THE EFFECTS OF COMMON CORE STATE-MANDATED, HIGH-STAKES TESTING ON TEACHER STRESS IN SCHOOL DISTRICTS IN OHIO

by

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Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

The purpose of this quantitative, causal-comparative study was to explore the relationship between Common Core state-mandated, high-stakes testing and the stress levels, as measured by the Teacher Stress Inventory (TSI), of a convenience sampling of 204 secondary teachers in southwest Ohio who were assigned to teach Common Core high-stakes testing subjects and teachers not assigned to teach Common Core high-stakes testing subjects. This study sought to determine whether the Common Core state-mandated, high-stakes testing in the state of Ohio impacted teacher stress. The primary instrument used was the Teacher Stress Inventory (TSI), which was available through an online survey platform. Upon collection, the data were analyzed by conducting an independent-samples *t*-test. The results of the *t*-test showed no statistically significant impact on teacher stress. Even though the mean total stress score was lower for teachers of non-high-stakes Common Core testing courses ($M = 2.52$), the mean for teachers of high-stakes Common Core testing courses was only slightly higher ($M = 2.59$). Therefore, the study determined that the Common Core state-mandated, high-stakes testing had no statistically significant impact on the stress levels, as measured by Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes testing subjects. Future research should focus on a larger test sample with more demographics and other variables, as well as longitudinal data that examine the effects of high-stakes accountability and teacher stress.

Keywords: Common Core State Standards, high-stakes testing, teacher stress, Teacher Stress Inventory

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List of Abbreviations

American College Testing (ACT)

American Educational Research Association (AERA)

American Institutes for Research (AIR)

Analysis of Variance (ANOVA)

Common Core State Standards (CCSS)

Common Core State Standards Initiative (CCSSI)

Educator Standards Board (ESB)

Elementary and Secondary Education Act (ESEA)

English Language Arts (ELA)

Final Summative Rating (FSR)

Individuals with Disabilities Education Act (IDEA)

National Center for Education Evaluation (NCEE)

No Child Left Behind (NCLB)

Ohio Department of Education (ODE)

Ohio Teacher Evaluation System (OTES)

Partnership for Assessment of Readiness for College and Careers (PARCC)

Scholastic Assessment Test (SAT)

SMARTER Balanced Assessment Consortium (S-BAC)

Student Academic Growth (SAG)

Student Growth Measures (SGM)

Teacher Performance Rating (TPR)

Teacher Stress Inventory (TSI)

CHAPTER ONE: INTRODUCTION

Overview

This quantitative research study explored the relationship between high-stakes Common Core testing and teacher stress. As of 2018, the only subjects tested under Common Core in Ohio are English (grades 9 and 10), math (grades 9 and 10), biology (grade 10), and social studies (grades 10 and 11). It is assumed that teacher stress would be expected to be higher in English (grades 9 and 10), math (grades 9 and 10), biology (grade 10), and social studies (grades 10 and 11) if these new Common Core exams are bringing about more stressors to the teachers of the Ohio educational system.

Since Common Core State Standards (CCSS), the Partnership for Assessment of Readiness for College and Careers (PARCC) assessments, and American Institutes for Research (AIR) began implementation, many states are now using these standards and test results as determiners for whether or not students receive a high school diploma and whether or not a teacher is promoted or retained. Because of these expectations, stress is expected to be higher for teachers of the tested subjects. This study pursues that logic by examining teacher stress levels since the implementation of the CCSS in Ohio. Chapter One explores the background, problem statement, purpose statement, significance of the study, research question null hypothesis, and definitions.

Background

Since the adoption of the No Child Left Behind (NCLB) Act in 2001, school teachers have been under stress to meet performance objectives. One major concern is teacher stress and burnout (Aloe, Amo, & Shanahan, 2013; Croft, Roberts, & Stenhouse, 2016; Fisher, 2011; Lavigne, 2014; Mujtaba & Reiss, 2013; Richards, 2012; Stephenson, 2012).

On one side of the debate are proponents of high-stakes testing and teacher accountability. The proponents demonstrate the success of these tests by providing data showing increases in graduation rates and stricter accountability for public schools (Elliott, Kettler, & Roach, 2008; Erickson, Kleinhammer-Tramill, & Thurlow, 2007; Katsiyannis, Zhang, Ryan, & Jones, 2007; Marchant, Paulson, & Shunk, 2006; Thurlow, Lazarus, Thompson, & Morris, 2005).

On the other side of the debate, opponents of high-stakes testing stand firm in their beliefs. Testing opponents demonstrate the ineffectiveness of high-stakes testing by providing data showing increased expenses, examples of teaching to the test, and increases in the number of students unprepared for college (Amrein & Berliner, 2005; Brinckerhoff & Banerjee, 2007; Elliott et al., 2008; Fletcher et al., 2006; Hoffman & Nottis, 2008; McGill-Franzen & Allington, 2006; Nichols, Glass, & Berliner, 2002; Salend, 2008). The underlying problem in ending this debate appears to be the emotional nature of the argument.

There is a larger, more insidious aspect of this debate that is apparently, all too often overlooked; while this war of words rages, money and time that could be used to train educators in the strategies and knowledge derived from scientific advancements in understanding of the brain and how people learn is being spent on inconclusive theories with little or no true impact on the student population. This study focused on determining if a relationship exists between high-stakes Common Core testing, which for the construct of this study is defined as "those tests, which 'carry serious consequences for students or educators'" (Marchant & Paulson, 2005, p. 2), and teacher stress.

