools fail to meet or improve test score performance targets and ratings, sanctions may include the possibilities of school reorganization, reconfiguration of school leadership, or school closure (Cosner & Jones, 2016; Finnigan Daly, & Stewart, 2012; Kane & Staeger, 2002; Mintrop & Sunderman, 2009). Other sanctions imposed by states when test proficiencies are not met may include the following: (a) schools may be required to provide funding for after-school tutorial programs for students who scored poorly, and (b) schools may be required to approve student transfer requests to attend other public schools (Reback, Rockoff, & Schwartz, 2014).

Teachers with large percentages of failing students may experience negative impacts on salaries, tenure awards, and evaluations (Lavigne, 2014). For example, in the District of Columbia public schools, teachers whose students perform at a low proficiency level on high-stakes tests are considered minimally effective in the evaluation

process. As a result, their salaries are frozen until they have reached a rating of effective or highly effective (Lavigne, 2014). School district officials believe that money will motivate teachers to improve their teaching methods and to raise students' test performance. For this reason, district officials are creating merit pay policies and salary structures that are directly connected to student performance on high-stakes tests. (Von der Embse, Schoemann, Wicoff, Kilgus, & Bowler, 2016). In New York, high-stakes test scores are also used as a part of the teacher evaluation process (Hursh, 2013). According to Ballou and Springer (2015), many teachers have responded negatively to this controversial change in evaluation processes. American Federation of Teachers President, Randi Weingarten, demanded that this part of the teacher evaluation process be eliminated (Sawchuk, 2014). Hursh (2013) stated that if a teacher is rated as developing or ineffective based on student test scores, they are required to attend extra PD training. If the ineffective rating continues for two sequential years, the consequence is the possibility of termination (Hursh, 2013).

Nichols and Valenzuela (2013) reported that in Texas, concerns about high-stakes testing have been high among school educators for the past 2 decades. They identified that since the inception of the Texas Assessment of Knowledge and Skills (TAKS), students have indicated their frustration at curriculum changes that are focused on preparing for the test and at test-taking skills focused on the importance of passing the test (Nichols & Valenzuela, 2013). Students were also irritated by the concentrated test-specific curriculum being imposed on them as a result of the state assessment (Nichols &

Valenzuela, 2013). The stress of high-stakes testing has led school systems with poor performing students to commit more than a quarter of the school year to test preparation (Croft et al., 2016). Croft et al. (2016) reported that the importance of high-stakes testing has even resulted in test preparation taking the place of recess for elementary students. Students who underperform on assessments may be affected by failing grades, grade retentions, dropping out, failure to graduate, and/or denial of postsecondary education opportunities (Rodriguez & Arellano, 2016). Von der Embse et al. (2016) conducted a study in North Carolina where the focus was placed more on instructional practices to prepare students for high-stakes tests than on improving students' knowledge or skills. Because of test-based accountability policies, state boards of education and school administrators have used results of high-stakes test scores to evaluate teacher performance and effectiveness, to make decisions about teachers' tenure status, and to administer rewards of merit pay.

High-stake testing and associated accountability policies continue to be a prominent part of the educational system. Administrators, teachers, and students have experienced the penalties and stresses of following the federal policies and processes for the purpose of increasing test performance (Watson, Johanson, Loder, & Dankiw, 2014). Although these policies are intended to promote positive educational change, they have caused additional tensions among teachers, which may inadvertently convey to students, creating a negative impact on performance (Von der Embse & Witmer, 2014).

Student Problems Related to High-Stakes Tests

Since the passing of NCLB, high-stakes testing and the accountability policies and practices that occur in the United States public educational system have put pressure on principals, teachers, and students (Watson et al., 2014). Researchers have provided evidence that high-stakes assessments have negatively influenced students. This has caused test anxiety and has adversely affected test performance (Von der Embse & Witmer, 2014).

From the beginning of the 20th century, researchers have continued to be fascinated and preoccupied about the topic of test anxiety. Sterian and Mocanu (2013) stated that test anxiety has a long and complicated history, with the first test anxiety research being published in 1914 by Folin, Demis, and Smillie. In the early 1900s Yerkes and Dodson studied the association between anxiety and performance (as cited in McDonald, 2001). From their research came the Yerkes and Dodson law, which described the theory that heightened stress levels can actually increase performance to a certain degree (Raufelder, Hoferichter, Ringeisen, Regner, & Jacke, 2015). However, they discovered that at the point when stress becomes extreme, performance diminishes (Raufelder et al., 2015). Mandler and Sarason (1952) performed and published the first pertinent studies to describe the negative relationship between test anxiety and cognitive test performance. Based on these studies Mandler and Sarason (1952) found that high anxiety is connected to poor performance.

Zeidner (2007) and Von der Embse and Witmer (2014) defined test anxiety as the phenomenological, physiological, and behavioral reactions connected to testing. Test anxiety is the emotional state students encounter before, during, and after a testing situation (Karatas et al., 2013). Students who are test-anxious perceive testing experiences as threatening and are concerned about their possible failure on the test and negative evaluation outcomes (Shapiro, 2014; Von der Embse & Witmer, 2014). Test anxiety also affects a student's physical well-being and interferes with students' ability to concentrate and focus, making it a challenge to remember the information they studied for the test (Encandela, Gibson, Angoff, Leydon, & Green, 2014; Sterian & Mocanu, 2013). Students often experience test anxiety due to parental pressure and fear of how their performance may be judged by their teachers (Putwain & Daly, 2014). Putwain and Daly (2014) stated that some feelings of test-anxiousness and worry may transpire when students are concerned with disappointing parents and not fulfilling parental expectations on high-stakes tests. From a physiological viewpoint, test anxiety can cause symptoms such as headaches, nausea, dry mouth, rapid heartbeat, and even panic attacks (Talbot, 2016). For test-anxious students, emotional responses to test anxiety are exhibited through feelings of anger, helplessness, fear, and disappointment (Talbot, 2016).

Factors such as poor test preparation, uneasiness with the testing environment or conditions, feeling intimidated by the test, and experiencing thoughts about test failure create test anxiety for students (Shapiro, 2014). As a result, this anxiety contributes to poor performance and low test scores on high-stakes tests (Shapiro, 2014). Mohamadi,

Alishahi, and Soleimani (2014) found that students suffered test anxiety due to not having knowledge of the test content and being fearful of how the test may affect their future plans.

Talbot (2016) reported that gender differences can be a factor with test anxiety. Female students reported that they are negatively affected by test anxiety and have higher levels of stress and anxiety than male students (Hembree, 1988; Talbot, 2016). The difference in levels stems from female students having a higher level of emotionality in evaluative situations, which can be a factor linked to increased degrees of test anxiety (Putwain & Daly, 2014; Talbot, 2016). Students with learning disabilities or low cognitive skills are another population adversely affected by test anxiety (Segool, Von der Embse, Matta, & Gallant, 2014). Datta (2013) found this group of students to have higher levels of test anxiety before and during testing sessions. The Spielberger Test Anxiety Questionnaire, a reliable and validated instrument designed to measure test anxiety before and during examinations, was administered to the students (Datta, 2013). The results showed that the test anxiety component of worry was greater than the physiological response in an evaluative situation (Datta, 2013).

According to Banks and Smyth (2015), end of the year high-stakes assessments administered to students in the United States and in other countries have led to levels of test anxiety that were identified as unacceptable or unmanageable. Many students possess the knowledge and skills to be successful on high-stakes assessments, but their heightened anxiety negatively affects their performance (Javanbakht & Hadian, 2014).

High-stakes testing often leaves students feeling anxious, concerned, and worried about the consequences of failure associated with performance on assessments versus focusing on the content of the test (Ramirez & Beilock, 2011). Students' sense of worry during testing has led them to be more concerned about their testing ability and how their performance is being assessed or compared to other students (Crisan & Copaci, 2015; Kavakci, Semiz, Kartal, Dikici, & Kugu, 2014). Talbot (2016) stated that even though worry can sometimes be a motivating factor for students when they are preparing for a test, increased levels of worry can actually be incapacitating and produce higher levels of anxiety. For instance, Segool, Carlson, Goforth, Von der Embse, and Barterian (2013) found that students in Grades 3 through 5 experienced a higher incidence of test anxiety with the high-stakes NCLB assessments versus traditional classroom testing. Students encountered increased cognitive and physiological test anxiety symptoms as a result of taking high-stakes assessments (Segool et al., 2013). After reviewing research from around the world, Turnbull (2016) addressed concerns pertaining to the effects of the National Assessment–Literacy and Numeracy on students in Grades 3, 5, 7, and 9 in Australia. In a 3-year (2011-2014) research project, Turnbull (2016) reported that 56% of surveyed parents agreed that the National Assessment was a valuable informational assessment tool. However, 40% of the parents stated that their children showed signs and symptoms of anxiety and stress as a result of their participation in the assessment (Turnbull, 2016). Karatas et al. (2013) reviewed the effect of the high-stakes University Entrance Exam on 194 seniors in a high school in Turkey. Turkey is like other countries

where the competitiveness of college admissions limits the availability of open seats in their university system and where test scores are an integral part of the college entrance process (Karatas et al., 2013). For these students, the level of test anxiety associated with earning the highest score possible on the exam substantially increased (Karatas et al., 2013).

Many research studies have been conducted to examine the influences of test anxiety on students (Sterian & Mocanu, 2013). By recognizing the influences of test anxiety on school students that occur during high-stakes testing administrations, principals, teachers, parents, and policy makers may be able to develop specific interventions to address test anxiety (Segool et al., 2014).

Test Anxiety Interventions

With the pervasiveness of high-stakes testing and the impact of test anxiety on test performance, Weems et al. (2015) proposed that the school setting would be a pragmatic venue for test anxiety interventions to take place. Yeo, Goh, and Liem (2016) suggested that because high-stakes testing begins in the primary educational years of students, test anxiety intervention programs should be introduced to students early on in their education. Talbot (2016) stated that if students are equipped with information concerning how to reduce test anxiety at a young age, it can positively impact their present and future testing outcomes. Teachers can be instrumental in teaching students test anxiety intervention strategies, which can help to decrease the debilitating and stressful effects of anxiety associated with high-stakes testing (Salend, 2011).

Von der Embse et al. (2013) performed a review of test anxiety intervention studies that concentrated on the treatment of test anxiety for students in grades K-12. Nine out of the 10 studies indicated positive findings regarding the reduction of test anxiety (Von der Embse et al., 2013). Evidence-based test anxiety interventions are approaches that have been evaluated by professionals in the field and have been proven to be effective behavioral and cognitive interventions (Macklem, 2011). These intervention research results are linked to the intervention program itself (Macklem, 2011) and are plausible methods for changing anxiety behaviors (Yeo et al., 2016). Behavioral interventions are techniques that place an emphasis on the physiological effects of test anxiety (Talbot, 2016). Systematic desensitization, for example, is a behavioral intervention that uses relaxation techniques during the testing event to create a response that weakens the connection between the test and the fear associated with it (Putwain, Chamberlain, Daly, & Sadreddini, 2014; Talbot, 2016). Relaxation training, another type of a behavioral intervention, employs meditation, deep breathing and controlled breathing exercises to aid in the reduction of test anxiety symptoms (Putwain et al., 2014; Talbot, 2016).

Talbot (2016) described cognitive interventions as methods that concentrate on reducing the psychological effects of test anxiety. These interventions involve the use of techniques such as positive and calming self-talk. Nevertheless, Von der Embse et al. (2013) and Yeo et al. (2016) revealed that when behavioral and cognitive approaches are combined, these approaches are the most successful in decreasing test anxiety and its

symptoms, although each kind of intervention is efficacious when used individually with students. Yeo et al. (2016) found that behavioral interventions supported the treatment of test-anxious students more than cognitive interventions. Putwain et al. (2014) reported similar findings but added that combined or singular use of cognitive and behavioral approaches were successful with the reduction of the test anxiety factors of worry and emotionality. For instance, when worry is demonstrated, cognitive methods are effectual and when emotionality is displayed, behavioral strategies are successful (Putwain et al., 2014).

Mavilidi, Hoogerheide, and Paas (2014) stated that test driven anxiety can disrupt students' working memories and can cause intrusive thoughts or worries during testing situations. Students can benefit from teachers' strategic uses of instructional approaches designed to manage anxiety. Mavilidi et al. (2014) identified a technique that teachers can employ with students. Teachers can give students the opportunity to look through the entire test before the test is administered. This strategy can help students retrieve information previously stored in their long-term memory and can contribute to positive test performance and reduction in test anxiety (Mavilidi et al., 2014).

Since test anxiety is multi-dimensional, alternative interventions may need to be utilized with students. Unconventional intervention programs exist to take a different approach toward reducing test anxiety with students. Lobman (2014) reported on a program, *Performing Beyond Fear*, which focused on the utilization of performance and team building activities, discussions, and stress reduction strategies with teachers and

students in order to effectively deal with anxiety and the emotions attached to high-stakes assessments. Through this type of program, students are shown ways in which to achieve relief from the regiment of repetitive test preparation and learn various approaches to alleviate the negative impact of testing fears and anxiety (Lobman, 2014).

Carsley, Heath, and Fajnerova (2015) promoted the use of mindfulness-based activities as another kind of test anxiety reduction strategy. Mindfulness is a state of focusing deep attention on present experiences without judgment (Bellinger, Decaro, & Ralston, 2015; Carsley et al., 2015). Mindfulness-based activities are exercises that are employed with students to help with negative, anxious thoughts, emotions, and bodily responses that may occur when students feel overwhelmed in a stressful academic setting, such as a high-stakes testing situation (Bellinger et al., 2015). Examples of mindfulness-based activities include yoga, meditation, and breathing exercises. Carsley et al. (2015) studied mindfulness via the use of a mindfulness-based coloring activity, which occurred with elementary students prior to a test administration. This activity was an illustration of how mindfulness-based activities can significantly decrease children's anxiety levels due to their calming, meditative influences. The usage of mindfulness as a test anxiety intervention approach can improve the emotional well-being and cognitive function for students in an evaluative situation (Bellinger et al., 2015). In high-stakes testing situations, where students experience interruptions in their cognitive performance and encounter feelings of worry and anxiousness, mindfulness-based interventions may enable students to dedicate more effort to the test than to the negative emotions that

would interfere with working memory and test performance (Zenner, Hermleben-Kurz, & Walach, 2014). Mindfulness-based methods improved emotional reaction to anxiety-producing conditions and freed working memory resources in a stressful high-stakes testing situation, allowing students to achieve at a higher level on assessments and attain a substantial reduction in anxiety for students (Bellinger et al., 2015).

Huntley, Young, Jha, and Fisher (2016) studied two other intervention strategy options, which, when implemented simultaneously, were found to reduce test anxiety and to improve performance. Study Skills Training (SST) is the way students learn to decipher information in the most effective way and *Test-wiseness* training (Huntley et al., 2016, p.93) is training that places emphasis on the skills required to complete an assessment. The function of SST is to teach useful study habits, test-taking skills, and strategies to students (Motevalli et al., 2013). Motevalli et al. (2013) found that SST on its own is an unsuccessful strategy for reducing test anxiety. However, when SST is combined with systematic desensitization it has been proven to be a more effective intervention in decreasing test anxiety and enhancing academic achievement than either element by itself (Motevalli et al., 2013). Students who learned and used proper test-taking strategies and skills improved their test performance and reduced test anxiety levels (Bicak, 2013). *Test-wiseness* training involves teaching students how to use features or the format of the test, like removing improbable answers or using clues within the tests, to achieve better test score results (Peng, Hong, & Mason, 2014). The employment of *test-wiseness* training with students as a test-anxiety intervention is

effectual because during testing students may experience a greater sense of relaxation, feel more organized, are able to finish the test more comfortably within the testing period, and are able to have sufficient time to check over directions and review answers thoroughly (Peng et al., 2014).

Because test anxiety affects approximately 10%-40% of students, starting at the age of 7, and given the negative effects on students, the use of test anxiety strategies and interventions is an appropriate approach that educators can apply in an educational setting with this population of students (Weems et al., 2015; Talbot, 2016).

Conclusion

The review of literature included studies that related to my study topic and planned test anxiety interventions for an educational setting. Furthermore, the literature provided contextual information about the influence of high-stakes testing on educational practices and student behaviors, student problems linked to high-stakes testing, and test anxiety interventions that teachers employed with students. The literature revealed that the implementation and use of test anxiety interventions with students were effective methods of reducing test anxiety and creating positive student confidence and attitudes before and during testing administration.

Implications

A study of the perceptions and experiences about the influence of high-stakes testing on students provided teachers and administrators with added insight and improved strategies for helping students to manage high-stakes test situations with confidence. The

implications for social change from this project study was that teachers and administrators found new ways of administering high-stakes tests and that students adopted strategies to alleviate potential stressors. Salend (2012) demonstrated that educators can make a difference in the comfort levels of students about taking tests by adopting new test administration practices.

Projects that arose from this study were aimed at all educators, but particularly classroom teachers, to explore and to develop conditions that created positive and productive testing environments. PD workshops were developed for educators from the data analysis and findings of this project study. A PD workshop was developed to address the current gaps in practice at the local high school. Such a program was enhanced by creating additional, updated courses for future staff meetings and by establishing support networks for teachers to continue to share ideas.

Summary

High-stakes testing accountability in public schools has increased the focus on student test score performance (Dotson & Foley, 2016). The importance of producing proficient test results has put stress on school administrators, teachers, and students (Watson et al., 2014). The pressure of performing well on high-stakes assessments has created test anxiety symptoms for students beginning in grade 3 through college level (Yeo et al., 2016). Research studies have indicated that high-stakes assessments have contributed to high levels of anxiety resulting in negative test performance for students (Banks & Smyth, 2015). By providing teachers with knowledge about test anxiety

interventions it offered the necessary resources to help test-anxious students be confident and successful during high-stakes testing administration periods.

Section 1 provided an overview of the project study problem. Section 1 outlined the study and included the local problem, the rationale, the definition of terms, the significance of the study, research questions, and the review of literature. Section 2 offered information about the methodology and research design. Information about the participants, data collection, and data analysis was defined and discussed. This project study was designed to investigate high school English and mathematics teachers' current knowledge, experiences and perceptions about students' preparations and responses to high-stakes testing and to explore teaching strategies that may reduce student test anxiety.

Section 2: The Methodology

Qualitative Research Design and Approach

Qualitative research is a methodology used to examine and understand social or human phenomena from the perspectives of individuals or a group (Creswell, 2009). Mack, Woodsong, MacQueen, Guest, and Namey (2005) stated that qualitative research provides an explanation of human behaviors, thoughts, opinions, feelings, and interactions. Qualitative researchers focus on how people interpret and describe their experiences, how they view their lives in real-world situations, and how they behave in their own environment or setting (Merriam, 2009; Yin, 2015).

I chose a qualitative case study research design for this study because the case study allowed for a deeper examination of a particular program, event, process, or situation (see Creswell, 2009; Merriam, 2009). Gillham (2002) stated that the case study design is a bounded system that investigates individuals, groups, institutions, and communities to verify detailed experiences and to answer specific research questions. Case study research also provides a rich description of the phenomena being studied (Merriam, 2009).

This study of high school English and mathematics teachers' perceptions about the influence of high-stakes testing on students took place in a real-life high school setting. The case study research design allowed me to identify themes or patterns of behavior that were instrumental in helping teachers to understand and to accommodate student testing behaviors before and during testing administration. Algozzine and

Hancock (2014) stated that case studies provide researchers the opportunities to explore a topic more thoroughly by using probing interview questions derived from carefully crafted research questions. The qualitative research design of this study was derived logically from the following research questions:

RQ1: What are high school English and mathematics teachers' experiences and perceptions about their current practices of preparing students for high-stakes testing?

RQ2: What are high school English and mathematics teachers' perceptions of observed student behaviors during test administration?

RQ3: What knowledge and strategies do high school English and mathematics teachers need to assist students with test anxiety reduction?

After a review of various qualitative research designs, I found that the other approaches were not in alignment with my study. Because this study did not focus on obtaining or developing a theory based on the opinions of participants and a comparison of data, I did not employ the grounded theory (see Creswell, 2009). I excluded the narrative research design because I did not collect the stories of my participants (Lodico, Spaulding, & Voegtler, 2010). I also did not consider the ethnography design for this study, as it is a design used to examine cultural groups in their native setting over an extended period (Lodico et al., 2010). Although the phenomenological research design had a likeness to a case study, I did not select this design because it concentrated on the core meaning of lived experiences of individuals and their interpretation of the world

(Merriam, 2009) instead of the perspectives of a group. Based on my exploration of the different qualitative research designs, I selected the case study design and conducted an in-depth examination of high school English and mathematics teachers' perceptions and gathered specific data from participants within the real-life setting of a local high school.