Through using social constructivist learning theory, this study focused on the idea that the learner brings his or her prior experiences and knowledge base to all learning. The learner then

uses this framework as a scaffold to construct new knowledge (Almala, 2005; Cobb, 1999; Garmston, 1994). Focusing on the constructivist approach, through its focus on developing critical-thinking skills, students become learners rather than memorizers. According to St. Jarre (2008), this is the type of student colleges seek. However, based on constructivist theory, it is apparent that every learner and every teacher is unique (Hein, 1991). This uniqueness seems to imply that a standardized test may not be an effective measurement of knowledge, potentially increasing the amount of stress experienced by the students and the teachers. By focusing on school districts in the state of Ohio and comparing feedback as supplied by the Teacher Stress Inventory (TSI), this study investigated any causal-comparative relationship in this area.

Problem Statement

While NCLB, the Common Core Curriculum, Partnership of Readiness for College and Careers (PARCC), American Institutes for Research (AIR), and the State of Ohio's Department of Education (ODE) have noble intentions, many claim that in the high-stakes testing arena sufficient research and evidence does not exist (McGill-Franzen & Allington, 2006; Nichols, 2007). The data that do exist predominantly highlight the negative or unintended consequences of this testing. According to Nichols (2007),

> Overall, the findings from the most rigorous studies on high-stakes testing do not provide convincing evidence that high-stakes testing has the intended effect of increasing student learning … Studies that consider performance on NAEP suggest that by and large, high-stakes testing does not lead to "real" learning gains, but rather manufactured ones that are more likely the result of greater attention to the material that will be tested. (p. 53)

Nichols also found that states with graduation exams had lower graduation rates and Scholastic Assessment Test (SAT) scores. Robert Linn, recipient of the American Educational Research

Association's (AERA, 2000) career achievement award believes that negative effects of high-stakes testing outweigh the positives (McGill-Franzen & Allington, 2006). The bottom line is that this lack of evidence leads to a very real concern regarding the effectiveness of high-stakes tests in improving education, and the amount of stress and its corresponding ramifications, endured by educators (Croft et al., 2016; Grossman, Cohen, Ronfeldt, & Brown, 2014). For this reason, this study is a necessary step in determining if a problem truly exists. This study addressed a gap in the research pertaining to whether or not there is a causal-comparative relationship between Common Core state-mandated, high-stakes testing and the levels of stress experienced by educators, those responsible for implementing this testing and potentially affected by the associated changes. The problem is high-stakes CCSS testing's impact on teacher stress.

Purpose Statement

The purpose of this quantitative, causal-comparative research study is to explore Common Core state-mandated high-stakes testing and the stress levels, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach high-stakes Common Core testing subjects and teachers not assigned to teach high-stakes Common Core testing subjects. The TSI measures two different aspects related to stress: (a) perceived job stress levels, and (b) the level of stress-related manifestations. As indicated by Fimian (1988), "The 5 stress source factors are Time Management, Work-related Stressors, Professional Distress, Discipline and Motivation, and Professional Investment; the 5 stress manifestations factors are Emotional Manifestations, Fatigue Manifestations, Cardiovascular Manifestations, Gastronomic Manifestations, and Behavioral Manifestations" (p. 8). The population of the study was a convenience sample of secondary teachers in southwest Ohio.

The independent variable for this study was whether or not a subject is a Common Core high-stakes tested subject. English (grades 9 and 10), math (grades 9 and 10), biology (grade 10), and social studies (grades 10 and 11) are currently the only high school subjects in Ohio associated with high-stakes Common Core testing. The dependent variable is the total stress score, as measured by the TSI. If the high-stakes Common Core testing impacts stress, then the teacher stress scores may be impacted for English (grades 9 and 10), math (grades 9 and 10), biology (grade 10), and social studies (grades 10 and 11) teachers.

Significance of the Study

High-stakes testing is a multi-billion-dollar industry in this country (Leistyna, 2007). However, there is little information on how much the implementation of these exams, with their corresponding curriculum changes, has improved the educational outcomes of public education. In light of the constant educational comparisons to other countries, research must be conducted to analyze the effectiveness of our current processes and its potential ramifications towards teachers. While studies have begun to examine the impact of high-stakes testing of students and evaluations of teachers, more research is needed (Croft et al., 2016; Lavigne, 2014; Thibodeaux, Labat, Lee, & Labat, 2015).

The researcher reasoned that if the findings of this study showed that this latest version of high-stakes testing, those related to Ohio Teacher Evaluation System (OTES), has had a significant impact on levels of teacher stress, a radical change to our current system may become necessary. For example, interventions to help teachers with stress and changes to teachers' workloads may be implemented to help teachers deal with stress. Administrators can use this information to further address teacher retention and to develop stress-related training regimens. Based on the findings, similar studies could be performed in other states to further assess the

impact of high-stakes testing on teacher stress.

Research Question

RQ1: Is there a significant difference in the total stress scores, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes tested courses and teachers not assigned to teach Common Core high-stakes tested courses?

Definitions

1. *Common Core State Standards* - Common Core State Standards are designed to "establish grade-level expectations in math and English language arts (ELA) for K-12 students. The standards are … based on evidence and research, and internationally benchmarked so that all students are prepared to succeed in our global economy and society" (Center for Public Education, 2013, p. 4). These standards are intended to establish a national baseline of grade-level expectations.
2. *Partnership for Assessment of Readiness for College and Careers (PARCC)* - PARCC "is a group of 19 states working together to develop a common set of computer-based K–12 assessments in English language arts/Literacy and math linked to the new, more rigorous Common Core State Standards (CCSS)" (Partnership for Assessment of Readiness for College and Careers [PARCC], 2013, p. 1).
3. *American Institutes for Research* (*AIR) Assessments* - AIR Assessments are online tests designed to determine if students have met the requirements of the CCSS. After numerous complaints about the length and overall amount of required testing from parents, educators, and administrators, testing began during the 2015-2016 school year. According to the ODE (2015) website, "The math and English language arts tests will be shorter than those given last year" (p. 1).

4. *High-stakes tests* - High-stakes tests, for the construct of this study, are defined as "those tests, which 'carry serious consequences for students or educators'" (Marchant & Paulson, 2005, p. 2).
5. *Time Management* - Time management is defined as "whether a teacher is able to find the necessary time for every important professional or personal need" (Kourmousi, Darviri, Varvogli, & Alexopoulos, 2014, p. 82).
6. *Work-related Stressors* - Work-related stressor is defined as "teaching or administrative workload, size of classes, professional responsibilities, etc." (Kourmousi et al., 2014, p. 82).
7. *Professional Distress* - Professional distress is defined as "stressful factors such as promotion opportunities, recognition, career development, and earnings" (Kourmousi et al., 2014, p. 82).
8. *Discipline and Motivation* - Discipline and motivation are defined as "whether a teacher feels capable of maintaining classroom control while motivating his or her students" (Kourmousi et al., 2014, p. 82).
9. *Professional Investment* - Professional investment is defined as "a teacher's involvement and beliefs regarding his or her job" (Kourmousi et al., 2014, p. 82).
10. *Emotional Manifestations* - Emotional manifestations are defined as "teachers' emotional responses to stress, e.g., anxiety, depression, etc." (Kourmousi et al., 2014, p. 82).
11. *Fatigue Manifestations* - Fatigue manifestations are defined as "teachers' physical responses to stress, e.g., changes in sleep, exhaustion, etc." (Kourmousi et al., 2014, p. 82).
12. *Cardiovascular Manifestations* - Cardiovascular manifestations are defined as "teachers'

cardiovascular system responses to stress, e.g., blood pressure, heart rate, etc." (Kourmousi et al., 2014, p. 82).

13. *Gastronomic Manifestations* - Gastronomic manifestations are defined as "teachers' gastronomical system responses to stress, e.g., stomach pains, cramps, etc." (Kourmousi et al., 2014, p. 82).
14. *Behavioral Manifestations* - Behavioral manifestations are defined as "the methods that teachers use in order to cope with stress, e.g., use of prescription drugs/alcohol, sick leave, etc." (Kourmousi et al., 2014, p. 82).

CHAPTER TWO: LITERATURE REVIEW

Overview

One continuing issue in today's American public education is the omnipresence of testing. While there are multiple views on the effectiveness and necessity of the current testing environment, changes are continuing to be implemented. The ODE (2015) stated,

> As part of the state's 2016-2017 budget, the General Assembly directed the Ohio Department of Education to transition to new tests for the 2015-2016 school year in mathematics and English language arts. Per the new law, Ohio will no longer use PARCC tests in mathematics and English language arts. (p. 1)

With this being said, a closer examination needs to be made of the existing data relating to both the high-stakes Common Core testing and the levels of teacher stress in Ohio.

Theoretical Framework

While much of the idea behind high-stakes testing seems to be based upon Pavlov's theory on classical conditioning, in that a great deal of time is spent preparing for a test with positive and negative reinforcement as the outcome, the theoretical framework from which many studies are oriented is related more to social constructivist learning theory. Social constructivism focuses on the idea that the learner brings their prior experiences and knowledge base to all learning. The learner then uses this framework as a scaffold to construct new knowledge (Almala, 2005; Cobb, 1999; Garmston, 1994). With the constructivist approach, it is vitally important for students to develop critical-thinking skills (Almala, 2005). By doing this, students become learners rather than memorizers. Also, this ensures that "learning is focused on enabling students to use knowledge in many different settings to make the learning itself as real-life as possible" (Almala, 2005, p. 10).

Based on the constructivist theory, it is apparent that every learner and every teacher is unique. In fact, according to Hein (1991), "There is no knowledge independent of the meaning attributed to experience (constructed) by the learner, or community of learners" (p. 1). Educators are still learners. Therefore, educators also develop meaning through experience. Some educators have had positive experiences with high-stakes testing, while others have had negative experiences. These experiences have constructed meaning and are responsible for stress, or a lack thereof, when it comes to the testing process. For example, Ohio instituted PARCC testing in the 2014-2015 school year with little to no guidance for the classroom teacher. In 2015-2016, Ohio dropped PARCC testing and moved to the AIR test (ODE, 2015b). According to constructivism, whatever experience the teacher had last year is likely to cause similar reactions this year (Hein, 1991). If the teacher was negatively stressed as a result of PARCC testing, that negative stress will most likely be present at the beginning of the AIR testing process.