Participants

Criteria for Selecting Participants

Prior to selecting my study participants, I obtained approval from the Walden University Institutional Review Board (IRB) to ensure that the research design adhered to the ethical requirements set forth by the board. To attain approval, I applied to IRB, which included obtaining the approvals of local school district administrators and which delineated information from the project study. The information included an explanation of the proposed data collection process and the protections that were provided to participants. I also identified the criteria for prospective participants, the potential risks and benefits of the study, the plan for guaranteeing confidentiality, and the plan for communicating the findings of the study.

The potential participants were chosen based on the following self-selection criteria: (a) they were state certified English and mathematics teachers who worked with students in Grades 9-12 in the local suburban high school; (b) they had 3 or more years of high school teaching experience; and (c) they were knowledgeable about high school students' behaviors and attitudes. Teachers acknowledged that they met these criteria by self-selecting to voluntarily participate in this study.

For the study, the first 12 volunteers were accepted as participants. If more than 12 teachers responded I sent a thank you note to the teachers beyond the selection number and explained that the required participant spaces for the study had been met. If I had not obtained the 12 volunteers to carry out the study, I would have sent a second e-mail invitation with added information and requested that teachers reconsider participating in the study.

Setting and Sampling Procedures

Once approval was obtained from IRB, I began the selection of participants using a purposeful sampling method. Purposeful sampling is a method that allows the researcher to intentionally choose participants that will aid in obtaining rich and specific information to understand the problem and to answer research questions (Creswell, 2009; Lodico et al., 2010).

I conducted the study in a regional high school in a suburban school district in New Jersey. The total student population was 974 students and there were 93 teachers who worked in the high school. This regional school district consisted of one single building with one superintendent, one principal, and two vice principals. I selected 12 teachers from those who volunteered to participate out of a pool of 11 mathematics and 12 English teachers. Creswell (2009) suggested that, on the average, 10-12 participants are sufficient to reach the point of data saturation. Data saturation is reached when there was sufficient information to duplicate a study and it was determined by the researcher

that new data gathered provided no additional benefits or new information to the study (Fusch & Ness, 2015).

Procedures for Gaining Access to Participants

According to Lodico et al. (2010), when conducting a study in an elementary or secondary setting where there is no IRB committee, it is essential for the researcher to determine who the official or unofficial gatekeepers are in order to gain access to the participants and the study locations. It is also important to learn if there is a process for reviewing the proposal and obtaining approval to perform the study (Lodico et al., 2010). To achieve access to the potential participants for this research project study, I scheduled appointments with the superintendent of the school district and the building principal. During the appointments, I discussed details of the planned study and obtained approval by getting the administrators signatures on the Letters of Cooperation (see Appendices B and C). Alibali and Nathan (2010) stated that before researchers can approach teachers to partake in a study, they must obtain approval in writing from school administrators. Based on the recommendations of the superintendent and principal, I obtained district board of education endorsement.

Once I acquired the signed letters of cooperation from the administrators, I submitted the IRB application along with the letters. After I obtained approval from Walden's IRB (Walden approval no. 12-29-17-0503013), I invited teachers to participate in my study. To begin the process of obtaining teacher consent I performed the following:

1. Procured teacher e-mail addresses from the school district website. Sent an initial e-mail invitation to teachers to describe the study, to ask for consideration to participate in the study, and to provide a copy of the informed consent agreement.
2. Requested that the teachers interested in participating in the study responded using their personal e-mail. Teachers who wished to participate responded with the words “I consent.”
3. Accepted the first 12 volunteers that responded to the e-mail invitation as participants.
4. Additional volunteers who were not selected were sent a personalized thank you note.
5. If I had not received sufficient number of responses within a week of sending the invitation, I would have sent out a second e-mail invitation request with additional information.

The only time that I communicated with the participants was to schedule one-on-one interviews and the focus group interview session, to authenticate data information collected, and for member checking. The process of member checking involves the researcher requesting that one or more of the participants in the study review the findings for accuracy (Creswell, 2012).

Methods for Establishing Researcher–Participant Relationships

To arrange the dates, times, and locations of the interviews, I worked with the participants to organize a suitable time schedule to conduct the interview sessions. I informed the participants that there would not be any interference with instructional time or classroom activities during the process of collecting data. Prior to the start of the study, I shared my contact information with the participants. The participants were permitted to contact me at any time during the study as needed. Moreover, I informed the participants that information obtained was used to answer the research questions and would not be revealed to others. The participants were notified that the data collected would not be utilized for any type of evaluation nor would they be judged for the information they provided. I informed participants that when collecting data, preparing transcripts, and discussing the study I used pseudonyms to protect their identity. To help participants be comfortable during data collection, I told them to only disclose information and experiences that they felt at ease with sharing. As the researcher, my role was to monitor the interviewing environment in order to keep it positive and nonthreatening for the participants. I provided participants with time for breaks during interview sessions, and I allowed opportunities for questions to be asked for clarification purposes.

Ethical Protection of Participants

Research ethics are important for establishing safety measures for study participants (Lodico et al., 2010). Prior to the start of each interview, I reviewed the ethical protections that I had established. The ethical protections were provided to protect

the rights and confidentiality of the participants. The measures of ethical protection that I provided each participant included the following: (a) I informed participants about the purpose of the study, (b) I provided details about the study, (c) I assured private locations for collecting data, (d) I respected participants' perspectives, (e) I used ethical interviewing processes, (f) I secured all data and study information, and (g) I maintained confidentiality.

I notified participants that I was the only individual who had access to all documents and information involved with the study. They were also informed that all project study data would be kept confidential and secured in a locked file cabinet for 5 years from the day of the completion of the study. I explained that once the 5-year time frame expired, all forms of data would be destroyed. This data included all documents, interview transcripts, audiotaped recordings, flash-drives, and any other devices utilized to collect data during the study. Finally, participants' names were not revealed throughout the study; I used pseudonyms in place of actual participant or location names.

Data Collection

The qualitative data collection instruments that I used were one-on-one interviews and a focus group interview. Using qualitative data collection enables the researcher to obtain a variety of viewpoints from individuals based on their experiences, perspectives, and perceptions (Creswell, 2012; Marks & Yardley, 2004). According to Creswell (2012), in qualitative research, multiple types of data are collected. The specific information gathered is used to better comprehend the main phenomena being studied

(Creswell, 2012). Once I received approvals from the superintendent, the principal, and the district board of education and obtained signed informed consent agreements from the participants, I started the data collection.

In case study research, the interview is used to obtain detailed, rich information in the words of the participant so that the researcher can understand how the participants view the world or a situation (Bogdan & Biklen, 2007). Researchers consider a one-on-one interview to be the most popular type of interview (Merriam, 2009). This commonly used interview method is one where one individual obtains specific, descriptive information from another (Merriam, 2009). To answer each research question and to achieve a thorough understanding about the phenomenon being studied and the teachers' multiple viewpoints and experiences for this study, I chose two types of interviews, one-on-one and focus group interviews, as the best qualitative method for collecting data.

One-on-One Interviews

I conducted one-on-one interviews with between 12 volunteer teacher participants, as this method allowed for freedom of expressing perceptions and ideas and creates an atmosphere of ease and comfort (Creswell, 2012). The interviews were conducted after school hours. I provided each participant with a specific date and time for the interview session. However, participants who had a conflict with their scheduled interview time, contacted me through email to set up an alternate interview time. To govern the amount of structure for the interviews, I used a semistructured interview for this study. The semistructured interview process allowed me to use open-ended questions

related to the problem being explored, to use questions in no particular order, and to employ interview questions that followed a less structured format and were worded in a flexible manner (Merriam, 2009). The interviews took place in a private, secure location outside of the school setting. Each interview lasted for approximately 45-60 minutes. Prior to the start of the interview, I reminded the participants about the background information and procedures of the study. This review of information included the purpose of the study, the projected duration of the interview, risks and benefits of being in the study, notice that participation is voluntary, and notice that participants may stop an interview at any time.

To collect the data for each interview, I used an electronic audio recording device. Audio recording is a beneficial data collection tool for a researcher to record the interactions of the interviews and to reexamine interviews at a later date (Lodico et al., 2010).

Merriam (2009) stated that the secret to attaining strong data from an interview is to ask good questions. How questions are worded is critical to obtaining the need information from the participant. To extract the required information during the interview, I asked questions in an unbiased fashion and avoided the use of words or terms that were technical or complicated (Merriam,2009). The conversation style interview questions (Appendix D) were developed by me and were in alignment with the research questions. Questions 1 through 3 were developed from RQ1; questions 4 through 6 were developed from RQ2; and questions 7 through 10 were developed from RQ3. The one-

on-one interviews used open-ended questions to allow participants to answer from their own perspectives and experiences (Bogdan & Biklen, 2007).

Focus Group Interview

The second data collection method that I used was a focus group. A focus group interview is deemed to be an effective data collection tool, as it promotes dialogue between participants who possess knowledge about a particular topic, while also encouraging dialogue from participants who may not be communicative in a one-on-one interview session (Bogdan & Biklen, 2007; Merriam, 2009). Group members were encouraged to engage in a conversation between one another. The goal of the group interaction was to share information and comments based on responses to the interview questions. Using focus group interviews enables the researcher to ascertain the varying views, feelings, and opinions of the participants within the group. The dynamics of a focus group interview can also act as a catalyst, which increases the articulation of thoughts and viewpoints of participants, creates the emergence of ideas, which increases data to be collected (Bogdan & Biklen, 2009).

To conduct the focus group interview, I invited all participants, but I sought between 7-10 teacher volunteers to participate. According to Lodico et al. (2010), when conducting a focus group interview the ideal number of participants to attain the best interaction is 7-10. Focus groups with too many participants can be difficult to manage and can lead to limited participation of individuals in the group and the lack of views or ideas being heard or shared (Krueger & Casey, 2009). Participants were scheduled for the

focus group interview after school hours. The participants were notified about the date, time, location, and purpose of the focus group session via email. If the scheduled date and/or time was not feasible for any of the participants, they contacted me by email. An alternate date and/or time for another focus group session was offered.

According to OMNI Institute (2013), there is a process for conducting a focus group. Prior to the start of the focus group session I arrived at the private and secure room location outside of the school building with the required materials to conduct the focus group. As a method of identifying each other during the discussion, each member of the group was assigned a participant number. The numbers were displayed on name tags given to each participant. This was done to assist the group members with remembering each other's assigned participant numbers and to protect the privacy of the participants on the audio recorded data. To start the focus group session, I had the members begin with introductions. Then I proceeded with explaining the purpose of the study, reviewed the information in the letter of consent that was previously shared with the participants, and discussed the focus group interview protocol (see Appendix E). The focus group interview protocol is a document used by the researcher that consists of interview instructions, explains the interview process, and includes questions to be asked during the interview (Creswell, 2012). Once these steps were completed, I began the focus group session by asking open-ended and probing questions. According to Creswell (2012), probing questions are sub questions asked by the researcher to extract more information and to clarify details from the participant. The focus group interview lasted for

approximately 60 minutes. The questions for the focus group were developed by me and were in alignment with the research questions. Questions 1 and 2 were formed from RQ1; questions 3-5 were formed from RQ2; and questions 6 and 7 were formed from RQ3.

The focus group interview session was audio recorded with an electronic device and transcribed to generate a precise interpretation of each participant's answers to the questions. All interviews were transcribed in a written format.

Role of the Researcher

My role in this study was to function as a human data collection and analysis instrument. In a qualitative study, the researcher is the main tool that is employed in the data collection and analysis. (Merriam, 2009). Therefore, I collected, analyzed, decoded, and communicated the findings of the study. I am a retired high school counselor and former colleague who counseled students in grades 9-12 in this local high school district. As a former employee, I did not hold any supervisory position over the teachers. As a school counselor in the district, I had prior knowledge of how high-stakes testing administration is performed and was a proctor in the testing process. I also had first-hand knowledge and experience with students who have suffered with test anxiety issues. However, I was mindful and vigilant about not imposing my personal viewpoints, biases, and opinions during the interviews. Merriam (2009) stated that it is important for the success of the interview that the researcher remain neutral about participants' responses, beliefs, or opinions, despite what the researcher might feel, think or believe.

In my role as the researcher, I reminded the participants that their identities and their responses to the interview questions were protected and confidential. I assured them that all notes and study drafts referred to pseudonyms and that I was the only person with the code to their identities. The teachers were also assured that the data shared was not used for evaluative purposes. They were promised that the purpose of the study and the data collected were specifically used to investigate high school English and mathematics teachers' current knowledge, experiences, and perceptions about students' preparations and responses to high-stakes testing and to explore teaching strategies that may reduce student test anxiety.

Data Analysis Results

Data analysis involves the interpretation of text data (Creswell, 2009). In a qualitative study, the process of data analysis occurs concurrently with the collection of data (Creswell, 2012). Therefore, I began analysis of my data as it was collected. Once I conducted the one-on-one interviews and the focus group interview, I prepared and organized the data for analysis. To organize the interview information, I arranged the data by participant and type of interview. Then, I listened to the audio recordings and transcribed the information verbatim for each participant into typed, text format using the Microsoft Word program. Transcription is the method of converting the audio recording into text data (Creswell, 2012). To obtain a greater understanding of the data shared by the participants, I listened to the audio recordings numerous times. Creswell (2012) stated that qualitative researchers analyze the data by reviewing the data multiple times to

perform continuous analysis. By completing this step, I was able to get a general sense of the information collected in the interviews. From the transcription of the one-on-one interview data, I obtained 83 pages of authentic information. To confirm the validity and accuracy of the data collected, I used the process of member checking to provide the participants with the opportunity to review and verify the initial findings.

Coding Process

Coding the data was the next step in the analysis process. Coding is the process of arranging the information into text segments, identifying them, and assigning code words or phrases that explain the meaning of text segments (Creswell, 2009; Creswell, 2012). The text segments are phrases or sentences connected to a single code (Creswell, 2012). I read each transcript from the interviews and designated codes that aligned with each research question. Within the transcribed information, I looked for words and phrases that responded to the research questions. I labeled the text to establish descriptions, patterns, and themes from the data (Bogdan & Biklen, 2007; Creswell, 2012). I used the open coding process to identify similar text segments from each participant's interview. Open coding is the process of breaking down, examining, comparing, and labeling the data (Given, 2008). By using a color coding method, highlighted words and phrases were linked to the research questions. The open coding process was completed by hand. Using the method of hand analysis allows the researcher to read the data, mark specific parts of the text, and separate it into sections (Creswell, 2012). Once I identified all of the codes,

based on repetitive words, phrases, and sentences, I organized the coded data into sub-themes and themes.

Research Accuracy and Credibility

To ensure the quality and rigor of qualitative findings, researchers deem credibility, transferability, confirmability, and dependability as trustworthiness criteria (Guba, 1981; Schwandt, Lincoln, & Guba, 2007). According to Creswell (2012), when collecting and analyzing data it is important that the details and findings from researchers as well as the participants are accurate, trustworthy, and credible. It is the responsibility of the researcher to validate the findings to ensure that they are credible and precise (Creswell, 2012). For this to transpire, I performed the process of member checking with my participants and had them review the study's findings for accuracy and any errors or misinterpretations that may have occurred. Member checking is a process for ensuring credibility, where the researcher requests feedback from the participants about the findings of the interview to make sure that they are accurate, unbiased, and thorough (Merriam, 2009). Member checking was used to verify the credibility of my findings. Transferability is when the results of a qualitative study can be applied to similar settings, populations, or situations (Yilmaz, 2013). To determine transferability, I presented thick, rich, and detailed descriptions of the setting and participants as well as the findings of the interviews. Confirmability is a criterion of trustworthiness which verifies that the research findings are based on the data collected from the participants and are not derived from the biases of the researcher (Yilmaz, 2013). Confirmability was determined by the

coding process that I used during analysis and by the comparisons that I made of the data collected from the participants in the interview sessions. Lastly, dependability determines the consistency with which the findings of the study can be repeated and achieve the same or similar results (Shenton, 2004). I achieved dependability by revealing the consistency in the data analysis process and the identification of themes and patterns from the interviews of the participants in my study.

Discrepant Cases

As I analyzed the data, I looked for evidence of discrepant cases. Merriam (2009) stated that discrepant cases are data that may disconfirm or dispute your projected or developed findings. I reviewed the data from the one-on-one interviews and the focus group session. As I searched the transcripts, I looked for examples of data that did not fit emergent themes or patterns. During the examination of the transcripts, I did not locate alternative themes or inconsistent patterns that corresponded to my study.

Findings

The study problem was that high school English and mathematics teachers lacked the knowledge and experience to address and appropriately respond to the signs and symptoms of test anxiety related to high-stakes testing. Based on the analysis of the data, all participants believed that when they thoroughly prepared students for high-stakes tests, students exhibited greater test confidence, reduced stress, and minimum test anxiety. Additionally, all participants recognized that students exhibited varied behaviors in response to test situations, and they tried to respond appropriately to all students,

acknowledge their concerns, and refocus them to provide their best work and performance. Moreover, all participants wanted PD to increase their knowledge about test anxiety and to improve their management of test anxiety reduction and intervention. The participants communicated similar perceptions about how high-stakes tests influence students in their high school environment. They believed that students benefit when they are provided with practice tests and when they are exposed to a variety of test question formats. Participants also believed that they should prepare students for the content, structure, and technology components related to high-stakes tests and they recognize that students react differently to high-stakes test situations. Lastly, the participants believed that they can help students more if they recognize and understand the signs and symptoms of test anxiety and that they need to learn test anxiety reduction strategies and stress-coping skills to help students succeed.

In this section, the themes that I obtained from the collected data are reported and discussed. The following themes were derived from the one-on-one interviews and the focus group interview session: (a) teachers believed that when they thoroughly prepared students for high-stakes tests, students exhibited greater test confidence, reduced stress, and minimum test anxiety; (b) teachers recognized that students exhibited varied behaviors in response to test situations, and they tried to respond appropriately to all students, acknowledged their concerns, and refocused them to provide their best work and performance; and (c) teachers wanted PD workshops to increase their knowledge and to improve their management of test anxiety reduction and intervention. I identified seven

data categories that concentrated on the problem statement and the research questions. I explained the themes using participants' statements, remarks, and comments from the one-on-one interviews and focus group interview session. To present the data results retrieved from the participants' views, thoughts, ideas, and opinions, I used participant numbers to conceal and protect their identities.

The problem that prompted this study was that students in a local high school displayed signs of worry, stress and anxiety during high-stakes testing periods and while high school English and mathematics teachers have observed these behaviors, they were concerned that they were not equipped with the proper knowledge to prepare students for high-stakes testing situations and reducing test anxiety. The following research questions were instrumental in assisting me with structuring my analysis to obtain themes and patterns from the experiences and viewpoints of the teacher participants about students' preparation and responses to high-stakes testing and identifying strategies and interventions to help students with test anxiety reduction:

RQ1: What are high school English and teachers' experiences and perceptions about their current practices of preparing students for high-stakes testing?

RQ2: What are high school English and mathematics teachers' perceptions of observed student behaviors during test administration?

RQ3: What knowledge and strategies do high school English and mathematics teachers need to assist students with test anxiety reduction?

I examined teachers' perceptions about student preparation for high-stakes tests, student behaviors during high-stakes testing sessions and about teaching strategies to increase teachers' knowledge about test anxiety reduction by collecting and analyzing data from one-on-one interviews (Appendix D) and a focus group interview (Appendix E). Based on the evaluation and analysis of all data sources, categories of data were discovered; from the data categories, themes emerged which aligned with the research questions (see Table 1).

Table 1

Perceptions of Teachers About the Influence of High-Stakes Tests –Themes

Research Questions	Categories of Data	Themes
RQ1. What are high school English and mathematics teachers' experiences and perceptions about their current practices of preparing students for high-stakes testing?	<p>Teachers believe that students benefit when they are provided with practice tests and when they are exposed to a variety of test question formats.</p> <p>Teachers believe they should prepare students for the content, structure, and technology components related to high-stakes tests.</p>	Teachers believe that when they thoroughly prepare students for high-stakes tests, students exhibit greater test confidence, reduced stress, and minimum test anxiety.
RQ2. What are high school English and mathematics teachers' perceptions of observed student behaviors during test administration?	<p>Teachers recognize that some students react differently to high-stakes test situations:</p> <ul style="list-style-type: none"> • Some students display physical signs related to anxiety, such as breathing difficulties, sweating, feeling of panic, nausea, stomachaches, headaches, and fearful/tense facial expressions (e.g., furrowed brows) • Some students display cognitive/behavioral symptoms related to anxiety, such as nervousness, fidgeting, worry, blanking out, test avoidance, apathy, boredom, anger, negative self-talk or clock watching 	Teachers recognize that students exhibit varied behaviors in response to test situations, and they try to respond appropriately to all students, acknowledge their concerns, and refocus them to provide their best work and performance.
RQ3. What knowledge and strategies do high school English and mathematics teachers need to assist students with test anxiety reduction?	<p>Teachers believe that they can help students more if they recognize and understand the signs and symptoms of test anxiety.</p> <p>Teachers need to learn test anxiety strategies and stress-coping skills to help students succeed.</p>	Teachers want professional development workshops to increase their knowledge about test anxiety and to improve their management of test anxiety reduction and intervention.