Since this study's focus was on teacher stress, by focusing on Bandura's (1977) social cognitive theory, specifically the self-efficacy aspect of his theory, the researcher hoped to develop a clearer understanding of the relationship between high-stakes testing and teacher stress in relation to the Ohio Teacher Evaluation System. For this study, self-efficacy is defined as a person's belief that they are able to perform at a level that allows them to exert influence over life-affecting events (Bandura, 1994). Highly self-efficacious people approach new circumstances as another chance to excel, while those with low self-efficacy see those circumstances as unavoidable obstacles or threats to their lives or livelihoods (Bandura, 1994). Highly self-efficacious people approach new circumstances with the certainty that they can affect the outcome, thus reducing stress and depression. Those with low self-efficacy approach these same new circumstances believing that they have no control over the outcome. Due to this

perceived lack of control, the person with low self-efficacy is highly susceptible to stress and depression (Bandura, 1994). Since constructivist theory relates to prior learning experiences, the individual educator's self-efficacy in relation to high-stakes testing will most likely mirror the positive or negative stress previously experienced.

Related Literature

While a plethora of studies, viewpoints, and emotionally charged arguments about the state of public education in America exists, there appear to be few examples, if any, of verifiable, research-supported findings of which areas of public education are effective and which are not. With this in mind, the researcher intended that this study would serve as a foundation to help build upon the knowledge base of what works in public education. This review of the literature will focus on stress, in general, and teacher stress, specifically. In order to fully understand stress, an examination of stress manifestations and job stress and accountability is also required. After exploring these aspects of stress, this study then examined the impact, if any, of high-stakes testing, college readiness, the Common Core Standards, the OTES, the PARCC tests, and the AIR tests on teacher stress.

Stress

Kanji and Chopra (2009) indicated that "job stress costs U.S. industries nearly $300 billion a year in accidents, absenteeism, employee turnover, diminished productivity, workers' compensation awards…and direct medical, legal and insurance fees" (p. 563). With this expense in mind, it is no surprise that stress, in general, has been researched for decades. Research on stress in teaching is newer; however, there is beginning to be a substantial pool in this area as well. The specific area that is lacking in the research is that of teacher stress brought on by high-stakes testing, and more specifically, by the OTES. To begin, a solid definition of

stress is required. However, according to one researcher, "no common definition of stress applies to all peoples" (Peterson, 2003, p. 26). Therefore, a general definition will be supplied.

Stress can be defined as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19). The interesting aspect of this definition is the emphasis on the individual. Many times people believe that certain incidents are stressful for most people. However, what this definition distinguishes is that stress is a "particular relationship" and how it is "appraised by the person." The individual must also then decide if the stimulus is too much or too dangerous to be dealt with safely. Considering these varied aspects of stress, one can discern the incredible difficulty in stating a universal definition of stress. Numerous others have proposed similar definitions (Cartwright & Cooper, 1997; Halim, Samsudin, Subahan, Meerah, & Osman, 2006; Jepson & Forrest, 2006; Kyriacou, 1987; Lazarus, 1966; Montgomery & Rupp, 2005; Niewiecki, 2008; Selye, 1956).

Many researchers have focused on the individual reactions to environmental factors, which do or do not lead to stress manifestations (Berger, 2006; Davis, 1999; Ford-Martin & Frey, 2005; Halim et al., 2006; Kyriacou, 1987; Sabatino, 2004). The common element in these and other studies is that individuals handle different situations in different ways. Again, the focus returns to the individual, and not only the environments but also the individual's reactions to that environment. According to Jepson and Forrest (2006), the events that cause a person stress may vary drastically between individuals. For example, one person may experience extreme levels of stress from looking down from a great height. Others are exhilarated by the same experience. In fact, "reactions to life situations or social conditions are therefore dependent upon the way in which we attribute meanings to these experiences, or ways in which we appraise

them" (Jepson & Forrest, 2006, p. 184). Again, the individual's reactions to a stimulus are the ultimate focus. Even with all of these variables, it is important to note that stress is not always a bad thing; it is also necessary for continued growth and development.

Positive stress, or eustress, has been overlooked somewhat in recent years. However, some studies have been performed recently to re-evaluate the importance of eustress in continued growth and development as an individual. In fact, some studies show that "eustress promotes positive striving and emotions, which leads to good health, stimulates people and produces positive outcomes" (Mujtabi & Reiss, 2013, p. 627). This same study addressed the idea that positive stress can be good for teachers. According to Nagel and Brown (2003), "There are times that stress cannot be avoided, but individuals' perceptions can negatively or positively affect the degree of stress experienced" (p. 256). If this is the case, then what can an individual do? Are there a set of stressors with corresponding coping mechanisms that usually result in eustress?

According to Mujtabi and Reiss (2013), "a prerequisite to finding interventions to alleviate the problem of distress and burnout would be to identify the main contributory factors" (p. 629). The problem though is that there is no single source of identifiable stress. What causes negative stress in one person may cause eustress in another person. This implies that, once again, stress is entirely a product of the individual. Furthermore, Mujtabi and Reiss found that "accounting for individual differences is crucial for understanding the variation in teacher stress; while teachers within a particular comparable setting will all be exposed to similar job factors and environmental stressors, not everyone will suffer from distress" (p. 629). Ultimately, stress and its impact are dependent upon the individual.