Theme 1

Teachers believe that when they thoroughly prepare students for high-stakes tests, students exhibit greater test confidence, reduced stress, and minimum test anxiety. The first theme showed that teachers believed that when they thoroughly prepare students for high-stakes tests, students exhibit greater test confidence, reduced stress, and minimum test anxiety. This theme was identified from the following two data categories: a) teachers believed that students benefit when they are provided with practice tests and when they are exposed to a variety of test question formats, and (b) teachers believed they should prepare students for the content, structure, and technology component related to high-stakes tests.

Students benefit when they are provided with practice. Teachers believed that students benefit when they are provided with practice tests and when they are exposed to a variety of test question formats. In one-on-one interviews, I asked the study participants, “What do you believe are your responsibilities for getting students prepared for high-stakes testing?” The participants shared ways in which they provided test practice for students prior to high-stakes testing administration. Several of the participants expressed specific practice techniques used with students to aid in test preparation. Participant 3 stated, “My responsibility is to prepare my students by exposing them to the type of questioning that they’ll see on a PARCC assessment or Scholastic Aptitude Test (SAT) I try to incorporate those types of questions so that they

are familiar and comfortable with them.” Similarly, Participant 2 stated, “Trying to incorporate those kind of question styles throughout the school year, both in the instruction and on the summative assessments that they take is one of the biggest things that we’ve done; it’s getting those question types involved.” Instead of using prepared practice materials that mirror the structure of the PARCC test, Participant 1 created questions worded like the assessment questions based on current lessons. This reinforced the regular English classroom lesson, but it also prepared the students for the structure and form of PARCC questions. Participant 7 provided students with the opportunity to see those more difficult topics and concepts so that they wouldn’t feel unprepared.

Participant 7 also helped them to feel more confident with their answers. This assured the students that they would do as much practice as possible and that they would see as much of the testing material as is possible. Another participant stated, “My responsibility is to provide students with as many different varieties and types of problems or questions that they’re going to see so that they can handle anything that is thrown at them.”

Additionally, participants believed that this type of practice was necessary for students to feel confident and experience success when taking high-stakes tests. Participant 10 stated, “It is important to give students a lot of preparation, practice, and positive reinforcement in addition to getting them used to the kind of questions they are going to encounter and making them feel confident before they sit down.” Participant 11 stated, “I truly believe that exposure is important. You have to expose students to everything that they will be encountering on the tests. I feel that when students are exposed to the format of high-

stakes tests and get to practice test taking skills, they become more comfortable. Not only does it take their anxiety down, but it helps to prepare them too.” Every week Participant 11 created a test prep environment and gave students sample test questions on the computer, especially since the PARCC was online. Participating in this type of weekly exercise, allowed students to become familiar with what they would encounter on test day and provided them with ample time to practice. Participant 12 stated, “In class, we do PARCC type questions as *do-now*'s, which are warm- up questions done at the start of class. We have also been doing a lot of practice tests.” To accomplish these tasks, Participant 12 took students to the computer room and gave them exposure to doing online practice tests so that they could get valuable feedback on the different types of high-stakes test questions.

In the focus group interview, the participants were asked to talk about how high stakes testing has affected their current instructional practices in the classroom and affected their students' behaviors during testing. Several of the participants in the group referred to the instructional practices they focused on during class in order to prepare students for high-stakes tests. Participant 5 responded first by stating, “This year, I have been focusing on preparing students more for the test, knowing what the test is going to be like, and practicing the type of questions that they will see.” Participant 2 shared, “I use any information that I can get about the PARCC. For example, whether it be sample problems or practice using graphing calculators, we try to make sure that it gets into our curriculum and into our instruction.” Participant 5 also stated, “By practicing questions,

which are computer-based, it alleviates problems or concerns and gets students more accustomed to what they are going to see on these high-stakes tests like the PARCC. Two of the five participants expressed concern with the increased pressure on instructional practices and covering testing topics and content with students prior to the testing period. Participant 4 stated, “The order of the curriculum and the pacing has been affected. We have been speeding up instruction to make sure that we hit the bulk of the testing topics that they are going to see on the PARCC tests.” Because of the concern with covering all of the topics needed for the tests, Participant 5 shared a technique with the group that he used, where he placed the testing topics on the board and crossed them off as they were completed. Participant 5 believed that this strategy not only helped the pace of instruction but lowered the pressure he felt to cover the necessary testing material and also created an increase in the confidence level of students during testing. Several of the group participants agreed that when students are familiar with testing concepts and components and see similar content, it had a positive effect on students’ behavior during testing. The participants believed that when students knew what to expect on the upcoming high-stakes tests, it made them more comfortable during the testing situation. Feedback from the students following their testing experience provided participants with information about pre-test preparation. Participant 3 stated, “What we noticed throughout the English department is that after taking the test, the students came back and said, ‘I saw that on the test’ or ‘we did that in class’. This showed that students are making that transfer and I think that it makes them calmer and more confident when taking these high-stake tests.”

Participant 5 shared a similar view where students came back post-test saying that they saw many of the questions that they practiced in class and that it made them feel better prepared and more confident while testing.

Teachers prepare students for the content, structure, and technology

components. Teachers believe they should prepare students for the content, structure, and technology components related to high-stakes tests. During the one-on-one interview, seven of the 12 participants referred to strategies incorporated into their classrooms for the test preparation process. Participant 1 stated, “I look at the skills that are required for the PARCC or others standard-based tests and put them into assessments for students throughout the year.” Participant 2 stated, “I am very, very thorough on all the ins and outs of the exam. Participant 2 did this by walking the students through the experience. He told the students what to expect when walking into the room, what to expect to fill out, and what kind of rules might be read to them ahead of time. Participant 2 also recreated the atmosphere ahead of time or at least gave the idea of the atmosphere ahead of time to alleviate some of the little things that students were not expecting.” Another participant commented on what was beneficial to her students when preparing for high-stakes tests. Participant 3 provided students with the repetition of seeing the various types of test questions, pointed out the specific test language being used, showed them how to decode the questions and taught them how to eliminate choices that automatically did not make sense. Participant 6 stated, “I teach my students how to think through the questions and how they can problem solve a way to an answer that makes sense to them.”

Participant 6 did this by teaching students how to read through questions carefully, to break them apart, and to identify context clues that would help them incorporate better problem-solving skills. Participant 7 stated, “I have also incorporated more technology into my classroom curriculum with the use of a computer program by Kahn Academy. This particular program has excellent questions in terms of those lengthy word problems seen on the PARCC.” Because Participant 7 believed that getting students acclimated to the computer was important, he created numerous opportunities for students to work on computers to get comfortable with manipulating the online tools and answering the questions. Participant 10 commented, “It is important to provide students with the testing platform that they are going to use. An example of this is the PARCC. Since students had never taken a test online before, Participant 10 made sure that the students took advantage of online testing opportunities by taking items within the curriculum and giving them the same testing environment, and asking them the same types of questions, so that they didn’t sit down blindly. Additionally, Participant 2 stated, “As a teacher, it is my responsibility to make sure that students are as thoroughly prepared as possible for the content of those exams, for the structure of those exams, and for the tools of those exams.” Participant 2 used the example of the still fairly new PARCC test for mathematics and the online graphing calculator tool provided in the test. Because the mathematics teachers do not have a great mechanism for practicing with the calculator, the teachers have tried to introduce graphing calculators early and often to show students what the online screen looks like. The goal was for students to be better prepared with

how to effectively use the online graphing calculator tool during the testing session.

Participant 11 stated, “Because they are using the computer for PARCC, I do a simulation of what they are going to be tested on. I also know that it is my responsibility to make sure that students understand the format that they are going to be seeing on these high-stakes tests. Participant 11 accomplished these tasks by working on training the students to be confident in themselves and getting them prepared by understanding what the environment of the test is going to be like on testing day. Participant 11 also acclimated students to the platform and process of the test and showed students examples of the actual test. This helped students become familiar with the tools that they were going to use on the computer and gave them some practice with problems that they were going to encounter on the test. Participant 12 shared, “I teach the students how to use the technology for the test effectively because if you don’t know how to use it, you are going to be lost. I also work with my students to show them the format and the language that they need to use for certain types of math questions on high-stakes tests like the PARCC and SAT. Another important component that I work on with my students is coaching them on time management.” Participant 12 believed that time management was a four-year process and that teachers have to instill in students.

During the focus group interview, several of the participants agreed with the importance of preparing students for what is to be expected with the structure, content, and technological components of high-stakes tests. Participant 1 stated, “This year we decided to do a mock test with about 100 Advanced Placement (AP) students in English

to get them acclimated to the structure and components of the test and to get them ready for what was actually going to happen on the day of AP exam. The English teachers believed that the employment of this kind of simulated testing opportunity created a better understanding for students of what to expect from this type of high-stakes test.” Participant 3 further commented about an English class she observed as a supervisor, where students were preparing for the upcoming PARCC test. She stated, “The teacher was making sure to run the students through a practice test, going over the types of questions they were going to see, and getting them comfortable and familiar with the technology that they were going to use.” Participant 3 explained that the main objective of this lesson was to engage the students with the various online tools that they would have access to while taking the test and instruct them on how to use and purpose of each tool. Participant 5 stated, “It is so good that we are now incorporating more technology related to high-stakes tests into the classroom lessons. The purpose of doing this, Participant 5 believed, was to help students be more successful on the mathematics portion of the PARCC, especially because of the test’s function as a graduation requirement. She gave an example of why the use of graphing calculators was beneficial to her students in preparation for the testing. Participant 5 commented, “This year, with the graphing calculators, students felt more comfortable and confident using them because I have incorporated them into our math lessons much earlier in the school year. Now they are better prepared with this vital testing tool.”

Theme 2

Teachers recognize that students exhibit varied behaviors in response to test situations, and they try to respond appropriately to all students, acknowledge their concerns, and refocus them to provide their best work and performance. The second theme revealed that teachers recognized that students exhibit varied behaviors in response to test situations, and they try to respond appropriately to all students, acknowledge their concerns, and refocus them to provide their best work and performance. The data categories that supported this theme were the following: a) some students display physical symptoms related to test anxiety and b) some students display cognitive or behavioral symptoms related to test anxiety.

Students display physical symptoms signs related to test anxiety. Some students display physical signs related to test anxiety, such as breathing difficulties, sweating, feelings of panic, nausea, stomachaches, headaches, and worried/tense facial expressions. Participants agreed that students have shown various behaviors during high-stakes testing administration. Participants also believed that high-stakes testing has created various test anxiety symptoms for students while testing. During the interviews, nine of the twelve participants referred to the observation of some form of test anxious related symptoms during high-stakes testing. Participant 2 commented that he observed, what he believed to be relative test anxiety and he shared that he saw evidence of anxiety in some student's body language. Participant 2 described that he saw the tension in the students' shoulders and faces, as they were reading a test problem. Participant 3 stated that a few students

showed signs of defeat in their body language. This was evidenced by looks of worry and concern on students faces and students holding their heads in their hands. Participant 2 additionally stated, “Sometimes you can hear the deep breaths, where the student may have caught themselves have breathing issues or where they may not have been breathing for a few seconds. It is definitely something that I have seen in almost every testing setting that I have ever been in.” Another case of test anxiety witnessed by Participant 7 was seeing a child who used the whole allotted time. Participant 7 explained that during the last ten minutes of the testing session, time was called, and he could see the student pick up his head and he could see in the child’s face (more so than earlier in the setting) that the stress was setting in. Participant 3 additionally shared, “As far as any stress and anxiety associated with testing, students are more anxious when they get to those questions that they have never seen before. Students have the look of fear and worry on their faces because they feel unprepared. Participant 6 also mentioned, “In my testing room, I have had students begin to experience panic before the test is even distributed. So, I take them out in the hallway and talk with them to calm them down.” Participant 4 observed a few different physicals signs and explained that when she proctored a test, many students were super focused, but she could see the sweat and the anguish. Participant 9 shared that there have also been students who have wanted to leave the room to go to the bathroom because they had a stomachache or that they felt nauseous during the testing. Participant 10 stated, “When the test anxiety level is high, I have had students who needed to step out of the room to get a breath of fresh air because they felt a

warm, physical sensation throughout their body”. Participant 8 stated, “There have been a few times that I have experienced several worried and anxious students on the verge of tears when they thought that they screwed up on the test.” Participant 12 added that a student in her SAT testing session expressed that she was so worried about the outcome of the test and college admissions that she left the room because of a headache. The student did return to finish the test.

Students display cognitive or behavioral symptoms related to test anxiety.

During high-stakes testing, participants believed that they observed more cognitive and behavioral symptoms by students. Participant 4 stated that there were a few students she proctored in a test site who had a half hour to do the section and they were done in five minutes. In this case, although the students are trying to be proud, it is actually a sign of stress and anxiety. Several of the participants shared that before leaving the test site, students have expressed test anxious and worried feelings and reactions with teachers about not performing so well or that they never learned some of the testing material at all. Additionally, Participants described other common test anxious behaviors observed during high-stakes testing administration. Participant 10 shared that just before the testing session was to begin, he spent a few moments talking to several students that were nervous and concerned about the unknown material ahead of them on the PARCC test. These students described having a serious case of the “butterflies” due to the anxiety about the test. Participant 5 stated, “Some of the things that I have noticed are that students are constantly writing and erasing, making noises (like clearing their throats),

moving around, being jittery, and always looking at the clock or at the board where the time is. They are nervous that they are not going to have enough time to finish.” To address this behavior, Participant 5 went over and quietly asked the student if they needed assistance, trying to reduce the student’s anxiety. Participants 7 and 9 shared a similar response about testing behaviors. Participant 7 stated, “I see fidgeting in their seats, fidgeting with pencils and other objects. Participant 9 stated, “You can watch them and see the behavioral changes and the watching of the clock or fidgeting.” The Participants believed that students genuinely came into the testing session ready to take the test and desired to do well. However, several of the participants commented that they observed a gamut of test anxious behaviors from students, ranging from nervousness to anger, belligerence to acting nonchalant and non-caring about the testing. Participant 6 stated, “One of the things that will happen during testing is that students will put their heads down. They actually shut down. I think that when they reach a certain saturation of things they do not understand or know, they may tend to check out.” In another one-on-one interview, Participant 7 shared, “I had those experiences where many students will say that they do not care about the test or that they do not care if they do their best or not.” Participant 10 has observed numerous testing behaviors and stated, “There are so many different ones. Some will use up all of their time and ask for more, some will quickly disengage, sit down and finish up as fast as they can to make it go away. Participant 10 also added that there are some students who blank out and just sit at the computer screens staring, unable to get going. Then there are others who try to avoid the

test altogether by constantly needing to leave the room or they have the inability to calm down and bring it down. Participant 11 additionally commented, “The biggest behavior that I have seen during testing are the students that are sitting there fidgeting, shaking, or moving. These students just want to get up. I’ve seen this lead to anger many times and students shutting down. I have also seen students putting their heads down, starting to pick at their pencils, looking all around the room, looking at the time or watching the clock.

When conducting the focus group interview session, the following situational question was posed: Please tell me about a specific time when you dealt with some type of student test anxiety during testing. What did it look like in the classroom? How did you address the issue? Several of the participants shared some of the physical signs related to test anxiety that they observed during testing situations. Participant 2 stated, “While proctoring a testing session, I had a student start to feel light-headed. The school nurse was immediately called, and the student was quietly helped out of the testing site and taken to her office.” Participant 3 shared another scenario where a student was so fearful and anxious about performing well on the mathematics section of the PARCC test, that he suffered a migraine during testing. This student was escorted to the school nurse’s office and ended up leaving school for the day. Participant 1 mentioned that during an SAT testing session, he noticed a student staring out into space with a worried and stressed facial expression. Since a break was approaching, he spoke to the student to try to reduce some of the anxiety expressed by the student. Four of the five participants

shared their specific experiences related to cognitive/behavioral symptoms observed during testing. Participant 1 stated, “I had one young man last year during the PARCC testing who would actively keep asking me, ‘how much time do we have left?’, even though I continually kept them updated on the time. This student stayed to the very end, using the entire time. It was obvious that he wanted to do the best that he could do. This was the only time that I have observed that kind of anxiety. Each time he asked, I just calmly told him the time and told him to keep working.” Participant 3 added, “I have seen students go into complete shutdown mode. So, what I have done is go into mommy mode and tell them that they can do this and that it’s going to be okay.” Participant 3 also stated, “When I see that students stress levels or levels of worry are high, I remind them of the things that they have done to prepare, such as, lessons with the literacy coach or specific things they have done in the class to prepare. Something that I tell them regularly, is that taking the PARCC test is an opportunity to show what they know.” Participant 5 added, “When I have students that express worry or concern, I also remind them about all of the preparation that they have done. I remind them about the practice tests, their exposure to the technology components of the test, and I reinforce that we have covered all of the necessary material that they will see on the test.”

Theme 3

Teachers want professional development workshops to improve their knowledge about test anxiety and to improve their management of test anxiety reduction and intervention. The third theme identified that teachers want PD workshops

to increase their knowledge about test anxiety and to improve their management of test anxiety reduction and intervention. The two data categories that surfaced were the following: (a) teachers believe that they can help students more if they recognize and understand the signs and symptoms of test anxiety and (b) teachers need to learn test anxiety reduction strategies and stress-coping skills to help students succeed.

Help students recognize and understand the signs and symptoms of test anxiety.

Teachers believe that they can help students more if they recognize and understand the signs and symptoms of test anxiety. During the one-on-one interviews, participants were asked, “Do you feel that all teachers need PD on this topic? Please explain why or why not.” Participant 3 responded, “Yes. I wish I knew a little bit more. Maybe now, after having sat down with you, I’ll look and say, “Is there anything else that we can do to reduce student test anxiety rather than just trying to prepare them and expose them?” Participant 4 stated, “Yes. Because I feel that there is just not enough information out there for teachers to understand each individual student and their needs. The participants believed that there should be better communication about the topic of anxiety and testing.” Participant 5 responded, “Yes. I think that it would help over all. Because I think all students, whether their taking high-stakes tests or even taking a test in the classroom, they get very anxious or very nervous. Participants also agreed that not everyone knows how to deal with it the right way and that every student is different. Participants believed that there are all types of ways to deal with test anxiety. Participant 5 stated, “It would be a good idea for everyone to have some type of training.” Participant 6 stated, “Yes. I

think it would be helpful if we had PD about recognizing test anxiety in a variety of students and strategies that students should use to reset. Some students hide it well.”

Participant 7 added, “Yes. I think it would be helpful to know the signs and some of the behaviors that students might show.” Participants agreed that knowing those behaviors and how to pick up the anxiety is the most important. Participant 7 further stated, “I wouldn’t be able to deal with it unless I knew that the anxiety was happening.”

Participants believed that being prepared and equipped on the topic of test anxiety would be advantageous to all. Participant 8 stated, “Definitely. I think if more teachers get some sort of education on this topic, then they’ll feel prepared and confident, which should at least trickle down to the students.” Participant 11 stated, “Yes. Every teacher is going to have to do testing at some point, whether its high-stakes testing or something in the classroom and there’s going to be something that eventually makes every child uncomfortable or have some anxiety. So, you should be prepared, and you should have tools to help that child. I believe that everyone should have the training to help with learning the signs and symptoms of test anxiety along with strategies to address it.”

Participant 5 responded:

Yes. Educating us on the signs of test anxiety would be helpful because there are the obvious signs of kids who are anxious or in distress during testing. There are also students who sit there quietly and don’t express anything at all. So, clearly, there are other signs that I could look for so that I could really help the student.

A situational question asked during the focus group interview session was, “Imagine that you are a part of a professional development (PD) committee that designs PD programs for staff. What kind of PD would you want to be offered to you to learn about the topics of test anxiety and test anxiety reduction interventions?” Participants agreed that they need to have a PD program on the topic of test anxiety and test anxiety reduction and interventions. Participants believed that it would be valuable to know what to look for and how to address the anxiety. Participant 2 responded, “The best thing that I think can be done is to have PD that gives ideas about what to do if test anxiety situations come up during high-stakes testing.” Participant 5 stated, “I would want to know what test anxiety is and what would a student be doing if they were anxious? I guess looking at the clock constantly would be one type of anxiety, but what are other symptoms and what are solutions?” Several of the participants agreed that they probably had seen some form of anxiety and that they had not picked up on it or recognized it. Participant 4 stated, “I think that maybe I need to see if I even know what I am looking for. Participant 2 then responded:

I agree with what the others have said. It is possible that we may not be noticing anxiety because we have not been trained to identify it. For example, a student could be suffering from a tremendous amount of anxiety that is not actually noticeable to the untrained eye. So, maybe that first step is identifying or providing a list of triggers, characteristics, or symptoms to look for.

Learn test anxiety reduction strategies and stress-coping skills to help students succeed. Teachers need to learn test anxiety reduction strategies and stress-coping skills to help students succeed. In the one-on-one interview sessions participants were asked, “What kind of professional development would prepare you to assist students with reducing test anxiety during high-stakes testing?” Participants agreed that they need to have access to a comprehensive PD workshop on the various aspects of test anxiety and test anxiety reduction strategies and techniques. One of the participants stated, “It would be great to have PD that would tell us what test anxiety reduction strategies work the best and how to effectively implement them with students.” Participant 3 responded, “If we could have a PD workshop that gave us strategies and techniques that we could specifically do, that would work.” Participant 1 stated, “Test anxiety is just going to get worse. It’s just going to increase the more that students are expected to take the PARCC, the SAT, and other high-stakes tests. Testing is not going away. Participant 1 further stated, “I think that it is important to make teachers aware that students might have these concerns, what they can do to help them, and what are the appropriate ways to address it.” As things proliferate in the testing arena, teachers have to be better prepared and equipped with strategies and techniques to assist students with how they are affected by the increase in high-stakes testing. Teachers have to familiarize themselves with what is going on with students and become more effective in recognizing and addressing ways to successfully reduce test anxiety during high-stakes testing. Participant 2 stated, “I can’t say that I have been part of any kind of professional development event that was led by

my administrators on specifically reducing test anxiety. I don't think I've seen anything nor have I really sought much on my own. But, if someone knows of techniques that I should be using or that will help, I absolutely want to know what they are." Participant 4 stated, "Maybe knowing the identifiers of test anxiety would be something that I should learn about and then if there are any strategies, I would want to know them because I do not know any." Another participant responded, "I know that test anxiety does happen to some students, but I have no idea on how to help or counsel them through it. Participants believed that they need to be trained by someone, especially since many of them do not know what to do when a child has test anxiety. Participants also felt that having someone from the outside come in for a PD who has dealt with test anxiety for a living and has good ideas, techniques, and different methods that could be used to help students, would be highly beneficial. Participant 11 stated, "We need to have a PD that will help us to deal with test anxiety and how to identify it because there are some people that just don't know how to identify it and then there are some people who are better at reading other people's emotions. If we had someone like a psychologist, social worker, or anyone in that field come in to tell us about what students are feeling or this is how you identify it and how you work on it, then we could take that information and put it into everyday practice. This would make it so much easier when it comes to high-stakes testing." Participant 7 felt that there are certain useful strategies and techniques that teachers could learn which could be passed onto their students. Participant 8 responded with a similar answer and stated, "I would love to just have some conversations with people from

outside of our district or someone who has experienced the worst-case scenarios or the worst possible anxiety situations with students come to us with strategies.” Participant 9 stated, “I think we should have a workshop where someone would come into speak about test anxiety because I don’t think it’s a topic that’s has been talked about in our school.” Participants believed that teachers need to know that test anxiety occurs and that it is a real problem for some students. Participants felt that teacher should try to identify the behaviors of anxiety and work with students to reduce the anxiety in order to help them be successful on high-stakes tests. Participant 7 stated, “I think there are some teachers that don’t believe in the whole test anxiety thing. They think it’s a way of students escaping the test. Some teachers don’t believe that it’s a real thing.” Participant 7 further stated, “I think that it’s important to have PD to get the exposure out there. Teachers need to know that this is a real problem for some students and make them aware as much as possible that this occurs, and it is real.”

During the focus group interview, the participants agreed on one final thought about learning test anxiety reduction strategies and stress-coping skills. They all felt that it would be valuable to have a PD where they could engage in “what if” scenarios related to test anxiety. This would equip them with how to better deal with anxiety in a testing situation if they ever came upon it.

Discussion of the Findings

In this section, the following three study themes are discussed in connection to the data of the study and the current literature: (a) teachers believe that when they thoroughly

prepare students for high-stakes tests, students exhibit greater test confidence, reduced stress, and minimal test anxiety, (b) teachers recognize that students exhibit varied behaviors in response to test situations and they try to respond appropriately to all students, acknowledge their concerns, and refocus them to provide their best work and performance, and (c) teachers want PD workshops to increase their knowledge about test anxiety and to improve their management of test anxiety reduction and intervention.

Theme 1. The first theme showed that teachers believed that when they thoroughly prepare students for high-stakes tests, students exhibited greater test confidence, reduced stress, and minimum test anxiety. According to Gebril and Eid (2017), the main focus of teachers using test preparation practices is to increase student test scores. However, when students are prepared and familiar with the various types of test questions, it builds testing confidence and reduces test anxiety levels (Gebril & Eid, 2017; Molina, 2014). Participants believed that students benefit when they are provided with practice tests and exposed to a variety of test question formats. Researchers have stated that the exposure and administration of practice tests to students improves retention and increases learning and test score results (Appelrouth, Zabrocky, & Moore, 2017; Arnold & McDermott, 2013; Kulik, Kulik & Bangert, 1984). Participants believed that they should prepare students for the content, structure, and technology components related to high-stakes tests. Gebril (2018) explained that test preparation allows students to become acquainted with test content, format, and test administration guidelines and directions. When technology is involved in testing, it is vital for students to have access

to the appropriate materials and necessary computer skills training to perform effectively on the test (Gebril, 2018).

Theme 2. Teachers recognized that students exhibit varied behaviors in response to test situations, and they try to respond appropriately to all students, acknowledge their concerns, and refocus them to provide their best work and performance. Segool et al. (2013) explained that by understanding the increased test anxiety behaviors that students experience during high-stakes tests, teachers can effectively prepare them to cope with these kinds of assessments to obtain successful test performance. Moreover, if teachers provide students with the necessary information and knowledge to reduce test anxiety, it can result in positive test performance outcomes now and in the future (Talbot, 2016). Participants recognized that some students react differently to high-stakes testing situations. Sterian and Mocanu (2013) shared that during various testing events, students experience severe anxiety symptoms, which negatively affect test performance. Segool et al. (2013) and Talbot (2016) explained that students experience physiological, cognitive, and behavioral test anxiety signs and symptoms before and during high-stakes testing sessions. Participants believed that students display physical responses such as stomachaches, headaches, and fear, while others display cognitive/behavioral responses such as fidgeting, worry, nervousness, clockwatching, boredom, and apathy. Talbot (2016) explained that although the physiological and cognitive factors of test anxiety function separately, they essentially work together. For students, negative effects on the

body during testing can escalate adverse reactions in the mind and vice versa (Talbot, 2016).

Theme 3. Teachers want PD workshops to increase their knowledge about test anxiety and to improve their management of test anxiety reduction and intervention. Driscoll (2015) stated that since test driven anxiety can disrupt a student's ability to perform well and can cause high levels of stress, low self-esteem, poor grades, and negative views of school, teachers are seeking the resources and strategies to provide students with test taking practices and test anxiety reduction strategies. Using PD as the catalyst for change in the classroom setting provides teachers the opportunity to remain abreast of current educational practices to address student needs and to enhance student achievement outcomes (Patton, Parker, & Tannehill, 2015). Teachers believed that they can help students more if they recognize and understand the signs and symptoms of test anxiety. Research by Lattuca, Bergom, and Knight (2014) explicated that when teachers engage in useful and effective PD they will possess resources to prepare and aid students appropriately. Teachers need to have the opportunity to engage in PD that is effective and focused on transforming their specific need into new knowledge, skills, and practices for implementation with students (Darling-Hammond & McLaughlin, 2011; Patton et al., 2015; Poekert, 2011). According to Patton et al. (2015) and Parker, Patton, and Tannehill (2012), it is beneficial for teachers to participate in identifying their professional and learning need for the PD to be an effective experience to address student issues. Teachers need to learn test anxiety strategies and stress-coping skills to help students succeed.

Matherson and Windle (2017) stated that teachers want PD experiences that provide them with opportunities to actively engage in hands-on practice of skills, methods, and strategies prior to implementing them with students. Teachers desire PD that not only prepares them but can also be utilized instantaneously to deliver suitable instruction to students and provide them with what they need most (Matherson & Windle, 2017).

The conceptual framework for this study was based on the test anxiety construct of Liebert and Morris (1967). Liebert and Morris's construct focuses on the bi-dimensional anxiety components of worry and emotionality, which are interconnected and generated during various evaluative situations. The Liebert and Morris test anxiety construct concentrates on the physiological and cognitive reactions that students display while engaged in testing circumstances. This conceptual framework provided background information that provided teachers with knowledge about test anxiety. Moreover, this conceptual framework supported the need for equipping teachers with information about test anxiety reduction interventions and strategies.

The three themes showed what teachers believed about the importance of preparing students effectively for high-stakes tests, teachers' recognition of the various behaviors displayed by students during testing situations, teachers' responses and concerns for these behaviors, and teachers' desire to have appropriate PD to enhance their knowledge about test anxiety and test anxiety reduction and intervention with students. Teachers discussed specific methods and practices used to prepare students for various high-stakes tests faced by students. Teachers explained that they felt responsible for

preparing students for high-stakes tests by using practice tests and exposing them to the different types of test questions they would encounter during the testing sessions.

Additionally, teachers expressed the importance of students being prepared about test content, the structure, and format of the test, and being provided with the opportunity to practice with the technological tools and components related to the high-stakes tests.

Teachers described the various behaviors exhibited by students before and during testing administration and how they responded. I anticipated more examples of how teachers responded to the behaviors. However, several teachers discussed their concerns and hesitation with not breaking the testing protocol by addressing student behaviors during the testing period. Teachers expressed their desire for PD on the topic of test anxiety, learning the signs and symptoms, and learning test anxiety reduction intervention and stress-coping skills and strategies. I was surprised to learn that one of the teachers preferred not to spend an entire day for PD on the topic of test anxiety.

Conclusion

In obtaining the various perspectives of high school English and mathematics teachers about the influence of high-stakes testing on students, I addressed the three research questions for this study. The research questions addressed teachers' experiences and perceptions about high-stakes testing preparation practices, teachers' perceptions of student behaviors observed during test administration, and what knowledge and strategies do teachers need to aid students with test anxiety reduction. I studied the themes, then I examined the three research questions to address the discovered themes:

RQ1: What are high school English and mathematics teachers' experiences and perceptions about their current practices of preparing students for high-stakes testing?

Theme 1 indicated that teachers believed that when they thoroughly prepare students for high-stakes tests, students exhibit greater test confidence, reduced stress, and minimum test anxiety. Teachers believed that students benefit when they are provided with practice tests and when they are exposed to a variety of test question formats. Participants shared their perceptions about specific approaches taken in the classroom to prepare students for high-stakes tests. Teachers believed they should prepare students for the content, structure, and technology components related to high-stakes tests.

RQ2: What are high school English and mathematics teachers' perceptions of observed student behaviors during test administration?

Theme 2 indicated that teachers recognized that students exhibit varied behaviors in response to test situations, and they tried to respond appropriately to all students, acknowledged their concerns, and refocused them to provide their best work and performance. Participants shared their perceptions about the various student behaviors they observed during high-stakes testing sessions and the ways in which they responded to those behaviors. Teachers recognized that some students react differently to high-stakes test situations. Some students displayed physical signs related to test anxiety, while some displayed cognitive and behavioral symptoms. Participants shared experiences about student behaviors witnessed during testing.

RQ3: What knowledge and strategies do high school English and mathematics teachers need to assist students with test anxiety reduction?

Theme 3 indicated that teachers wanted PD workshops to increase their knowledge and to improve their management of test anxiety reduction and intervention. Teachers believed that they can help students if they recognize and understand the signs and symptoms of test anxiety. Participants shared their desire for a PD program that addresses how to identify test anxiety behaviors in students. Teachers requested opportunities to learn test anxiety strategies and stress-coping skills to help students succeed.

Based on my findings, teachers need information about test anxiety and test anxiety reduction and intervention strategies to assist students with succeeding on high-stakes tests. I propose that a PD workshop may provide teachers with useful strategies that can be implemented in their classrooms. In Section 3, I will utilize the information from the findings to develop a project to provide teachers with useful strategies that they can implement with students to aide in the reduction of test anxiety and to improve testing outcomes of students.

Section 3: The Project

The purpose of this study was to investigate high school English and math teachers' current knowledge, experiences, and perceptions about students' preparation and responses to high-stakes testing and to explore teachers' perceptions about teaching strategies they need to reduce student test anxiety. Through my data collection, I captured the perceptions of high school English and mathematics teachers about the influence of high-stakes testing on students. The themes revealed teachers' perspectives about high-stakes test preparation methods and practices and test-anxious behaviors observed before and during high-stakes testing administration. In this section, I will develop a project based on the genre of PD. The goal of this project is to provide teachers with information on test anxiety, test anxiety reduction strategies, and anxiety interventions that teachers can use to lessen students' test anxiety and to improve students' test performance.

In this section, I provide a project description, the goals of the project, rationale, implementation, potential barriers and resources, and existing supports to aid teachers who would like to use information from this project to foster social change in their school. To create a deeper understanding of the themes of my study, I conducted a review of the literature to explore how theory and research support the project content and themes of the study. This section concludes with an evaluation of the project and a summary of possible social change implications.

Project Description and Goals

This project is a 3-day PD for teachers who want to enhance their knowledge about test anxiety and the test anxiety reduction and intervention strategies that can be employed with students before and during high-stakes testing situations. This project was created from the identified themes, which revealed that teachers understand the importance of addressing student test anxiety related to high-stakes testing and want to learn effective test anxiety reduction and intervention strategies to use with students. The primary goals of this PD are to provide teachers with the knowledge about (a) test anxiety related to high-stakes testing, and (b) test anxiety reduction and intervention strategies that can be implemented with students.

On day one of PD, I will present an overview of the 3-day PD schedule. First, I will engage teachers in a brainstorming activity to assess their current knowledge and experiences with high-stakes testing preparation, test anxiety, and test anxiety reduction and intervention strategies. After the assessment activity, I will present research-based information on test anxiety, test anxiety behaviors, test preparation, test-taking skills and strategies, and test anxiety reduction and intervention strategies. Lastly, I will have teachers participate in a closing reflection activity to share what they expect to learn by the end of the 3-day PD.

On the second day of PD, I will have teachers begin part one of an interactive PD group activity. Teachers will be organized into groups and presented with multiple case study scenarios based on different test anxiety behaviors that can occur before and during

high-stakes testing sessions. The first set of case study scenarios are based on the physical signs of test anxiety that can be observed during testing. Teachers will work collaboratively to problem solve and list ways to deal with the various behaviors described in each case study.

During the third and final day of PD, I will continue to present case study activities to the teachers. This set of case study scenarios are based on the cognitive and behavioral symptoms of test anxiety observed before and during high-stakes testing. After the activity, I will review, list, and discuss the test anxiety reduction and interventions that teachers came up with during the interactive group activities for days two and three. By the end of the PD, teachers will have increased knowledge and information about high-stakes testing, test anxiety, and what test anxiety reduction intervention strategies can be effective with students before, during, and after high-stakes testing administration. Teachers will also leave the PD with a hand-out of test anxiety reduction and intervention strategies to be used as a future resource. To obtain feedback about the 3-day PD, teachers will complete a written evaluation form on the final day.

Rationale

The problem that prompted this study was that students in a local high school exhibited various test anxiety signs and symptoms related to high-stakes testing and high school English and mathematics teachers needed help learning test anxiety reduction and intervention strategies to use with students. Matherson and Windle (2017) stated that teachers desire PD experiences that provide them with opportunities to actively engage in

hands-on practice of skills, methods, and strategies prior to implementing them with students. Althausser (2015) stated that in order to bring about progressive changes in student achievement, it is essential for teachers experiencing PD to concentrate on increasing pedagogical knowledge, demonstrating best practices, and focusing on their thoughts and attitudes toward students' learning needs. The goal of a PD is to provide an opportunity for teachers to evaluate their current methodologies and practices (Althausser, 2015). I created this project to increase teachers' knowledge about effective test taking skills and best practices; I also sought to help teachers learn how to recognize and address the physical, cognitive, and behavioral signs and symptoms of test anxiety. Teachers realize that engaging in PD activities is a key element of being lifelong learners who keep pace with current innovations and enhancements and who continuously cultivate their abilities and instructional skills (Swennen & Van der Klink, 2009; Van der Klink, Kools, Avissar, White, & Sakata, 2017).

My decision to select a genre of PD was based on the themes of my study. Teachers needed interventions and strategies to assist students who experience stress and worry before and during high-stakes testing situations. Teachers desired PD programs that provide new skills and that can also be used instantaneously to deliver suitable instruction to students (Matherson & Windle, 2017). The PD was created using the constructs of job-embedded learning. Smylie (2014) stated that PD is most successful when it is a consistent part of the entire school development program. Job-embedded professional development (JEPD) is a school- or classroom-based teacher growth and

development experience encountered throughout the day-to-day teaching practice (Zepeda, 2015). This form of PD is designed to promote teacher collaborative efforts regarding teacher practices, student assessment, and teaching philosophies, while also increasing knowledge in the context of the work environment and providing educators with new and evolving practices (Zepeda, 2015).

The PD was designed based on the data analysis derived from one-on-one interviews and the focus group interview session. The data analysis highlighted categories of data and themes about high-stakes testing preparation methods and practices and student test anxiety behaviors observed by teachers before and during high-stakes testing. I addressed the problem of my study by developing a PD that includes the evaluation of teachers' current knowledge, experiences, and professional requests about test preparation, test-taking skills and strategies, test anxiety, and test anxiety reduction and intervention strategies through a group brainstorming session and interactive collaborative group activities. Each PD session is grounded in the study participants' perceptions about high-stakes testing preparation practices, observed test-anxious behaviors related to testing, and the need for test anxiety reduction and intervention information.

I created a PowerPoint presentation for the study participants that outlines the learning objectives and outcomes of the 3-day PD. The PowerPoint presentation also includes the group brainstorming session questions. The presentation was developed to assist teachers with examining their current test preparation and test-taking skills and

strategies practices and their understanding of test anxiety, test anxiety behaviors related to high-stakes testing situations, and test anxiety reduction and intervention strategies needed to assist test-anxious students during testing administration. A PowerPoint presentation handout will be given to each participant with space to record notes. On the first day, participants will be presented with questions during the group brainstorming session related to the topics of high-stakes testing preparation, test anxiety, and test anxiety reduction and intervention strategies. This activity will help to assess the current knowledge and experience of the group. During day two of the PD, teachers will be involved in part 1 of a peer group collaboration activity, solving case study scenarios related to physical signs of test anxiety seen before and during high-stakes testing situations. On day 3, part 2 of peer group collaboration, solving case study scenarios will continue. These scenarios will involve cognitive and behavioral symptoms of test anxiety observed before and during high-stakes testing sessions. During both case study scenario activities, one volunteer participant from each peer group will take notes, recording the case study solutions of the group. Day 3 concludes with a discussion with the participants about the various test anxiety reduction and intervention strategies brought forth by the peer group collaborations. A list of the test anxiety reduction and intervention strategies will be listed on a dry-erase board in front of the room for reference. At the end of the PD, each participant will leave with a hand-out of test anxiety reduction and intervention strategies that they will be able to use in the future as a resource to assist test-anxious students before and during testing situations.

Review of the Literature

In the review of the literature, I searched and analyzed research studies that aligned with the topics test preparation, test anxiety behaviors and strategies, and effective PD for teachers. To guide the literature review, I searched for peer-reviewed literature using databases from the Walden University Library. The databases used included Education Source, Education Research Complete, ERIC, Thoreau multiple databases, ProQuest Dissertations, SAGE Journals, ScienceDirect, Taylor and Francis Online, PsycINFO, and PsycARTICLES. To search for additional literature, I used Google Scholar and Google. When conducting the searches, the following keywords and search terms were used: *test preparation, exam preparation, test-taking skills, test-taking strategies, study skills, student test behaviors, high-stakes testing behaviors, test anxiety signs and symptoms, test anxiety behaviors, professional development, teacher development, and teacher learning*. The review of literature allowed me to explore my findings and helped me to link the following themes with the research topics:

1. test preparation and test-taking skills and strategies,
2. strategies and interventions to address test-anxious behaviors, and
3. PD to enhance teachers' knowledge and instructional practices.