This is where Person-Environment (PE) fit theory comes into play. According to Brewer

and McMahan (2003), “PE fit theory asserts that the interaction between an individual and his or her environment determines whether or not a situation is stressful for that person. If the fit between an individual and environment is incompatible, stress results” (p. 126). The environment or situation that a person finds him/herself in is interpreted as positive, neutral, or negative. From this assessment, stress either develops or does not. Once again, this shows the individual nature of stress. This also requires researchers to consider the environment and whether or not it is adaptable. If an environment cannot be adapted to the individual, then there is a fit issue, which, if the person cannot leave the environment, can lead to excessive stress.

Too much stress can lead to burnout. Burnout is defined as “a state of physical, emotional and mental exhaustion, caused by long-term involvement in emotionally demanding situations” (Matheny, Gfroerer, & Harris 2000, p. 78). Maslach and Schaufeli (1993) described burnout as having three manifestations: “(1) depersonalization, (2) reduced personal accomplishment, and (3) emotional exhaustion” (as cited in Richards, 2012, p. 307). The potential impact of stress-induced burnout is immense and substantially documented (Ganster & Schaubroeck, 1991; Jepson & Forrest, 2006; O’Driscoll & Cooper, 1996; Sethi & Schuler, 1984). All of these potential outcomes are also concerns in relation to the teaching profession.

Teacher Stress

Teaching is a highly stressful occupation (Aloe et al., 2013; Brown, Davis, & Johnson, 2002; Chaplain, 2008; Cox and Brockley, 1984; Dunham & Varma, 1998; Fisher, 2011; Geving, 2007; Hodge, 1994; Klassen, 2010; Kyriacou, 2000, 2001; McCarthy & Lambert, 2006; McCarthy, Lambert, O’Donnell, & Melendres, 2009; Travers & Cooper, 1996). According to Landsbergis et al.(2018), “46 percent of teachers report high daily stress during the school year, tied with nurses for the highest rate among all occupational groups” (pp. 560-561). On a daily

basis, teachers are inundated with a flood of potentially-stress-inducing situations. For example, a particular high school teacher may have six classes in a seven-period day comprised of 20-30 students per class. Each student in these classes has their own abilities, interest levels, and degree of motivation, yet every student is expected to demonstrate improvement and engagement in the class. Even without adding in the parental contacts, principal influences, and varying curricular requirements, a teacher's day is laden with stress. In fact, according to Smith, Brice, Collins, Matthews, and McNamara (2000), 42% of teachers experienced high levels of stress. In comparison, Jepson and Forrest (2006) reported stress rates of "31% in nursing, 29% in managerial jobs, and 27% in professional and support management" (p. 184). While this still leaves 58% of teachers reportedly not experiencing high levels of stress, the numbers are still remarkably high. With these identified stress levels, the importance of exploring teacher stress is reinforced.

Much like the general definitions that may be found for stress, there are various definitions for teacher stress as well. A few definitions for teacher stress have appeared in a number of studies (Kelly & Berthelsen,1995; Kyriacou & Sutcliffe, 1978; Niewiecki,2008; Pithers,1995). The definition of teacher stress for the purposes of this study is "the experience by a teacher of unpleasant emotions such as tension, frustration, anxiety, anger and depression, resulting from aspects of his or her work as a teacher" (Kyriacou, 1997, p. 156). With this definition in place, it is also important to consider the individual nature of teacher stress, "meaning that the experience of fatigue, loss of sleep, anxiousness, and even the potential for burnout is located within the teacher him/herself" (Niewiecki, 2008, p. 31). This individual nature of dealing with stress has caused some researchers to categorize responses to stress. For example, Stephenson (2012) identified three stress responses:

> Some teachers cope effectively with their stress, regardless of the magnitude, and are highly productive; Other teachers forge ahead in their jobs, despite severe stress, and look forward to vacations and retirement; While other teachers are unable to handle the stress, so they resign or retire. (p. 36)

Depending on an individual's coping ability, many outcomes are possible. Teachers who have high positive affectivity will most likely experience the most positive outcomes (Klassen, 2010). However, those teachers on the other end of the spectrum are more likely to experience high levels of stress (Klassen, 2010). High stress levels can affect teacher performance, mental health, physical health, career longevity, and overall effectiveness (Klassen, 2010). Teacher performance is one pillar of an effective educational environment. But with stress-induced mental illness, poor health, and earlier retirements, this area needs to be evaluated more thoroughly. With all of these potential negative outcomes, the necessity of additional studies that target teacher stress becomes apparent.

Sources of teacher stress are numerous, including both physical and mental stressors. Additionally, according to Richards (2012), "The conditions that cause teachers enormous stress are largely beyond their power to control" (p. 300). Teachers experience a variety of national, state, district, or school-specific circumstances and mandates that alter, sometimes drastically, their profession. For example, nationally, the advent of the CCSS brought with it the potential to not only alter how a teacher taught, but in many cases, what material was taught (Henderson, Howell, & Peterson, 2014). State mandates such as OTES increase the requirements placed upon the individual student and teacher. Districts also face funding issues such as reduced finances, due to a decrease in property values, while at the same time within each particular school, class size, grade level, and subjects taught are outside a teacher's control. Stephenson

(2012) divided stressors into three categories: administration, classroom, and personal.