In the following review of literature, I present scholarly research that connects to the study themes and supports the PD activities.

Test Preparation and Test-Taking Skills and Strategies

With the increased use of high-stakes testing as a means of accountability in educational systems all over the world, test preparation activities are on the rise (Deville & Chalhoub-Deville, 2011; Gebril & Eid, 2017). Test preparation includes the activities or practices used with students to get them ready for testing situations (Gebril, 2018). Li and Xiong (2018) explained that test preparation is also a process of teaching students test-taking skills and assisting them with becoming acclimated to the testing environment. Welsh, Eastwood, and D'Agostino (2014) reported that the activities associated with test preparation are instrumental in helping students get accustomed to test content, format, instructions, and time management skills.

Test-taking skills are test preparation practices (Gebril, 2018). These skills are the cognitive skills that assist students with transferring the knowledge acquired from classroom learning to answering test questions and handling testing experiences (Dodeen, Abdelfattah, & Alshumrani, 2014). According to Dodeen et al. (2014), test-taking skills are a key factor in helping students to understand what to do before, during, and after a test situation. Test-taking skills have also had a positive effect on the academic success of students and their overall test-taking proficiency (Dodeen et al., 2014). For example, Molina (2014) and Gebril (2018) stated that there are research studies that have reported students' self-confidence and test performance can increase when exposed to appropriate and effective test preparation activities. Self, Weaver, Machucha, Lockwood, and

Sullivan (2016) reported that students provided with test preparation tools, experience greater test familiarity, increased test success, and reduced levels of test anxiety.

To achieve success when taking a high-stakes test, it is important for students to not only have content knowledge of the test and receive effective preparation (Stenlund, Eklöf, and Lyrén, 2017), but to have a clear understanding of how to use appropriate test-taking strategies while testing (Bicak, 2013; Bond & Harman, 1994). Jackson and McGlenn (2014) reported that test preparation impacted the test scores of high and low performing students and the more students are exposed to practical and applicable test information, the greater opportunity for positive test results. Jackson and McGlenn (2014) also found that an effective test preparation strategy is providing students with the opportunity to practice for state tests and become familiar with all aspects and components of the test.

Gebril (2018) stated that test preparation is an important component of teachers' instructional practices and that teachers are responsible to try their best to incorporate it into their classroom regimen. Part of this preparation process includes helping students to learn how to study properly and use test-taking strategies and skills effectively (Salend, 2012). According to Al-Hilawani (2016), study skills "help students during the learning process to acquire, retain, and produce new information", (p. 75). Researchers reported that students who possess effective study skills experience less test anxiety and increased academic success (Ergene, 2011; Numan & Hasan, 2017) compared to students with poor study habits and inadequate study skills. (Cassady, 2010; Heiman & Precel, 2003; Salend,

2011). If students are not properly taught effective study habits, then their performance can be negatively impacted. Since each individual student is unique, teachers should incorporate various test-taking and study skills strategies into test preparation activities for students (Numan & Hasan, 2017). Salend (2012) reported that teachers can play an active role in properly preparing students for tests and reducing test anxiety by teaching students how to use test-taking strategies such as, answering the easiest questions first, teaching students how to respond to specific types of questions, using mnemonic learning strategies, and incorporating educational games using test content (Salend, 2012). Additionally, teachers can teach students time management skills, which will help them learn how to allot their testing time appropriately and efficiently (Motevalli et al., 2013).

Study skills consist of various components such as textbook reading, memory, time management, note-taking, test preparation, and concentration (Congos, 2010). One of the most essential components of these study skills which students need to succeed is time management (Jansen & Suhre, 2010). Brophy (1986) made the following observation, “student achievement is maximized when teachers allocate most classroom time to activities designed to promote student achievement and use managerial and instructional strategies that support such achievement” (p. 3). Time management is seen as a method for students to gather control of their situations by organizing time and resources to cope with stressful conditions and to reduce levels of anxiety (Adamson, Covic, & Lincoln, 2004; Häfner, Stock, & Oberst, 2015; Häfner, Stock, Pinneker, & Ströhle, 2014). Gardner identified four key time management strategies for students: (a)

eliminate distractions, (b) focus on the task at hand, (c) organize and plan each day, and (d) use a task list or checklist to monitor achievements. When students learn proper time management skills, performance can be enhanced (Numan & Hassan, 2017).

Another effective study skill strategy is note-taking. Note-taking can be employed with students to process, organize, and transform information (Chandler, 2017). The goal of note-taking is to help students develop their ideas and to assess and synthesize information. Note-taking is also designed to help students with improving memory instead of engaging in memory storage and traditional methods of copying notes verbatim (Chandler, 2017). According to Boyle and Forchelli (2014), note-taking can increase students' learning, ability to recall information at a later time, and comprehension of material if the notes are aptly recorded.

Three major ways to perform note-taking is by writing direct quotations, summarizing, and paraphrasing (Rozakis, 2018). Rozakis (2018) reported that for students who consistently engage in the note-taking process, the most effective techniques included divided-page format, webbing, visuals, lists, and paragraphs. Outlining and highlighting are also additional methods of note-taking that are useful to students for organizing and categorizing information (Rozakis, 2018).

Note-taking functions as the connection between the content being taught by teachers and the information being learned by students (Boyle, Forchelli, & Cariss, 2015; Castello & Monereo, 2005). Moreover, the notes created from teacher presentations are linked to good test performance. Notes can serve as a study guide to aid students in

achieving higher scores on tests. Boyle (2010a, 2010b, 2013) reported that, in addition to note-taking being beneficial to student learning during lectures, notes that are recorded accurately can provide students with the information needed to effectively prepare for testing.

Mnemonic techniques can provide support to test taking students by helping them to remember key words, phrases, and ideas. Rozakis (2018) reported that the most commonly used mnemonics by students include: (a) acronyms, (b) poems or puzzles, (c) jingles, (d) mind maps, (e) sayings, and (f) songs. According to Weinstein and Acee (2018), mnemonics are memory techniques or cues used to prod the mind and help students recall information. In addition to mnemonics being used to help students recall information, mnemonics can possibly aid in the reduction of stress, create relaxed thinking for students, and help students perform more proficiently on tests (Mocko, Lesser, Wagler, & Francis, 2017). Mnemonic strategies are also considered to be learning strategies that increase learning and helps students utilize information previously stored in their long-term memory, thus making the process of memorization easier (Jurowski, Jurowska, & Krzeckowska, 2015).

In a study by Mocko, et al. (2017), students shared that using mnemonic strategies reduced their test anxiety for the post-course statistics exam and anxiety about learning statistics material. Similarly, Stalder and Olson (2011) found that students who recalled a greater number of mnemonics experienced a greater reduction in test anxiety levels. The finding of the Stalder and Olson (2011) study supported that the use of mnemonics

contributes to lowering anxiety, especially for high-stakes tests. Through the process of learning various test preparation and test-taking skills and strategies, students can be equipped with information that they may need as they encounter assessment situations (Motevalli et al., 2013).

Strategies and Interventions to Address Test-Anxious Behaviors

All students are tested at various levels of their education and during numerous times of their academic life (Von der Embse & Hasson, 2012). Since teachers are a major part of the testing regimen of students, they can observe and recognize the physical, cognitive, and behavioral signs and symptoms of test anxiety related to high-stakes testing situations (Salend, 2011; Salend, 2012). Upon discovery of these test-anxious behaviors, teachers can take steps to help students with reducing the stress and anxiety experienced before, during, and after testing administration (Salend, 2011).

Students experiencing stress and anxiety in relation to testing can exhibit physical, cognitive, or behavioral responses (Salend, 2012). The physiological or emotionality component of test anxiety is the response of the autonomic nervous system that is triggered by the stress of testing (Datta, 2013). For example, Talbot (2016) and Salend (2012) reported that some of the physiological symptoms that can be observed before and during testing include, increased perspiration, headache, dizziness, stomachache, nausea, dry mouth, pencil tapping, flushed skin, nervousness, and rapid heartbeat. From a cognitive perspective, behaviors such as worry, fear, blanking out, negative self-talk, panic, apathy, test avoidance, and boredom are evidence that test anxiety exists (Salend,

2012; Talbot, 2016;). Datta (2013) stated that these reactions are caused by concerns that students feel about the consequences of failure in a testing situation. Lastly, some of the behavioral expressions of test anxiety displayed by students in testing situations include, crying, fidgeting, pacing, foot tapping, staring, anger, and absenteeism on test day (Salend, 2012).

Teachers can be instrumental in addressing test-anxious behaviors and in assisting students with the reduction of stress and anxiety while encountering evaluative situations, by using various interventions and strategies with students (Salend, 2012). Salend (2012) suggested that students can employ these interventions and strategies before, during, and after testing sessions. Yeo et al. (2016) reported that using a combination of behavioral and cognitive test anxiety interventions with students is the most effective. However, both types of interventions are also effective as individual approaches (Yeo et al., 2016). For example, teaching behavioral approaches for relaxation techniques to students, such as deep breathing exercises and using positive self-talk exercises, can be beneficial for reducing test anxiety (Cizek & Burg, 2006; Salend, 2012). Larson, Ramahi, Conn, Este, & Ghibellini (2010) found that students in third grade who experienced reduced test anxiety levels were taught relaxation techniques; concomitantly, third graders who did not have the same intervention demonstrated higher levels of anxiety. Weems et al. (2015) reported that students ages 8-17 experienced reduced test anxiety after participating in relaxation techniques training sessions. Teachers can also help students reduce test anxiety by learning muscle relaxation or visualization exercises or by sitting

them in areas of the room that are less distracting, such as away from the door or windows (Salend, 2012).

To help with reducing cognitive related test-anxiety, teachers can also initiate mindfulness practices in the classroom with students (Bellinger et al., 2015). Mindfulness is based in meditation and breathing techniques and focuses on decreasing the thoughts of worry that are often linked to testing (Bellinger et al., 2015; Carsley et al., 2015). According to Bellinger et al. (2015), using a mindfulness approach can improve the emotional reactions of anxiety and worry that are produced by high-stakes testing situations. For example, mindfulness meditation is a technique that includes body scanning, a form of guided meditation and deep abdominal breathing (Bamber & Schneider, 2016). Body scanning is the focus on the awareness of breathing, bodily sensations, thoughts, feelings, or emotions (van der Reit, Rossiter, Kirby, Dluzewska, & Harmon, 2015). van der Reit et al. (2015) reported that the main objective of the body scanning practice is to help students reduce stress and anxiety.

Deep breathing is another intervention that can directly reduce anxiety. This type of breathing promotes relaxation, particularly with the physiological effects of anxiety (Khng, 2017). In a study by Khng (2017), students reported that by engaging in deep breathing exercises, prior to testing, their anxiety was reduced, and their test performance improved. Sellakumar (2015) reported that the use of slow-deep breathing with students can be incorporated into instructional practices to assist students with stress and test anxiety. Slow-deep breathing is a yoga breathing technique that involves inhaling deep

breaths from the lower abdomen through the nostril slowly, holding the breath for a few seconds, at then exhaling the breath out slowly (Sellakumar, 2015). The action of inhaling creates relaxation and regulates the control of the autonomic nervous system (Sellakumar, 2015). The result of Sellakumar's (2015) research suggested that after engaging in the practice of slow-deep breathing, there is a considerable reduction in test anxiety.

An additional intervention to aid in the reduction of anxiety is expressive writing. Expressive writing has been used to help individuals to freely express their thoughts and feelings about a stressful situation or event (Park, Ramirez, & Beilock, 2014). For example, in a study by Ramirez and Beilock (2011), a group of students were instructed to engage in a writing exercise for 10 minutes to share their worries about an upcoming mathematics examination or to write about an unrelated topic in order to offer a distraction from their test worries. The findings indicated that students who participated in the expressive writing intervention performed considerably better than students who did not write (Ramirez & Beilock, 2011). Ramirez and Beilock further reported that when students' express thoughts and feelings in writing prior to taking a test, it can reduce anxiety and benefit students' performance on high-stakes tests.

With the increased focus on the outcomes of high-stakes testing for students, teachers must be cognizant of the test-anxious behaviors displayed by students. Therefore, teachers must also continue take actions to assist students with reducing test

anxiety by employing interventions and strategies that are effective and appropriate (Salend, 2011).

Professional Development to Enhance Teachers' Knowledge and Instructional Practices

The majority of teachers participate in PD programs because they have the desire to become better teachers (Guskey, 2002). Guskey (2002) found that what draws teachers to PD is the understanding that their knowledge and skills will be enhanced, professional growth will occur, and they will increase their instructional effectiveness with students. According to Darling-Hammond, Hyster, and Gardner (2017), effective PD is defined as an organized and planned professional learning activity that transforms teacher practices and contributes to improving educational and achievement outcomes for students. Darling-Hammond et al. (2017) reviewed numerous studies over the past 30 years and found that effective PD most often features components which include the following: (a) focused content (e.g., teacher strategies linked to specific practices, discipline, grade, and curriculum); (b) engaging and interactive activities; (c) teacher collaboration; (d) curricular and instructional models of effective practice; (e) coaching and expert support; (f) teacher reflection and feedback; and (g) continuous hours of practice and learning over an extended period of time.

The benefits of teachers being exposed to well-designed and effective PD, are that they are provided with the opportunity to self-assess their performance as well as their students, enhance the development of their instructional practices, and make changes to

the educational needs of students, which will improve student learning and achievement (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Patton et al., 2015). Lattuca et al. (2014) reasoned that when teachers engage in useful and effective PD, they possess resources to prepare students appropriately.

Bayar (2014) found that teachers believe PD is effective if it is designed to meet the needs of teachers, lasts for an extended period of time, and allows teachers to interact on a regular basis. By affording teachers the opportunity to model, to reflect on newly learned practices and strategies, and to become engaged in real-life interactive problem-solving practice is essential (Smylie, 2014).

Smylie (2014) reported that PD should be created based on how teachers learn. Jenlick and Kinnucan-Welsch (1999) stated that teachers learn by interacting in activities that are socially and culturally embedded within their profession. Teachers are adult learners and as such, when they engage in PD, it acts as a form of adult education. The PD concentrates on what teachers need and shifts to different contexts in which they learn and teach (King & Lawler, 2003).

Knowles's (1968) andragogy theory outlined six core principles about the needs of adult learners. The first principle identified that adults learn what they need to know. This principle maintains that teachers should be involved in the development of their own PD so that it becomes a valuable learning experience and is designed around what they feel is needed to be better educators (Knowles et al., 2005). The second principle of adult learning stated that adults possess their own self-concept and are responsible for their

own learning (Knowles et al., 2005). According to Knowles et al. (2005), teachers should be able to experience their own sense of autonomy and engage in self-directed learning. The third principle acknowledged that adult learners possess extensive life experiences that may be meaningful to the learning process (Knowles et al., 2005). The fourth principle about adult learners is that they must be ready to learn and engage in PD that occurs when the learner is at the appropriate stage to learn concepts that will contribute to their positive growth as an educator (Knowles et al., 2005). Adults are task and problem-centered in their orientation to learning (Knowles 1968), and they are motivated to learn if they can apply what they learn. Knowles's final principle of adult learning is that adults are intrinsically motivated to learn. Although adults respond to numerous external motivators such as, higher salaries, promotions, or new job titles, internal motivators such as, increased job satisfaction, professional or personal growth, and enhanced self-esteem, are more valuable to adults throughout their learning process (Knowles et al., 2005).

To improve motivation for adult learning, PD programs should include an atmosphere that offers teachers respect, feedback and encouragement from peers, valuable learning experiences, and opportunities to apply what they learned with students in their classroom (Gregson & Sturko, 2007; Wlodkowski, 2003). PD for teachers that is learner-centered as opposed to content-centered can "help develop the ability to learn from experience, to integrate knowledge, and to think respectively" (Daley, 2003, p. 29). Adult teacher learners have experienced various approaches to teaching and learning. During their careers, they have been engaged in the usage of teaching strategies, learning

styles, and activities that involve collaborative and cooperative learning. These same approaches should also be incorporated in their own professional learning experiences (Gregson & Sturko, 2007). Moreover, teachers should be provided with an opportunity to learn experientially and cooperatively in their educational settings (Knowles et al., 2005). PD experiences should expose teachers to practices that can be immediately put to use with students (Gregson & Struko, 2007).

Diaz-Maggioli (2004) stated that because of the increased prevalence of high-stakes testing and accountability in schools it is important to realign PD so that a collaborative effort between teachers, students, and administrators can produce a positive outcome resulting in an enriched and heightened level of learning for all participants in the educational community. Additionally, teachers who engage in participatory collaborative experiences may develop their instructional practices because of their interaction with teachers from their own school or teachers from schools outside of their district (Matherson & Windle, 2017).

The most productive way for teachers to gain knowledge is in a job-embedded, collaborative learning environment instead of through the conventional one-day attendance at workshops and conferences (Smylie, 2014). JEPD is a school- or classroom-based teacher growth and development experience encountered throughout the day-to-day teaching practice (Zepeda, 2015). This form of PD is designed to promote teacher collaborative efforts regarding teacher practices, student assessment, and teacher philosophies, while also increasing knowledge in the context of the work environment

and providing educators with new and changing practices (Zepeda, 2015). Job-embedded learning involves what individuals learn and communicate about their experiences (Zepeda, 2015). Zepeda (2015) stated that job-embedded learning occurs when teachers listen and learn from each other about what practices or programs in a specific educational setting are effective or not. Job-embedded learning can only succeed where collaboration is supported (Zepeda, 2015). Matherson and Windle (2017) reported that teachers who participate in collaborative experiences with their colleagues, benefit by sharing instructional practices, engaging in conversations about school and student issues, and working together to develop solutions. Althausser (2015) presented a two-year study regarding a JEPD program where elementary teachers were provided the opportunities to learn new approaches and methodologies to be employed with students in the classroom to improve mandated mathematics test scores. Results of the Althausser study indicated that when the teachers experienced a continuous, well-planned JEPD, teacher self-efficacy in teaching mathematics was increased and student test scores on the state mandated mathematics assessments were improved.

PD is the catalyst for change in the classroom setting; PD provides teachers the opportunity to remain abreast of current educational practices, to address student needs, and to enhance student achievement outcomes (Patton et al., 2015). DiPaola and Hoy (2014) stated that the implementation and goals of PD programs and activities offers teachers the chance to facilitate and initiate transformative learning that is instrumental in “building the capacity of teachers to help students learn” (p.101).

Conclusion

The literature review includes research studies that relate to my study topic and planned PD. The literature supported how teachers can employ test preparation, test-taking skills, and information retention strategies with students to provide students with resources and skills to manage stressful situations. My exploration and review revealed that providing teachers with strategies and interventions can be effective to remove, reduce, or manage students' test anxiety in high-stakes testing situations.

Upon completion of the literature review, I found strategies and interventions that align with the PD I want to design. For example, I will use a brain storming activity to assess teachers' current knowledge and to provide teachers with an opportunity to share what they need to assist students with reducing test anxiety before and during testing situations. The next activities I plan to use are collaborative group case study scenario activities to assist teachers with learning ways to help students lessen anxiety they experience during testing. I will provide teachers with test anxiety reduction and intervention strategies resources that they can implement with students in their classrooms.

Project Description

Potential Resources and Existing Supports

PD is an opportunity for teachers to participate in active, hands-on learning that enhances their knowledge and instructional practices (Garet, Porter, Desimone, Birman, and Yoon, 2001; Patton et al., 2015). By offering these 3-day PD sessions, I will be

assisting teachers with increasing their knowledge of effective test anxiety reduction and intervention strategies that may lessen students' stress and anxiety before and during high-stakes testing situations.

Prior to the start of the PD, I will meet with the superintendent and high school principal to share the results of my study and the agenda and timeline schedule for the 3-day PD sessions. I will send an email to English and mathematics teachers, the principal, the assistant principals, and the English and mathematics supervisors, inviting them to participate in the PD sessions. In the invitation, I will ask the teachers to respond to the email stating if they are available to attend the PD sessions.

The 3-day PD sessions will be held in a conference room located in the local high school. A smartboard will be used to project the PowerPoint presentation to teachers. Additional materials that I will use for the PD include an easel with easel paper, markers, index cards, photocopies of handouts, name badges, and a small collection box.

Potential Barriers

A potential barrier that may occur is that the stakeholders could be concerned about the loss of instructional time with students. Teachers may also find that their schedules may not permit them to attend the PD on the designated days. To alleviate these issues, I will present the option to administrators about changing the PD dates to a time prior to the start of the school year. Upon approval of the PD program, I will meet with the appropriate school personnel at the local high school to reserve the auditorium facility for the specific dates and times needed.

Proposal for Implementation and Timetable

Planning for the implementation of the PD will occur during the academic year. The planning of the PD will include input from the assistant principals, the supervisors, and me. Details of the proposed timeline are presented here (see Table 2).

Table 2

Proposed Timeline

Date	Task	Person	Deliverable
August	Meet with principal, asst. principals, & supervisors	Principal, asst. principals, & supervisors	PD PowerPoint slideshow
September	Plan meetings	Asst. principals, supervisors	PD program announcement
October	Identify key participants	Researcher	Email invitation
November	Participant responses	Potential participants	Email responses
December	Select & notify participants	Researcher & committee	Email response
January	Share PowerPoint presentation	Principal, asst. principals, & supervisors	PD PowerPoint
February	Schedule time & location of PD	Supervisors & researcher	Schedule, task list, & 3-day agenda.
March - May	Conduct PD sessions	Supervisors, researcher, & participants	PD PowerPoint, handouts, schedule, room & food arrangements

Roles and Responsibilities

My responsibility and role will be to organize and facilitate all meetings and communications between the stakeholders and to present and lead the PD sessions. The principal, assistant principals, and supervisors will provide support, encouragement, and assistance to the teachers to incorporate the effective test anxiety reduction and intervention strategies into their instructional practices with students.

For this PD to be implemented successfully, I will create collaborative learning opportunities for the participants, which will assist them in discovering effective strategies to aid students with lessening stress and anxiety before and during testing situations. Having the support of all stakeholders involved is equally important for successful implementation of the PD program. Consequently, I understand that I will ask teachers to share their time and willingness to participate in peer collaborative group activities. The PD presentation will be used as an important resource and tool to improve educational efforts that relate to student achievement and school district enhancement. My role, therefore, will be that of a facilitator to all stakeholders involved.

Project Evaluation Plan

Formative Assessment

Formative assessment involves the collection of data to help students learn more effectively and to obtain feedback to improve learning activities and instruction for students (Dixson & Worrell, 2016). The purpose of the formative assessment will be for participants to increase their knowledge about test anxiety and learn effective interventions and strategies to reduce test anxiety experienced by students before and during high-stakes testing administration. In this project, formative assessments will be in the form of a brainstorming activity and exit tickets. On day 1, the brainstorming activity will be used as an assessment tool to evaluate the current knowledge and experiences of teachers on the topics of test anxiety, test preparation practices, test-taking skills and strategies, and test anxiety reduction interventions and strategies. The exit ticket will be

questions that are used as an assessment tool at the close of the sessions on day 1 and 2 to determine what the participants have learned during each PD session. The information from this exercise will help me to adjust my PD sessions, if needed, to meet the needs of the participants. The exit ticket will also be used to determine if there are any gaps in the knowledge of the participants so that it can be addressed in future sessions. Teachers will place their exit ticket, with responses to the questions into a basket at the end of each day's session. Information about the formative assessments used in the PD sessions will be included in the PowerPoint presentations and facilitator notes.

Summative Assessment

A summative assessment is used to evaluate student learning, the knowledge obtained, or the proficiency achieved after a project, program, school year, or unit (Dixson & Worrell, 2016). At the end of the 3-day PD, the participants, administrators, and supervisors will complete an evaluation of the effectiveness of the content of the PD session and the PD facilitator. The PD attendees will answer questions related to the content shared and how the information presented will assist them in helping students reduce test anxiety before and during high-stakes testing situations. For the summative assessment, I will distribute a PD evaluation form to the participants to complete during the closing session of day 3.

The participants' responses to these ten questions will help me to analyze the PD program and determine how to plan and organize future PD workshops to assist teachers

with how to successfully equip students with effective test anxiety reduction and intervention strategies before and during testing situations.

Overall Evaluation Goals

The formative and summative assessments are aligned with the goals of the PD to assist teachers in learning and integrating effective test anxiety reduction and intervention strategies into classroom practices. Teachers who participate in the PD will be able to increase their knowledge and understanding of test anxiety and share the effective test anxiety reduction and intervention strategies with students. On Day 1 and Day 2 of the PD, I will include formative assessments to allow participants to engage in discussion about the PD content and to answer reflection questions. On the final day of the PD, I will have participants complete a PD evaluation form. This summative assessment, consisting of 10 questions, will provide feedback about the beneficial aspects of the PD and what future support or additional PD is needed by teachers. The evaluation process is instrumental to the PD program as it provides teachers with the opportunity to engage in positive interaction and to enhance their knowledge and understanding about the effective strategies to reduce student test anxiety before and during evaluative situations. I will use the overall evaluation goal to determine the effectiveness of the PD program and whether or not it has a positive effect on student learning and the instructional practices of teachers.

Key Stakeholder Group

I created a PD based on the themes of my study. Based on these themes, it is evident that teachers work in environments that include numerous stakeholders, and therefore, it is important to incorporate all stakeholders in the development and organization of the project. Participants of the 3-day PD will be district teachers, administrators, and the English and mathematics supervisors. The principal and assistant principals will be given the option to participate in one or in all 3 days of the PD due to other school obligations. When administrators participate in the PD, it will provide support to the teachers and boost their level of motivation. In the planning of the PD timeline, the main stakeholders, such as the teachers, administrators, and the English and mathematics supervisors will be included. In the timeline for the project implementation, I designated when the stakeholders will be involved in the development and execution of the PD process.

Teachers. The primary participants for this PD program will be the teachers in the local high school. The additional participants will be the administrators and the supervisors who volunteer to attend any of the 3-day PD sessions. The main goal of the PD will be to engage teachers in collaborative and reflection activities to learn effective test anxiety reduction and intervention strategies that they can employ in the classroom with their students. When teachers collaborate, reflect, and share strategies and information with one another, it may prove to be beneficial to their ongoing development and instructional practices.

Administrators. The principal and assistant principals will be key in the success of the PD. I will include district administrators in the development and implementation phases of the PD. Because administrators play an important role in the PD planning and implementation process, I will invite them to participate in the group collaborative activity on day 2 or day 3 of the PD. Including administrators in the PD sessions will provide an opportunity for collaboration between teachers and principals. In addition, administrators will have a deeper understanding of test anxiety reduction and intervention strategies that teachers can implement in their classrooms with students. Support from administrators can encourage teachers can encourage and motivate teachers to implement newly learned strategies into their instructional approaches and practices with students.

Supervisors. The supervisors are the individuals who make decisions about curriculum, assist teachers with the development and enhancement of their instructional skills and practices through PD opportunities, and assist teachers with how to manage the implementation of new and effective strategies with students. The inclusion and participation of the supervisors in the PD will help with continued collaborative efforts between teachers and supervisors to achieve the common goal of helping succeed. Support from administrators and supervisors can encourage teachers can encourage and motivate teachers to implement newly learned strategies into their instructional approaches and practices with students.

Project Implications

Social Change Implications

When teachers understand they can be a catalyst to increase student test performance by finding effective strategies to reduce test anxiety in students before and during high-stakes testing situations, they can become models for social change. In this study, the analysis of data has helped me to unveil key findings that can have a positive effect on the high-stakes testing experience for students. Based on my research, I have learned that teachers have methods and techniques they use with students in the classroom to help them prepare for high-stakes testing situations but are willing to learn new strategies that can assist them with reducing test anxiety experienced by students before and during test administration. Moreover, by using these findings to develop my PD for teachers, I can provide teachers with useful and valuable instructional tools to employ with students in their classrooms.

Engaging teachers with how to use effective test anxiety reduction and intervention strategies can positively impact individual student test performance. Additionally, effective these strategies in their instructional arsenal could improve the culture of high-stakes testing in the school for students, teachers, and administrators. Students exhibiting confidence and positive attitudes toward high-stakes testing may also be a beneficial result of learning strategies to reduce test anxiety.

Importance of the Project to Local Stakeholders

This project has potential importance to local stakeholders because I will offer it within the district where I previously worked. The teachers of this district could benefit from the PD because high school teachers have the need to find effective intervention strategies to assist them in helping students reduce test anxiety before and during high-stakes testing. Participants stated their desires for assistance with learning effective test anxiety reduction and interventions strategies to implement with students and shared their experiences based on their daily encounters and classroom practices. This PD will provide teachers with an opportunity to increase their knowledge and comprehension of intervention strategies to reduce test anxiety in students in high-stakes testing situations. I will communicate with the principal and assistant principals, supervisors to request their assistance with providing support and motivation to teachers during the 3-day PD event and assistance with successfully implementing test anxiety reduction intervention strategies with students. Based on the findings of the study, district leadership and teachers could benefit from the immediate use of this project.

Additionally, several neighboring high school districts have expressed an interest in participating in collaborative PD activities. District administrators report that it is advantageous for teachers to collaborate with colleagues from other districts to share ideas and strategies. I foresee that the findings and the project will be important to local stakeholders.

Importance of the Project to the Larger Context

In the larger context, this project has great potential for assisting students, teachers, and schools. As I stated in the review of literature, the US Congress passed the NCLB (USDE, 2010) followed by ESSA (USDE, 2017), both of which concentrated on mandated high-stakes testing and public-school students in grades 3 through 8 reaching 100% proficiency in reading and English. Therefore, if teachers focus on strategies to reduce test anxiety, students will be offered appropriate interventions to reduce stress and anxiety in high-stakes testing situations which can lead to improved or increased student test performance.

This project is created to inform teachers about test anxiety reduction and intervention strategies that can be employed with students in their classrooms. This PD program can be used with teachers of students in the elementary and middle school levels. In doing so, teachers can address the issue of test anxiety early on in students' academic careers and begin introducing test anxiety reduction and intervention strategies as part of their instructional practices. Lastly, I plan to share the findings of this study with other educators on the local, state, and national levels to encourage conversations about how these findings can be beneficial to teachers.

Section 4: Reflections and Conclusions

English and mathematics teachers in this local high school observed signs of stress and anxiety related to high-stakes tests and were not equipped with appropriate strategies to help students perform confidently on these tests. The findings from this study reveal that teachers need to be provided with the opportunity to participate in effective PD that will help them assist their students with ways to reduce test anxiety linked to high-stakes tests. Focused PD sessions may impact students' testing performance and experience in a positive way. This section centers on my reflections and conclusions about the project.

Project Strengths and Limitations

Project Strengths

The strengths of this project are related to the research and analysis of the findings. Liebert and Morris (1967) introduced the two components of anxiety and emotionality and worry, which are interrelated with testing situations. Liebert and Morris's test anxiety construct provided a conceptual framework for this study, which guided me in creating a PD project to provide teachers with strategies that they can implement with students to reduce test anxiety. Smylie (2014) reported that providing teachers with PD that gives them an opportunity to be exposed to newly learned strategies and to become engaged in real-life interactive problem-solving practices would be beneficial. Smylie (2014) suggested that the use of a job-embedded, collaborative learning environment for teachers is the most productive way of promoting and

enhancing their professional growth, which I have strived to accomplish in the PD that was developed based on the findings of this study.

As a result of the PD, teachers will have the opportunity to collaborate with their colleagues to discuss strategies that may be effective with helping students reduce test anxiety related to high-stakes testing. Through the social-interaction process of PD collaborative learning, teachers are able to share instructional practices and strategies, develop solutions, and engage in feedback and discussion (Matherson & Windle, 2017; Patton et al., 2012). This could help to build students' testing confidence and improve their test performance outcomes. I have designed the PD sessions to engage participants in constructive activities that involve discussion, collaboration, problem-solving, and team building. While engaging in these activities, participants will enhance their knowledge and understanding of test anxiety, test anxiety behaviors, and the strategies that are effective in reducing anxiety related to high-stakes testing. When teachers engage in collaborative activities as part of PD, they are able to collectively reflect on common knowledge, teaching practices, common assessments, and what strategies are effective or not effective with students (Darling-Hammond et al., 2017).

The greatest strength of this project is that by participating in this PD, participants will have the opportunity to increase their current knowledge, to enhance their instructional practices and didactic experiences, and to foster collaboration between peers that will positively impact their students. Most often when teachers engage in PD, they are expected to make some modifications to their current practices and acquire new

knowledge and information to improve or increase student learning and performance (Vetter, 2012).

Project Limitations

A limitation of this project involves ensuring that the collaborative group connections continue among PD cohort teachers on a regular basis. To support the success of collaborative groups, teachers must remain in a continuous learning phase for growth in practice to ensure student success (DuFour, Eaker, & DuFour, 2005; Matherson & Windle, 2017). I will offer all participants an opportunity to participate in an effective PD that includes collaborative group activities. However, once the 3-day PD ends and teachers resume their daily routines, it may be difficult for the same level of teacher collaboration experienced during the PD to take place. To support a continuation of the collaborative partnership among teachers, I suggest that department supervisors organize, plan, and implement regular monthly cohort meetings with teachers throughout the school year. Kitterlin-Geller, Baumer, & Lichon (2015) stated that it is the responsibility of administrators to cultivate and support a culture of collaboration for teachers. Administrators also influence teacher collaboration because they are instrumental in promoting and sustaining common planning and meeting times for staff (Spannue, 2010). These meetings will provide teachers with an opportunity to share with one another the positive application of the various test anxiety reduction and intervention strategies used with students in their classrooms.

Recommendations for Alternative Approaches

Alternate Approaches to the Problem

Alternate approaches to the research problem may be considered in different ways. One approach could be to explore parents' perceptions of students' behaviors during test season. To assist parents of test-anxious students, an accompanying project could be to create a parent guide to help with preparing the students for tests. The parent guide might include information such as the following: (a) helping the student process worries and feelings about testing, (b) teaching the student basic test-taking skills or strategies, (c) making the teacher aware of the students' test anxiety issues, (d) encouraging students to use positive self-talk, and (e) boosting the students' self-confidence. Another approach to address the problem could be to conduct an anonymous qualitative survey with students to capture their perceptions during a testing session. For example, the survey could include various questions to determine the degree of each students' experience and test anxiety; the survey might also seek information about students' relaxation techniques. Results of the survey could be used by teachers to create and implement a plan of action in their classroom with students to help them learn test anxiety reduction and intervention strategies.

Alternate Definitions of the Problem

The problem that prompted this study was that students in a local high school were showing signs of stress and anxiety related to high-stakes tests, and while high school English and mathematics teachers observed these behaviors, they were not

equipped with teaching strategies and techniques to prepare students to confront and perform confidently on these tests. I worked with a participant group of 12 teachers in a local high school who taught English and mathematics and had at least 3 years of teaching experience. The data obtained from two methods of data collection showed that teachers needed to find effective strategies and interventions to assist students with reducing test anxiety before and during testing situations. In the project I designed based on this study, I supported the professional advancement and growth of teachers who wish to learn effective strategies to assist students who experience test anxiety related to high-stakes tests. By participating in this PD project, teachers will be provided with an opportunity to engage in group collaborative activities to problem-solve and learn strategies to mitigate test-anxious behaviors of students. However, there may be a few teachers who only participate in these activities during the 3 days of PD and do not use the strategies in their instructional practices. Two alternative definitions for the problem for this study are as follows:

1. Show ways in which teachers can engage in collaborative partnerships on a continuous basis to share effective test anxiety reduction and intervention strategies used with students.
2. Show ways to develop networking and collaborative relationships with teachers from other school districts to share the implementation of effective test anxiety reduction and intervention strategies used with students.

These alternative definitions of the problem support the problem that prompted this study because all of the problem statements have been written to show how teachers can discover effective intervention strategies to assist students with reducing test anxiety before and during high-stakes testing situations.

Alternative Solutions to the Local Problem

Teachers who work in schools where opportunities for collaboration are not available may benefit from alternate solutions. These alternate solutions are designed to help groups of teachers who may need to connect and collaborate with other teachers about the methods, skills, and strategies that can assist students with reducing test anxiety and to allow them the opportunity to share their experiences. Alternate solutions are a good way for researchers to identify the test anxiety reduction and intervention strategies that are successful with students.

Ways in which teachers can engage in collaborative partnerships on a continuous basis. When teachers are not provided with an opportunity to collaborate on a continuous basis so that effective test anxiety reduction and intervention strategies can be shared with one another, they may feel that administrators are not providing them with the support needed. In such a setting, teachers could form collaborative teams consisting of one teacher representative from different content areas. They could develop a monthly schedule to enable collaboration among teachers on a regular basis. Teachers could engage in monthly meetings to share how they specifically implemented test reduction strategies with students in their classrooms and which ones are the most effective.

Teachers could also exchange various materials, tools, and resources that they use with students to help reduce their test anxiety. Although having administrators present at the monthly meeting is not required, inviting them to attend would show the positive influence of teachers' meetings, support the need for collaborative meetings, and reinforce the benefits of teachers sharing common ideas and goals.

Ways to develop networking and collaborative relationships with teachers from school districts. Many school districts provide teachers with an opportunity to collaborate and share their expertise. However, with the advancement of technology, teachers can experience collaboration using phone conferencing. Because teachers from various districts may not be available to attend face-to-face meetings, participating in phone conference meetings may be more feasible. By providing teachers with the conference call dial-in instructions and a monthly schedule of dates and times, collaborative discussions concerning test anxiety reduction and intervention strategies could transpire on a consistent basis. Engaging in such an activity could give teachers a greater sense of professional comradery, expand instructional knowledge and practices, and provide additional support from other educators who share the same goals for students' success.

Scholarship, Project Development and Evaluation, and Leadership and Change

In my investigation of the perceptions of high school teachers about the influence of high-stakes testing on students, I gathered data and developed findings with high school teachers who needed to find effective test anxiety reduction and intervention

strategies to use with students before and during testing situations. As a school counselor, I have spoken with teachers who use some test anxiety reduction strategies with students, I have met with teachers who have attempted to use strategies without success, and I have observed teachers who used no strategies.

Because of my prior work as a school counselor, I desired to acquire a deeper understanding of the current knowledge and experiences of high school teachers about working with students who present symptoms, signs, and behaviors of test anxiety. I also investigated their knowledge of and professional needs for test anxiety reduction and intervention strategies. As I engaged in conversation with the participants, I learned about teachers' beliefs of test anxiety and about processes they employed to manage this issue in their classrooms; their responses were both intriguing and informative. As a scholar, I had to remove myself from the role of being a school counselor and position myself into being a researcher. During the research process, I had to make certain to withhold my biases and opinions. I found this to be a challenge because of my first-hand experiences as a school counselor with students who have encountered issues of test anxiety. I knew that test anxiety related to high-stakes testing was a problem for students and that effective strategies are needed, and scholarly research confirmed that this problem exists. In my review of literature, Mandler and Sarason (1952), Von der Embse and Witmer (2014), and Segool et al. (2014) provided me with evidence that students experience test anxiety before and during testing situations and that teachers need to be equipped with reduction strategies to implement with students. Their ideas on student test anxiety

related to high-stakes testing provided me with a guide for assisting teachers with test anxiety reduction and intervention strategies, and their perceptions influenced my scholarship throughout the study.

Once I selected the 12 English and mathematics teacher participants, I was excited to begin collecting my two forms of data. Within a 1-week period, teachers consented to participate in my study, and I started scheduling the one-on-one interview sessions; the focus group interview session was scheduled shortly thereafter. Upon completion of my data collection and the development of my findings, I began designing my project in the genre of a PD. While undertaking this process, I discovered that my findings functioned as a guide for the development of my project. I also identified the research-based strategies that could assist teachers in helping students with test-anxious behaviors before and during high-stakes testing situations in their local school. The PD that I created may enhance teachers' knowledge and comprehension of test anxiety and may equip them with effective strategies to reduce students' test anxiety related to high-stakes testing.

In my capacity as the researcher, I found that by expanding my research knowledge and proficiency, I could offer the study participants the opportunity to engage in PD activities where they will collaborate and share their ideas, thoughts, and experiences. Therefore, my success as a researcher was linked to my continuous learning during the research process.

Reflective Analysis of Personal Learning

Once I gained a greater command of being an interviewer, my confidence, and excitement about completing my research grew. I began to see that teachers implement individualized practices to do what they think is in the best interest of the students. Using the interview process, I secured data in a formal setting. For example, I captured the actual experiences of teachers who proctored high-stakes tests and who observed the test-anxious behaviors of students. I realized that all teachers want to effectively prepare students for tests and want students to achieve success when engaging in a high-stakes testing situation.

Growth of Self as a Scholar

As I completed my study, I deemed myself a researcher. I began to see that I started to demonstrate and possess the qualities and level of dedication of known research scholars. Throughout the research process, I was able to confidently collect data proficiently, use logical and methodical research skills to identify my findings, and complete the analysis of my research. For example, participants took part in one-on-one interviews and a focus group interview session, where questions were answered in detail. All interview sessions were recorded. After the data was collected, I listened to audio-taped recordings of all the sessions and transcribed them verbatim. The process of transcription required that I listen to the recordings numerous times and write up the participants' responses in a typed, text format using the Microsoft Word program. Although this problem was time consuming, it was important for me to devote time to

deciphering the data to obtain rich, detailed responses. I also coded the words and phrases from the transcripts of the one-on-one and focus group interviews, and I searched for patterns and themes. Moreover, during this process, I confirmed that I was not interjecting my biases into the responses of the participants. As a researcher, I examined the two forms of data collected and extracted repetitive words, phrases, ideas, and thoughts to identify the findings. Through detailed analysis, I learned that the real-life experiences and perceptions of teachers can and did generate valuable findings.