Administration stressors include “excessive workload, changes in curriculum, ..., increasingly strict standards of accountability, and performance evaluations” (Gloria, Faulk, & Steinhardt, 2013, p. 185). Other factors can include poor working conditions, extra non-classroom duties, lack of collegiality, lack of administrative support, pay and benefits, and lack of resources (Gloria et al., 2013). Classroom stressors include unmotivated students (Richards, 2012), poor student behavior (Fisher 2011), and lack of parental support (Lambert, McCarthy, O’Donnell, & Wang, 2009). Along with these come the problems with classroom dynamics such as classroom management, topic coverage, and test preparation. Personal stressors are just that, personal. They vary by the individual and can include illness, lack of sleep, unmet goals, perceptions of inadequacy, family matters, financial issues, time management, and personal expectations. The possible personal stressors are as varied as the individual teacher.

Along with these individualized stressors, some things invariably predict stress. Fisher (2011) “found the following independent variables to be statistically significant predictors of stress: type of school setting, type A personality, teacher-specific achievement striving, and occupational commitment to the teaching profession” (p. 7). These are listed in order of most stress-inducing to least stress-inducing. Also, all of these but the school setting are individual-based. This reinforces the belief that much stress is purely dependent upon the individual teacher and how he or she reacts to different situations. However, Klassen (2010) found, “Teacher stress is not inevitable in challenging conditions: teachers in schools where there is good communication among staff and a strong sense of collegiality express lower levels of stress and higher levels of commitment and job satisfaction” (p. 343). Without consistency at the state level, more stress amongst teachers seems likely.

One area that has shown a positive aspect of mitigating teacher stress is teacher autonomy. Autonomy recurs as one of the major reasons for teacher job satisfaction (Pearson & Moomaw, 2005). Being able to determine what is best for students under their care and supervision is a key aspect to autonomy. However, many of the changes discussed in this study point to the undermining of teacher autonomy. For example, during a classroom discussion, a teachable moment occurs in which the class is off topic but engaged in learning. Due to the amount of information and skills that need to be covered for the high-stakes test, teachers may choose to limit or end the discussion in order to get back on track. According to Pearson and Moomaw (2005),

> If teachers are to be empowered and exalted as professionals, then like other professionals, teachers must have the freedom to prescribe the best treatment for their students as doctors/lawyers do for their patients/clients; and the freedom to do such has been defined by some as teacher autonomy. (p. 38-39)

Current interpretations of the CCSS seem to limit teacher autonomy by the very nature of the newly mandated curricular and testing requirements. For example, the Ohio English Language Standards document lists the required skills for K-12. The standards alone are 78 pages in length, not including any of the appendices. While "The Standards define what all students are expected to know and be able to do, not how teachers should teach" (ODE, 2014a, p. 6), the amount of information to be covered often precludes the teacher from expanding the learning of the students, making learn less relevant. With all of this being said, stress is still a serious issue in the teaching profession. The effects of stress vary greatly, but many are costly physically, emotionally, behaviorally, and financially.

Stress Manifestations

As previously mentioned, experiencing stress is based on the individual. Likewise, the way stress manifests itself also varies between individuals. Stress manifests itself physically, emotionally, behaviorally, and/or financially. Physical manifestations vary widely. For example, Berger (2006) included symptoms such as "discomfort in the back, neck, and shoulders; sleeplessness; heartbeat irregularities; digestive disorders; fatigue; cold feet or hands; weight change; panic attacks, and a suppressed immune system" (pp. 36-37). Also mentioned were chronic physical exhaustion, frequent headaches, and high blood pressure (Jepson & Forrest, 2006; Richards, 2012). With the possibility of a suppressed immune system, a higher susceptibility to various contagious diseases is also present. While many of the physical manifestations of stress are more visible, the emotional manifestations are just as dangerous. Berger (2006) identified emotional manifestations such as "anxiety, fear, depression, nervousness, and difficulty making decisions" (pp. 36-37). Others have identified decreased idealism and enthusiasm for teaching and increased doubt as to the teacher's ability to positively impact his or her students (Richards, 2012). With these potential manifestations, the effects of stress highlight the potential harm a stressed teacher could cause in the classroom. Again, while some of the emotional manifestations of stress are noticeable, many others are less apparent.

Behavioral stress manifestations follow the same pattern. Berger (2006) identified behavioral manifestations such as "frustration, poor grooming, tardiness, and alcohol and drug abuse" (pp. 36-37). Other examples of behavioral stress manifestations include alcoholism (Jepson & Forrest, 2006), low motivation (Halim et al., 2006), and premature retirement (Unterbrink et al., 2014). These behavioral stress manifestations could lead to potential harm in the classroom, the least of which would be the lack of effort put forth by the stressed teacher.

According to Berger (2006), financial stress manifestations are the least obvious and are often overlooked because the organization is affected more than the individual teacher. Some of these manifestations are "employee absences from sickness, retirements, and escalating health insurance premiums" (p. 37). Ultimately, all of these stress manifestations interact to cause the largest stress-related problem: teacher burnout.