Growth as a Practitioner

By engaging in the research for this study, the knowledge and experience that I gained have positively impacted my practice as a school counselor and educator. Conducting this study helped to reinforce and solidify the reasons why I was drawn to the field of counseling students. As a school counselor, high-stakes testing is commonplace. The students with whom I worked were constantly subjected to high-stakes tests such as the PARCC, the Preliminary Scholastic Aptitude Test, the SAT, and the American College Test. Because these tests were accompanied with added pressures and consequences for the student, I saw the test-anxious behaviors experienced by students first-hand in my office and as a proctor in testing situations. Additionally, I saw the effect that high-stakes testing had on my colleagues, particularly the accountability policies and practices, in addition to pressures they face with student test performance outcomes. Therefore, based on these experiences, I saw this research as an opportunity to give back to my students and colleagues.

As I have gone through the research process, I have been provided with opportunities to be reflective of myself as an educational professional. Engaging in the reading of journal articles, collecting information via interviews, and analyzing the data, I have grown as a scholar, and I have improved and developed my skills as an educational practitioner. Being exposed to the numerous researchers, studies, and different methodologies steered me toward finding the best practices to prepare students for high-stakes testing and to reduce students' stress and anxiety levels. Throughout the research process, I gained deeper insights into the local school district and the stakeholders, which provided me with opportunities to communicate with teachers to get a better understanding of the current testing practices. I realized that it is important to make sure that my present practices as a school counselor are in alignment with the current research and that I must continue to stay abreast of new literature, methods, strategies, and resources. Additionally, I learned that as a practitioner, I must remain dedicated to life-long learning.

Growth as a Project Developer

Creating the project for this study gave me an opportunity to share information with high school teachers about test anxiety and to provide them with effective test anxiety reduction and intervention strategies to implement with students in their classrooms. By developing a PD program, I offered high school teachers an opportunity to increase their knowledge and comprehension regarding effective strategies to help students reduce test anxiety before and during testing situations. To accomplish this, I

needed to reflect upon what the findings indicated was necessary for high school teachers to use with their students in their classrooms to lessen test anxiety related to high-stakes testing. From the findings, I learned that teachers need help with effective strategies to achieve this goal. I created a 3-day PD program for teachers to share research-driven strategies that they can use in the classroom with students to help reduce test anxiety linked to testing. For this reason, the 3-day PD concentrated on peer collaboration and guided discussion opportunities.

In the process of developing my PD project, I learned that for teachers to participate and remain engaged in PD, they need practical and interactive hands-on activities that can be immediately implemented with students in their classrooms. Teachers also need PD that is relevant to the needs of their students and that may improve students' academic performance in difficult, stressful situations. I discovered that teacher participation and engagement in PD can be augmented and improved when teachers are encompassed in the planning and delivery process of the PD sessions.

This project presented me with the opportunity to provide teachers with collaborative and group discussion activities that they may not have available in their educational setting. In my role as the project developer, I have been able to look at test-anxiety through the eyes of the teachers as I have learned to use the findings of this study to successfully construct and execute my PD project.

Reflection on Importance of the Work

This research study is important because I obtained findings from the perceptions of high school teachers about the influence of high-stakes testing on students. The participants in this study are high school English and mathematics teachers who possess at least 3 years teaching experience in the local setting and are familiar with the high-stakes testing process and environment frequently encountered by students. Teachers with this kind of experiential background can be instrumental in communicating what test anxiety reduction and intervention strategies are effective with students and those that are not. This study could be helpful in assisting teachers with discovering effective strategies to help students reduce test anxiety related to high-stakes testing. This group of teachers may create a new learning paradigm, guided by their own classroom experiences and research.

As I reflected on the importance of this work, I realized how integral teacher involvement is to plan and prepare PD experiences. By exposing teachers to PD that provides opportunities for collaboration, reflection, and sharing, I can contribute to the development of life-long learners and highly-skilled practitioners. The probable impact of participation in this project on the lives of teachers who struggle to manage students who demonstrate test anxiety behaviors may be an increase in their knowledge and comprehension of test anxiety reduction and intervention strategies that can be used with students before and during high-stakes testing administration.

Implications, Applications, and Directions for Future Research

This study contributes to the literature about teachers exploring evidence of the behaviors connected to test related anxiety and how teachers can use test anxiety reduction and intervention strategies to help students lessen anxiety related to high-stakes tests and improve testing performance (Salend, 2011; Talbot, 2016; Yeo, Goh, & Liem, 2016; Von der Embse et al., 2013). By collecting data from 12 English and mathematics high school teachers, I captured their perceptions, thoughts, and experiences about their current test preparation practices and the test-anxious behaviors they observe before and during high-stakes testing administration. When I analyzed the data and revealed three findings, I created a PD to help teachers with discovering effective test anxiety reduction and intervention strategies that can be used with students to help them reduce test anxiety related to high-stakes testing.

Potential Impact for Positive Social Change

Within the school environment teachers have the potential to function as catalysts of positive social change by providing students with improved study practices and calming techniques. This study provides teachers with effective skills and strategies regarding the reduction of test anxiety. The information from this study not only equips teachers with effective skills and strategies to reduce testing stress but can also generate a deeper and greater awareness for teachers about the existence of test anxiety and effects that testing has on students. By increasing teacher sensitivity to test-anxious students and

the behaviors exhibited by those students, teachers can focus more intensely on addressing the behaviors in their classrooms.

The PD project developed for this study has the potential to positively impact social change by increasing teachers' knowledge and understanding about test anxiety and making vital information directly accessible to teachers who want to find test anxiety reduction and intervention strategies that can be employed with students in their classrooms. Participation in this PD also offers teachers engagement in collaborative activities which supports essential social connections among teachers within the local school district who desire to positively influence testing experiences and practices for themselves and for their students. According to Darling-Hammond et al. (2017), when whole grade levels, departments, or schools are involved in collaborative efforts, not only does it create a change in individual classrooms, but it can foster a change in the entire school. Moreover, the PD project created for this study may serve as a model for the development of other such PD programs.

Methodological, Theoretical, and Empirical Implications

This study has important methodological, theoretical, and empirical implications because the problem that prompted this study focused on teachers' strategies to assist students to confront and perform confidently on these tests. The probable solutions to this problem were disclosed from real-life experiences and perceptions of high school English and mathematics teachers and supported by scholarly research. The methodology used for this study was qualitative case study design. Utilizing this design was the most

appropriate because it allowed me to give participants an opportunity to reflect on the research questions and offer their honest responses and perceptions. The interaction with high school English and mathematics teachers via one-on-one interviews and a focus group interview session also allowed me to gain an in-depth understanding of their experiences and insights. The conceptual framework of this study was based on the test-anxiety construct of Liebert and Morris (1967), which focused on the bi-dimensional components of anxiety: emotionality and worry. Morris et al. (1981) suggested that worry and emotionality are connected elements of test anxiety, but each element plays a distinct role for students in testing circumstances. I systematically and consistently analyzed data searching for ways to assist teachers with discovering effective test anxiety reduction and intervention strategies. The theoretical implications from this study suggested that providing teachers with effective strategies to assist students who experience test anxiety before and during a testing situation can be instrumental to lessening anxiety, therefore, increasing students' testing confidence and test performance outcomes.

The empirical implication of this study is that high school teachers are reliable sources of information about their practices, experiences, and expertise. The data confirmed that teachers possess some strategies to help students with test anxiety, but they are open to learn additional strategies to lower test anxiety which can lead to increased test performance. To achieve this goal, teachers must be exposed to opportunities that offer resources. Moreover, one empirical implication of this study is that additional studies which focus on teachers' perceptions may prove beneficial to

teachers and school districts that aspire to enhance instructional practices and improve teachers' skills and knowledge on test preparation and test anxiety reduction strategies. Such studies could also produce additional examples of effective strategies that teachers use to improve and enrich their own professional growth and development.

Recommendation for Practice and or Future Research

Within the field of education, there are numerous opportunities for future research that concentrate on capturing the practices, experiences, and expertise of high school teachers. The findings of this study demonstrated that teachers want effective test anxiety reduction and intervention strategies to implement with students who experience test anxiety related to high-stakes tests. Teachers believed that if they thoroughly prepare students for testing that it will increase their confidence and reduce stress and anxiety. The research focused on successful implementation of test anxiety reduction and intervention strategies that have been effective with students may be valuable to future high school teachers.

Additional research that examines the effectiveness of test anxiety reduction and intervention strategies with students can be useful because teachers may be offered other strategies to help students reduce anxiety that they experience before and during testing situations. Lastly, research about how teachers can address test-anxious behaviors of students may also be useful because teachers may be able to align their instructional practices and strategies to support the educational and emotional needs of test-anxious students.

Conclusion

Researchers have suggested that the levels of test anxiety are higher for students taking high-stakes tests versus classroom tests (Von der Embse & Witmer, 2014). In this qualitative case study, I invited 12 high school English and mathematics teachers to share their perceptions and experiences about test preparation, test anxiety, and test anxiety reduction and intervention strategies within their local school. As I obtained and analyzed the data, I strove to understand the phenomenon of reducing test anxiety and to discover how participants assigned meaning to it (Merriam, 2009). High-stakes testing is firmly rooted in educational practice; high-stakes testing functions as an accountability tool for administrators and serves teachers as an instrument for the alignment of core curriculums (Ashadi & Rice, 2016). However, this study focused specifically on teachers' perceptions of the influence of high-stakes testing on students.

The problem that prompted this study was that students in a local high school were showing signs of stress and anxiety related to high-stakes tests, and while high school English and mathematics teachers observed these behaviors, they were not equipped with teaching strategies and techniques to prepare students to confront and perform confidently on these tests. As I gathered and analyzed data for my study, I learned vital information from the participants about their current knowledge and understanding of test anxiety and test anxiety reduction and intervention strategies. I analyzed the data, which was driven by three research questions and revealed findings that encapsulated participants' perceptions of (a) students' preparation for high-stakes

testing (b) students' behaviors exhibited in response to testing situations, and (c) PD to improve knowledge about test anxiety and test anxiety reduction and intervention strategies. This study is important because it highlights English and mathematics teachers' perceptions and experiences with test anxiety and the test-anxious behaviors students exhibit before and during high-stakes testing situations, in addition to the strategies used to address the issue. When teachers are conscious of the effects of test anxiety on students and their test performance outcomes, they may be inspired and motivated to find strategies to help reduce the anxiety related to high-stakes testing that students' experience.

In this present-day, high-stakes testing continues to be at the forefront of educational accountability and the measurement of students' performance. Therefore, teachers must be prepared to meet the needs of the students who experience test anxiety linked to high-stakes testing. Teachers who are dedicated to learning and implementing effective strategies with the student to help reduce anxiety in testing situations can contribute to increasing students' testing confidence and create positive testing environments and experiences for students.

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Appendix A: The Project

Goals: In this 3-day PD, teachers will be provided with information about test anxiety and how to address test-anxious behaviors related to high-stakes testing. The goal of this PD is to enhance teachers' knowledge about test anxiety and test anxiety reduction and intervention strategies to use with students before, during, and after high-stakes testing situations. Teachers will learn ways to engage students in test preparation and will learn about various test-taking skills and strategies. Teachers will also learn how to recognize and address test-anxious behaviors and how to use various interventions and strategies. I will use group collaboration and discussion activities to enhance teacher knowledge about test anxiety, test preparation, test-taking skills and strategies, and to aid teachers in learning effective test anxiety reduction and intervention strategies to employ with students.

Learning Outcomes: Teachers could enrich their knowledge and understanding about student test preparation, test-taking skills and strategies, test anxiety, test anxiety behaviors, and test anxiety reduction and intervention strategies. Teachers will participate in a group brainstorming activity to help with the assessment of their current knowledge and to determine their current needs about test preparation, test-taking skills and strategies practice, and test anxiety reduction and intervention strategies. Upon completion of the PD, teachers will be provided with a resource handout containing effective test anxiety reduction and intervention strategies to use with students before and during high-stakes testing administration.

Target Audience: The target audience for this project will be for all of the teachers in the local school who manage or proctor testing situations. Administrators and the English and mathematics supervisors will be invited to attend and participate in the PD sessions to provide support, guidance, and feedback as teachers learned about effective strategies to assist students with the reduction of test anxiety before and during high-stakes testing.

Components: The PD will be organized by topic, which will help participants to achieve their goal of learning effective test anxiety reduction and intervention strategies to use with students.

Day 1: Test Anxiety, test preparation, test-taking skills and strategies

Day 2: Test Anxiety: Physical signs/symptoms and reduction intervention strategies

Day 3: Test Anxiety: Cognitive and behavioral signs/symptoms and reduction intervention strategies

To plan this project, three findings were used as a guide to present effective strategies teachers can use before and during high-stakes testing situations to help reduce test anxiety for students. The project was created to assist teachers with strategies that can be incorporated into their classroom instructional practice. Days 2 and 3 of the PD were designed for teachers to engage in peer collaboration to determine the most effective test anxiety reduction intervention and strategies to be used with specific test behavior situations. The final day resulted in a collaborative feedback group activity where

teachers discussed test anxiety reduction and intervention strategies they found most effective for use with specific test-anxious behaviors observed before and during high-stakes testing administration.

The PD sessions and activities were organized using PowerPoint slides and facilitator notes. The PowerPoint slides outlined the information needed to support each session led by the PD facilitator. Formative and summative assessments were incorporated into the 3-day PD event. The following charts outline the time, activity, and method used for each day of the PD:

PD Session Schedule - Day 1

Time	Activity	Method
8:30 – 9:00	Sign-in, PD material pick-up, and group assignment	Sign-in at table in foyer of conference room, pick-up PD materials, and table assignment for groups
9:00 – 9:30	Continental Breakfast	Rear of Conference Room
9:30 – 10:00	Welcome, Introductions, Overview of 3-day PD, and Goals and Learning Outcomes	Lead by PD facilitator using PowerPoint slides
10:00 – 10:45	Ice Breaker – Two Truths and a Lie	Review group ground rules with participants; Group warm-up activity
10:45 – 12:00	Brainstorming Activity	Lead by PD facilitator
12:00 – 1:00	Lunch	On your own
1:00 – 2:00	Physical, Cognitive, and Behavioral Signs and Symptoms of Test Anxiety	PowerPoint presentation-presented by PD facilitator; Handout
2:00– 2:30	Closing Session	Reflection: Exit Ticket

PD Facilitator Notes for Day 1

- During the sign-in teachers will receive a name tag and a packet that includes their group/seating assignments, the PD handouts, and exit tickets.
- A box for the collection of the exit tickets will be placed on a table near the exit door of the conference room.

- Share all pertinent PD information with the participants using a PowerPoint presentation, providing them with a copy of the PowerPoint slides with note lines, and handouts.
- A dry erase board with markers will be located in the front of the room for writing down relevant information for the participants.
- The participants will be provided with breaks during the sessions.


The facilitator will address the following tasks at the start of the day 1 session:

- Welcome the participants to the PD program and introduce the principal, assistant principals, and supervisors, if they are in attendance, and give an overview of the 3-day PD schedule of activities.
- Explain that the goals and learning outcomes of the PD are to assist teachers with learning effective test anxiety reduction and intervention strategies that can be implemented with students to address test anxiety related to high-stakes testing, learning ways to engage students in test preparation and test-taking skills and strategies, and learning how to recognize test-anxious behaviors.
- Confirm that teachers are in their assigned groups and at their designated tables.
- Review the ground rules for group discussions with the participants prior to the start of the group activities. I will list them on the dry erase board in front of the room.


- Listen respectfully; do not interrupt
- Listen actively and be open to others' views
- Do not criticize or place blame on others
- Give everyone a chance to speak
- Once ground rules are discussed, the session activities will begin.
 - Lead the Ice Breaker activity, “Two Truths and One Lie” and provide directions to the groups. The activity information will also be displayed on a PowerPoint slide projected on the Smartboard at the front of the room. For the activity, each participant will receive a note card to write on. Every participant in the group will list three things about themselves, two are true, and one is untrue. Each person in the group gets a turn to guess which statement is untrue. Once everyone has guessed, the person will reveal what was true and what was false. **Note:** Remind participants to not tell both truths together, mix it up.
 - Lead the Brainstorming Activity by engaging the participants in a discussion using the following questions:
 - What is test anxiety? (Definition)
 - How do you recognize test anxiety? Give examples of the behaviors that you have seen in students.
 - What are your specific experiences with test anxiety?

- What are your current test preparation practices, test-taking skills and strategies, and test anxiety reduction interventions and strategies?
- Inform participants before breaking for lunch that during afternoon session, they will be presented with information about the physical, cognitive, and behavioral signs and symptoms of test anxiety that are often observed before and during high-stakes testing administration.
- Finish day 1 with the Closing Session, which will involve teachers completing an Exit Ticket as a reflection activity. The exit ticket will be given to the teachers to complete at the end of the day 2 session. Teachers will then place their completed ticket in a box by the exit door as they leave the session for the day.

The PowerPoint presentation slides for PD day 1 are found below:




Addressing Test Anxiety: Test Anxiety Reduction and Intervention ~Professional Development ~ Day 1

- 
- Welcome
 - Introduction
 - Overview of 3-day PD Schedule of Activities



Goals of 3-day Professional Development

- Enhance teachers' knowledge about test anxiety and test anxiety reduction and intervention strategies to use with students.
- Learn ways to engage students in test preparation and various test-taking skills and strategies.
- Learn how to recognize and address test-anxious behaviors.



Learning Outcomes of the 3-day Professional Development

- To enrich knowledge and understanding about student test preparation, test-taking skills and strategies, test anxiety, test anxiety behaviors, and test anxiety reduction and intervention strategies.
- Assessment of current knowledge and to determine current needs about test preparation, test-taking skills and strategies practice, and test anxiety reduction and intervention strategies.
- Provide teachers with effective test anxiety reduction and intervention strategies to use with students before and during high-stakes testing administration.



Ice Breaker Activity: Two Truths and A Lie


1. Participants are organized into groups. Each participant in the group receives a note card to write on.
2. Each participant lists 3 things about themselves, 2 are true and 1 is untrue.
3. Each person in the group gets a turn to guess which statement is untrue.
4. Once everyone in the group has guessed, the person will reveal what was true and what was false.

Note: Participants should not tell both truths together, mix it up.




Brainstorming Activity

- What is test anxiety? (Definition)
- How do you recognize test anxiety? Give examples of the behaviors observed before and after high-stakes testing situation.
- What are your specific experiences with test anxiety?
- What are your current test preparation practices, test-taking skills and strategies, and test anxiety reduction and intervention strategies?




Physical Signs and Symptoms of Test Anxiety (Handout)

- Increased perspiration
- Headache
- Dizziness
- Stomachache
- Nausea
- Dry mouth
- Flushed skin
- Nervousness
- Rapid heartbeat
- Pacing




Cognitive Signs and Symptoms of Test Anxiety (Handout)

- Worry
- Fear
- Blanking out
- Negative self-talk
- Panic
- Apathy
- Clock-watching
- Expressing test avoidance
- Boredom
- Pessimistic expectations



Behavioral Signs and Symptoms of Test Anxiety (Handout)

- Crying
- Fidgeting
- Pacing
- Foot tapping
- Staring
- Pencil tapping
- Anger
- Absenteeism on test day
- Complaining about the test



Closing Activity: Reflection (Handout)

Reflection Questions

1. What did you learn today?
2. How will you use what you have learned today in your instructional practices with students?
3. What questions do you have?