Teacher burnout is one of the largest stress-related problems (Berryhill, Lenney, & Fromewick, 2009). Burnout is defined as "the chronic multidimensional negative disposition towards teaching and working in a school" (Aloe et al., 2013, p. 103). Many of the dimensions leading to burnout have been discussed previously, including local, state, and national mandates and teacher workload. A psychological definition is "a syndrome resulting from teachers' inability to protect themselves against threats to their self-esteem and well-being" (Haberman, 2004, p. 1). Again, this relates to the lack of control experienced by teachers over their classrooms and the curriculum deemed necessary for the teacher's students.

Many researchers have studied the teacher burnout phenomenon (Aloe et al., 2013; Bauer et al., 2007; Betoret, 2009; Bowers, 2001; Brown, Gilmour, & Macdonald, 2006; Chang, 2009; Evers, Tomic, & Brouwers, 2004; Kumarakulasingam, 2002; Maguire & O'Connell, 2007; Ozdemir, 2007; Ransford, 2007; Travers, 2001; Unterbrink et al., 2007, 2014; Weber, Weltle, & Lederer, 2006). According to Ingersoll and Smith (as cited in Gloria et al., 2013), "It is estimated that 40-50% of new teachers leave the profession after only 3 years and over 90% of new teachers are replacements for those who resigned for reasons other than retirement (p. 186). With numbers like these, it is apparent that burnout is a huge concern in America's education system.

However, some teachers working under the same conditions never experience burnout.

Some researchers suggest that this is due to positive affectivity. According to Gloria et al. (2013), positive affect is defined as "the individual's experience of general positive feelings that enhance adaptation" (p. 188). Basically, it all comes down to the individual. If a person identifies the stress and then adapts to it positively, then that teacher continues to thrive. This person would be one with high positive affectivity. According to Snyder and Lopez (2005), people like this "experience frequent and intense episodes of pleasant, pleasurable mood; generally speaking, they are cheerful, enthusiastic, energetic, confident, and alert" (p. 106). Teachers who cannot adapt suffer the manifestations of stress and approach burnout levels due to exhibiting low positive affectivity. They "report substantially reduced levels of happiness, excitement, vigor, and confidence" (Snyder & Lopez, 2005, p. 106). Jepson and Forrest (2006) noted that Type A teachers are more likely to experience heightened levels of stress than Type B teachers, potentially leading to a higher burnout rate. One of the stressors that is currently under study is that of high-stakes testing.

Job Stress and Accountability in Relation to High-stakes Testing

With the advent of the Common Core, PARCC testing, AIR testing, and OTES, Ohio teachers are being evaluated based, at least partially, on student test scores. With the research supporting that teaching is already one of the highest stress-experiencing occupations, this latest reform may be increasing teacher stress (Aloe et al., 2013; Brown et al., 2002; Chaplain, 2008; Cooper, 1996; Cox & Brockley, 1984; Dunham & Varma, 1998; Fisher, 2011; Geving, 2007; Hodge, 1994; Kyriacou, 2000, 2001; McCarthy & Lambert, 2006; McCarthy et al., 2009; Travers & Klassen, 2010). According to Christian (2010), "Research reports that accountability and high-stakes testing has greatly impacted teachers' levels of stress through pressure, pedagogy, and content" (p. 28). Teachers may feel added pressure to teach to the test, alter the

way they teach, using methods such as drill and memorization; and limit the amount of material covered. Christian (2010) further noted, "Even though teachers teach from a standardized, mandated curriculum and also administer the high-stakes tests, their personal beliefs about how students should learn and be assessed often oppose the policies they must enforce" (p. 31). When a student arrives in the classroom worried about where they will sleep that night or if they will have food to eat for dinner, the teacher knows that success on a test is unlikely and, ultimately, not that important to the student, given his/her physical concerns. Therefore, while teachers have to worry and endure stress about the scores the student will achieve on the exam, many teachers have a genuine concern for their students' well-being.

Without the flexibility in respect to teaching methods, in order to do what is best for the student, Common Core standards and high-stakes testing, along with OTES, may increase these feelings, resulting in more stress and burnout. Berryhill, Lenney, and Fromewick (2009) stated "one hypothesized outcome of education accountability policies is pressure that contributes to teacher burnout" (p. 1), and "Meanwhile, policy analysts have found that accountability policies put teachers in a position in which they do not feel efficacious. That is, many educators do not believe they can influence student learning, as demanded by accountability systems" (p. 2). While not specifically related to CCSS and OTES, statements like these reinforce the necessity of the current study. To compound the stress of the implementation of high-stakes CCSS testing, new teacher accountability systems such as OTES potentially add to the already stressful situation. In fact, Murphy and Torff (2014) discussed the dual implementation in New York State. By implementing the CCSS and the new accountability system at the same time, tremendous failure on the high-stakes tests at all levels, combined with exceptionally poor teacher evaluations were the results. With the opportunity to phase the changes in slowly, stress

may have been reduced for all parties. Murphy and Torff make a salient point to the argument:

> The standards-and-accountability model of educational reform is unaccountable; student outcomes are typically attributed to educator performance, not to the efficacy of the model. When test results are good, it is because educators functioned effectively; when results lag, it is because educators underperformed. (p. 21)

With this type of arrangement, data are open to non-verifiable interpretation. There are too many variables to allow for a clear causation; therefore, teacher and/or student stress seems inevitable.