PD Session Schedule - Day 2

Time	Activity	Method
8:30 – 9:00	Sign-in	Sign-in at table in foyer of conference room
9:00 – 9:30	Continental Breakfast	Rear of Conference Room
9:30 – 10:00	Recap of day 1 session and outline of day 2 activities	Lead by PD facilitator
10:00 – 11:00	Presentation: Test Anxiety, Test Preparation, Test-taking Skills and Strategies, and Test Anxiety Reduction and Intervention Strategies	PowerPoint Presentation – presented by facilitator; handout
11:00 – 11:15	Break	
11:15 – 12:30	Collaborative Group Activity – Case Study Scenarios: Part 1- Test Anxiety Reduction and Intervention Strategies for Physical Signs and Symptoms of Test Anxiety	Lead by PD facilitator and group discussion; handouts
12:30– 1:30	Lunch	On your own
1:30 – 2:30	Continue Collaborative Group Activity – Case Study Scenarios: Part 1	Lead by PD facilitator and group discussion; handouts
2:30– 3:00	Closing Session	Reflection: Exit Ticket

PD Facilitator Notes for Day 2

The facilitator will address the following tasks at the start of the day 2 session:

- Welcome participants for day 2 of the PD. Provide a brief recap of the day 1 session activities.
- Inform teachers that the morning session of the second day will cover the topics of test anxiety, test preparation, test-taking skills and strategies, and test anxiety reduction and intervention strategies.
- Inform participants that the morning session and afternoon sessions will involve working on Part 1 of a collaborative group activity using test anxiety reduction and intervention strategies. In each group, participants will work collaboratively to discuss specific test anxiety scenarios involving students who show physical signs and symptoms of test anxiety before and during testing situations. The task of the group is to determine the most effective strategy to use with the test-anxious student to resolve the issue. Each participant will be provided with a set of case study scenarios handouts and a test anxiety reduction and intervention strategies resource handout, which can be used to guide them through the process of selecting the most effective strategy/strategies to assist the student experiencing test anxiety. The handout includes the information about various reduction interventions and strategies presented on day 1. Each group will choose one participant to perform the task of note-taking and one as the spokesperson.

- Groups will have an allotted amount of time to collaborate. The timing process will be monitored in order to keep the progress of the activity moving forward productively.
- A different member of the group will be designated as the note-taker and spokesperson for their group on day 3.
- After each scenario session is complete, various spokespersons from the groups will share the strategy they decided would be the most effective. A brief discussion with the total audience of teachers for feedback and questions will then ensue. Teachers will continue with the activity until time they break for lunch.
- After returning from the lunch break, the teachers will continue with Part 1 of the collaborative group activity. The activity will continue until it is time for the Closing Session. The Closing Session will involve teachers completing an Exit Ticket as a reflection activity. The exit ticket will be given to the teachers to complete at the end of the day 2 session. Teachers will then place their completed ticket in a box by the exit door as they leave the session for the day.

The PowerPoint presentation slides for PD day 2 are found below:

Addressing Test Anxiety: Test Anxiety Reduction and Intervention

~Professional Development ~
Day 2

Test Anxiety

- 25 to 40% of students experience test anxiety in an evaluative setting (Cassady, 2010).
- Students perceive testing experiences as threatening; concerned about failure or negative evaluation outcome (Shapiro, 2014; Von der Embse & Witmer, 2014).
- Common causes of student test anxiety:
 - Does not have knowledge of test content, unprepared, intimidated by test, or uneasiness with testing environment
 - Fearful of how test results impact future.

Test Anxiety (cont'd)

- Effects of test anxiety on specific student populations:
 - Females have higher level of test anxiety than males (Hembree, 1988; Talbot, 2016).
 - Students with disabilities or low cognitive skills adversely affected by test anxiety (Segool, Von der Embse, Matta, & Gallant, 2014).

Test Preparation and Test-taking Skills and Strategies

- Due to increase in high-stakes testing and testing accountability, test prep activities are on the rise.
- Test prep skills are instrumental in familiarizing students with: (1) test content, (2) format, (3) instructions, and (4) time management skills.
- Test-taking skills are:
 - test preparation practices that help students understand what to do before, during, and after a test situation.
 - Cognitive skills that assist students with transferring knowledge acquired from classroom learning to answering test questions and handling testing experiences.
 - Important for teachers to incorporate into their instructional practices.

Examples of Test-taking Skills and Strategies (Handout)

- Answering easiest questions first
- Teaching how to respond to specific types of questions
- Use mnemonic learning strategies (e.g., rhymes, acronyms)
- Incorporate educational games using test content
- Teach time management skills
- Complete various practice tests
- Expose students to technology (for computer-based tests) and testing materials (e.g., calculators, on-line tools)
- ♦ **Note:** Test-taking skills and strategies help students encounter evaluative situations and reduce test anxiety.

Test Anxiety Reduction and Interventions Strategies (Handout)

- During the testing process, teachers can observe physical, cognitive, and behavioral signs and symptoms of test anxiety related high-stakes testing.
- To reduce test anxiety, teachers can teach students:
 - Relaxation techniques
 - Muscle relaxation exercises
 - Meditation techniques
 - Visualizations exercises
 - Mindfulness practices
 - Breathing techniques
 - How to engage students in positive self-talk

Collaborative Group Activity

Case Study Scenarios: Part 1

Physical Signs and Symptoms of Test Anxiety~

Scenario #1 (Handout)

- John is a junior in high school, who is very conscientious and diligent. During the ACT test administration, John appeared to be flushed and perspiring. As a proctor, you observed this behavior. How do you address John's test anxiety symptoms? What strategies do you use to help him get through this high-stakes testing experience?

Scenario #2 (Handout)

- As an English teacher who is proctoring Advanced Placement Literature exam, Ms. Simpson had one of her student's named Jose' come to her right before the exam complaining of a stomachache. Because she knows that Jose' is an excellent student and how important the test is to him, she did not want him to miss it. What strategy would be an effective one for Ms. Simpson to use with Jose'?

Scenario #3 (Handout)

- A teacher was about to proctor a SAT test and she observed that one of the students outside of her testing location was pacing back and forth before the start of the testing session. What strategy/strategies would you use to help this student reduce test anxiety?

Scenario #4 (Handout)

- Mindy is a freshman who has been experiencing test anxiety since elementary school. She was selected to participate in a specialized program in high school called AP Academy, which allows her to take an advance placement in her ninth grade year. The course she is taking is AP World History. Mindy's teacher has seen her exhibit test-anxious behaviors such as a rapid heartbeat and dizziness during regular classroom tests. The teacher is concerned that Mindy will experience the same behaviors during the AP World History exam because of its importance to her GPA and future academic plans. What test anxiety reduction and intervention strategies would you use with Mindy to help her reduce her test anxiety?

Closing Activity: Reflection (Handout)

Exit Ticket

1. What did you learn today?
2. How will you use what you have learned today in your instructional practices with students?
3. What questions do you have?

PD Session Schedule - Day 3

Time	Activity	Method
8:30 – 9:00	Sign-in	Sign-in at table in foyer of conference room
9:00 – 9:30	Continental Breakfast	Rear of Conference Room
9:30 – 10:00	Recap of day 2 session and outline of day 3 activities	Lead by PD facilitator
10:00 – 12:00	Collaborative Group Activity – Case Study Scenarios: Part 2- Test Anxiety Reduction and Intervention Strategies for Cognitive and Behavioral Signs and Symptoms of Test Anxiety	Lead by PD facilitator and group discussion; handouts
12:00 – 1:00	Lunch	On your own
1:00 – 2:30	Continue Collaborative Group Activity – Case Study Scenarios: Part 2 and Open Scenario Activity with All Groups	Lead by PD facilitator and group discussion; handouts
2:30 – 3:00	Closing Session	Question/Answer Period and Complete PD Evaluation Form

PD Facilitator Notes for Day 3

The facilitator will address the following tasks at the start of the day 3 session:

- Welcome participants for the final day of the PD. Provide a brief recap of the day 2 session activities.
- Inform participants that the morning session and afternoon sessions will involve working on Part 2 of a collaborative group activity using test anxiety reduction and intervention strategies. Each participant will be provided with a new set of case study scenarios handouts and will use the same test anxiety reduction and intervention strategies handout from day 2. Once again, each group, will work collaboratively to discuss specific test anxiety scenarios involving students who show cognitive and behavioral signs and symptoms of test anxiety before and during testing situations. The task of the group is to determine the most effective strategy to use with the test-anxious student to resolve the issue. Participants will be provided with a test anxiety reduction and intervention strategies resource handout, which can be used to guide them through the process of selecting the most effective strategy/strategies to assist the student experiencing test anxiety. The handout includes the information about various reduction interventions and strategies presented on Day 1. Each group will choose one participant to perform the task of note-taking and one as the spokesperson.

- Groups will have an allotted amount of time to collaborate. The timing process will be monitored in order to keep the progress of the activity moving forward productively.
- A different member of the group will be designated as the note-taker and spokesperson for their group on day 3.
- After each scenario session is complete, various spokespersons from the groups will share the strategy they decided would be the most effective. A brief discussion with the total audience of teachers for feedback and questions will then ensue. The participants will continue with the activity until time they break for lunch.
- After returning from the lunch break, the participants will continue with Part 2 of the collaborative group activity.
- Once collaborative group activity has finished, there will be an Open Scenario activity, where participants will be asked to share with the entire group, student test anxiety scenarios that they have personally encountered in testing situations. As a whole group we will listen to how that participant resolved the issue and engage in discussion, if it is warranted. The activity will also be used for participants to pose scenarios for their colleagues to resolve using the test anxiety reduction and intervention strategies learned during the PD. This activity will continue until it is time for the Closing Session.

- During the Closing Session, participants will have opportunity to ask questions and provide feedback. The Professional Development Evaluation Form will be given to the participants to complete during this time. Participants will place their completed evaluations forms in a box near the exit door as they leave the final session.

The PowerPoint presentation slides for PD day 3 are found below:

**Addressing Test Anxiety:
Test Anxiety Reduction
and
Intervention
~Professional Development ~
Day 3**

**Collaborative Group Activity
Case Study Scenarios: Part 2**

**~Cognitive and Behavioral Signs and
Symptoms of Test Anxiety~**

Scenario #1 (Handout)

- Cindy is not a very good test taker. She knows that she has to pass the English and mathematics sections of the state-mandated PARCC assessment in order to graduate from high school. Cindy has expressed to you that she is so worried that she is going to perform poorly and not meet the graduation requirements. What strategies can you use with her to reduce her test anxiety levels

Scenario #2 (Handout)

- Students in Algebra I must take a state-mandated end-of-course Algebra I exam in May. A ninth grade Algebra I teacher mentioned to the students at the beginning of the school year about the requirement of taking and passing the test. Many of the students immediately became panicked and a few made negative statements about not passing the test. What test anxiety reduction and intervention strategies would you incorporate into your instructional practices with these students?

Scenario #3 (Handout)

- While taking the geometry section of the computerized, state-mandated PARCC test, a student gets extremely frustrated when he does not understand a problem. The student begins to tap his pencil rapidly on the computer desk. How would you handle this situation in the testing location?

Scenario #4 (Handout)

- During an end-of-course Biology test, Mason was fidgeting and tapping his foot. Several students in the testing location kept looking his way, as it was evident that he was experiencing test anxiety. As the proctor, what test anxiety reduction and intervention strategy would you share with him to help him successfully finish the testing session?



Open Scenario Activity

- Please share a test anxiety scenario that you have experienced during a high-stakes testing situation and how you addressed the test-anxious behavior observed.
- Please present a scenario for your colleagues to resolve using any of the test anxiety reduction and intervention strategies.
- have experienced during a high-stakes testing situation and how you addressed the test-anxious behavior observed.
 - to resolve using any of the test anxiety reduction and intervention strategies.



Closing Session

- Questions/Feedback
- Professional Development Evaluation Form (Handout)

Professional Development Evaluation Form

Name _____ Date _____

Subject Taught:

Grade Level(s) Taught _____

(Please Circle One Response)

How would you rate the overall quality of the PD? Excellent Good Fair

How well did the presenter state the objectives? Excellent Good Fair

How well did the facilitator keep the session
alive and interesting? Excellent Good Fair

What is your overall rating of the facilitator? Excellent Good Fair

How well did the PD program accommodate your
background and needs? Excellent Good Fair

How effective were the handouts? Excellent Good Fair

How will you use what you have learned?

What was the most useful part of this professional development? Why?

What was the least useful part of this professional development? Why?

What additional professional development/support do you need?

Appendix B: Letter of Cooperation from a Research Partner

Local High School
Superintendent
Suburban Town, NJ

October 24, 2017

Dear Sharon Wisdom,

Based on my review of your research proposal, I give permission for you to conduct the study entitled *Teachers' Perceptions About the Influence of High-Stakes Testing on Students* within the Local Regional High School District. As part of this study, I authorize you to recruit English and mathematics teachers for grades 9-12 via email, to conduct one-on-one interviews and the focus group using audio recording, to perform member checking, and to discuss findings and/or concerns with teacher participants. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: participation of teachers for grades 9-12, use of a private, secure room for data collection, and assistance with supervision of teacher participants. We reserve the right to withdraw from the study at any time if our circumstances change.

The student will be responsible for complying with our Board of Education policies and requirements, which requires the sharing of information including: the title of the study, explanation of the data collection methods being used, what participants will be used in the study, and the purpose of the study.

I understand that the student will not be naming our organization in the doctoral project report that is published in ProQuest.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty without permission from the Walden University IRB.

Sincerely,

Superintendent
Local High School

Walden University policy on electronic signatures: An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. Electronic signatures are regulated by the Uniform Electronic Transactions Act. Electronic signatures are only valid when the signer is either (a) the sender of the email, or (b) copied on the email containing the signed document. Legally an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. Walden University staff verify any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).

Appendix C: Letter of Cooperation from a Research Partner

Local High School
Principal
Suburban Town, NJ

October 24, 2017

Dear Sharon Wisdom,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Teachers' Perceptions About the Influence of High-Stakes Testing on Students within the Local Regional High School District. As part of this study, I authorize you to recruit English and mathematics teachers for grades 9-12 via email, to conduct one-on-one interviews and a focus group using audio recording, to perform member checking, and to discuss findings and/or concerns with teacher participants. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: participation of teachers for grades 9-12, use of a private, secure room for data collection, and assistance with supervision of teacher participants. We reserve the right to withdraw from the study at any time if our circumstances change.

The student will be responsible for complying with our Board of Education policies and requirements, which requires the sharing of information including: the title of the study, explanation of the data collection methods being used, what participants will be used in the study, and the purpose of the study.

I understand that the student will not be naming our organization in the doctoral project report that is published in ProQuest.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty without permission from the Walden University IRB.

Sincerely,

Principal
Local High School

Walden University policy on electronic signatures: An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. Electronic signatures are regulated by the Uniform Electronic Transactions Act. Electronic signatures are only valid when the signer is either (a) the sender of the email, or (b) copied on the email containing the signed document. Legally an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. Walden University staff verify any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).

Appendix D: One-on-One Interview Protocol

Greetings!

Thank you for your time and for agreeing to participate in this interview session for my doctoral study. My name is Sharon Wisdom, and I will be conducting this interview. By participating in the interview, you will provide me with the opportunity to collect information associated with my study. You have been chosen as a participant in this study because you possess experiences and viewpoints that are beneficial to the study about teachers' perceptions about the influence of high-stakes testing on students. Please remember that your participation in this study is confidential and voluntary. The duration of this interview will be 45-60 minutes and with your consent, it will be audio recorded. By recording the interview session, I will be able to effectively transcribe the exact words that are spoken, thereby assuring greater accuracy of capturing your responses. To ensure that responses are recorded appropriately, please speak in a voice tone that is loud and clear during the interview. Do you have any questions or concerns before I begin to record?

Research Question #1: What are high school English and mathematics teachers' experiences and perceptions about their current practices of preparing for high-stakes testing?

1. What do you believe are your responsibilities for getting students prepared for high-stakes testing? **Probe:** How do you get students psychologically and emotionally prepared for the high-stakes testing experience?

2. Please tell me how you have integrated test preparation skills and test anxiety reduction strategies into your instructional practices when preparing students for high-stakes testing. **Probe:** What steps have you taken to build students' confidence and to reduce test anxiety when you administer high-stakes tests?

3. What do you believe about how your teaching practices have been influenced by the increase in high-stakes testing? **Probe:** Please share some specific examples of what you have experienced with your students.

- Research Question #2:** What are high school English and mathematics teachers' perceptions of observed student behaviors that are related to test administration?

4. Please tell me about your experiences with students who have exhibited signs of anxiety and stress during a testing situation? What did these encounters in the testing location look like? **Probe:** How do you manage situations in which you observe evidence of stress and anxiety in students?

5. Have you ever tried to alleviate testing pressures on students prior to a testing session?

Please describe for me what you did. **Probe:** How did your actions change the testing environment or situation for students?

6. Teachers are aware of the pressure that students experience because of the connection between passing high-stakes tests and graduation. What do you believe are some other possible causes of students' stress and anxiety from high-stakes tests? **Probe:** What feedback have students and parents shared with you about the stress and anxiety associated with testing?

Research Question #3: What knowledge and strategies do high school English and mathematics teachers need to assist students with test preparation and anxiety reduction?

7. What teaching strategies are you currently using with students to enhance their test preparation skills for high-stakes testing? **Probe:** How do you believe these strategies have increased students' testing confidence levels and reduced testing anxiety?

8. What experiences do you have with strategies or techniques to reduce student test anxiety? **Probe:** What specific methods or interventions do you practice with students to help reduce test anxiety?

9. Based on your experiences with administering high-stakes test, how have you prepared yourself to help students with test anxiety issues? **Probe:** What kind of help or support have you received from the administrators to enhance your knowledge about test anxiety reduction? What kind of help would you like to receive from administrators or supervisors to increase your test administration effectiveness?

10. What kind of professional development would prepare you to assist students with reducing test anxiety during high-stakes testing? **Probe:** Do you have any ideas or suggestions to bring awareness of teachers' testing needs to school administrators? Probe: Do you feel that all teachers need PD on this topic? Please explain why or why not.

Appendix E: Focus Group Interview Protocol

Date: _____

Time: _____

Greetings!

Thank you for your time and for agreeing to participate in this focus group interview session for my doctoral study. My name is Sharon Wisdom and I will be facilitating the focus group discussion. By performing the interview, it will provide me with the opportunity to collect information associated with my study. You have been chosen as a participant in this study because you possess experiences and viewpoints that are beneficial and valuable to the study about teachers' perceptions about the influence of high-stakes testing on students. Please remember that your participation in this study is voluntary. As a participant in the group there are important ground rules to follow: a) one person speaks at a time; b) confidentiality is expected; whatever is shared in the group remains in the room; c) respect the viewpoints, opinions, and experiences of others in the group, and d) be open to positive and negative points of the topics discussed. If you have other ground rules that you would like to suggest, you are welcome share those now. The duration of this interview will be approximately 60 minutes and with your consent, it will be audio recorded. By recording the interview session, it will guarantee the accuracy of the responses provided. To ensure that responses are recorded appropriately, please speak in a voice tone that is loud and your clear during the interview. As a method of

identifying each other during the discussion, the members of the group will be designated with a participant number. Please also refrain from using the name of your school or your colleagues. If need be, please identify them by saying, “my school” or “the teacher”. Lastly, if you have a cell phone or any other of kind electronic device, please set it to the silent mode. Do you have any questions or concerns before I begin to record?

Research Question #1: What are high school English and mathematics teachers’ experiences and perceptions about their current practices of preparing for high-stakes testing?

1. Due to the prevalence of high-stakes testing in the educational setting today, please tell me about how it has affected your current instructional practices in the classroom and subsequently affected your students’ behaviors during testing.

Probe: Has there been a change in your teaching practices due to the strong focus on high-stakes testing? Have you observed any influence from these changes on the pressure, stress, and test anxiety experienced by students? Please share specific student responses to the changes.

2. Because of your experience with high-stakes testing and your understanding about the stress and anxiety associated with testing, what is your top strategy for reducing test anxiety that you can share with the group? **Probe:** Share a strategy

that appears to be effective in reducing student anxiety. What strategy have you tried that was not effective with reducing test anxiety for students?

Research Question #2: What are high school English and mathematics teachers' perceptions of observed student behaviors during test administration?

3. Imagine that Student X is in the process of taking the SAT test. About half way through the test, you notice that the student is crying. How would you handle the situation? **Probe:** Please tell me about a specific time when you dealt with some type of student test anxiety behavior during testing. What did this look like in the classroom? How did you address the issue?
4. What if, during one of your class sessions, students began a discussion about the fear and anxiety they feel about the graduation requirement of passing the PARCC test. How would you respond to their feelings of worry and anxiety? **Probe:** What steps or actions could you take to reduce their anxiety?
5. As a proctor in a testing room, what could you do to help reduce the anxiety level of students in the room prior to the start of the testing session? **Probe:** How do you think student would react to this strategy?

Research Question #3: What knowledge and strategies do high school English and mathematics teachers need to assist students with test preparation and anxiety reduction?

6. What kind of professional development or training have you experienced to help you with test anxious students? **Probe:** How do you feel your building administrators can support the development of staff to increase their knowledge about test anxiety and test anxiety interventions?

7. Imagine that you are a part of professional development (PD) committee that designs PD programs for staff. What kind of PD would you want to be offered to you to learn about the topics of test anxiety and test anxiety reduction interventions? **Probe:** Please describe the specific areas of PD needed for future training on the topic of test anxiety and test anxiety reduction interventions.