High-Stakes Testing

Since 2002 and the implementation of No Child Left Behind (NCLB), high-stakes testing has been the focal point in numerous debates over the success, or lack thereof, of American public education. According to one study, "High-stakes testing, the technology par excellence of the standards and accountability movements, has steadily gained prominence in its role in public school accountability (Cuban 2004) and now pervades educational practice in the wake of *No Child Left Behind* (NCLB; 107th Congress 2002)" (as cited in Gunzenhauser, 2006, p. 241).

High-stakes testing is defined as "those tests that 'carry serious consequences for students or educators'" (AERA, 2000, p. 24). One of the main purposes of high-stakes testing is to ensure that all students are given access to the same levels of education, alleviating academic inequities currently reported based on race, gender, social class, and disability (Madaus & Russell, 2010). By properly training educators in various strategies for working with students with multiple ability levels, proponents expect high-stakes testing to produce increases in academic achievement across all subgroups of the student population (*NCLB: Effects on Achievement*, 2008).

The testing based on CCSS also allows colleges to develop college entrance transcript scores that have reduced bias. CCSS schools should have common language. For example, colleges will no longer need to be concerned that Scholarship Chemistry at one school is General Introduction to Chemistry in another school (*NCLB: Effects on Achievement*, 2008). CCSS should make college readiness determinations much simpler for colleges and universities. With this definition in place, several assumptions have been made in relation to education in general and high-stakes testing specifically.

> First, all children are assumed to have the requisite ability to learn and achieve academically at a normal rate. The second assumption is that when children fail to achieve at a normal rate, educators have failed, not the students. Although the intention of NCLB is to provide quality educational opportunities for all children, using high-stakes testing to measure outcomes may not benefit all children, especially when used as a criterion for retention or promotion. (Beebe-Frankenberger, Bocian, MacMillan, & Gresham, 2004, p. 205)

With this being said, many researchers have studied the impact of high-stakes testing on those students labeled as disabled (Brinckerhoff & Banerjee, 2007; Elliott et al., 2008; Erickson et al., 2007; Fletcher et al., 2006; Huynh & Barton, 2006; Katsiyannis et al., 2007; Mastropieri et al., 2006; Thurlow et al., 2005; Ysseldyke et al., 2004; Zebehazy, Hartmann, & Durando, 2006). Therefore, these studies merit a brief elaboration of findings. With the implementation of No Child Left Behind in 2001 and Individuals with Disabilities Education Act (IDEA, 2004), the issue of high-stakes testing of students labeled as disabled has resulted in thousands of claims, both positive and negative, about the consequences of this policy (Brimijoin, 2005; Erickson et al., 2007; Jones, 2007; Marchant, 2004; Marchant et al., 2006; Mastropieri et al., 2006; Schulte

& Villwock, 2004; Ysseldyke et al., 2004; Zebehazy et al., 2006). Proponents of NCLB and high-stakes testing have made claims that the changes implemented would result in improved education for all, including those labeled as disabled.

> The requirements to include students with disabilities in state and local district assessments, including high stakes testing, suggest that with accommodations, appropriate instruction, support, and collaboration with general education teachers, students with disabilities can meet high academic standards for graduation. (Johnson, Thurlow, Stout, & Mavis, 2007, p. 60)

Opponents of these policies claimed that the results would be less positive. For example, "The majority of high-stakes tests from elementary school through postsecondary education include the timed impromptu essay as a measure of writing performance. For adolescents with writing disorders, this type of evaluation often presents a significant barrier" (Gregg, Coleman, Davis, & Chalk, 2007, p. 306). Even with additional time, these essays are often overwhelming for students with these writing disorders. With these studies and many others, researchers continually argue for and against the continued usage of high-stakes testing. With this ongoing debate, teachers are left to somehow make it work, thereby potentially increasing their stress.

Proponents of high-stakes testing have discussed improved test scores and overall student success (Elliott et al., 2008; Erickson et al., 2007; Katsiyannis et al., 2007; Marchant et al., 2006; Thurlow et al., 2005). Opponents discussed a lack of accountability and manipulation of data through the use of accommodations (Bouck & Wasburn-Moses, 2010; Brinckerhoff & Banerjee, 2007; Elliott et al., 2008; Fletcher et al., 2006; Fritschmann, Deshler, & Schumaker, 2007; Huynh & Barton, 2006; Mason, 2007; McGill-Franzen & Allington, 2006; McNeil, Coppola, Radigan, & Heilig, 2008; Meek, 2006; Salend, 2008). A more recent study found that "on the

theoretically important domain of instructional support, we find classroom quality is lower when classrooms are under greatest pressure to increase test performance" (Plank & Condliffe, 2013, p. 1152). More in-depth studies need to be performed.

An additional area of concern is the long-range impact of high-stakes testing on students. Although not studied thoroughly, data seem to support the idea that dropout rates and high-stakes testing are linked. Shriberg and Shriberg (2006) found that since the implementation of NCLB (2001), "Students . . . appear to be dropping out of school earlier and in much greater numbers than previously believed, and high-stakes testing may be a leading cause" (p. 76). Many schools, in order to combat this dropout rate, have introduced the possibility of receiving a nontraditional diploma. Ironically, "there is little evidence of a positive relationship between high stakes testing and academic achievement" (Shriberg & Kruger, 2007, p. 5). Regardless of this lack of evidence, NCLB has resulted in many changes, especially in relation to student and teacher concerns. Along with the students' concerns of dropping out, many teachers are concerned about their students' success. Teachers are concerned about students who may drop out of school. By trying to help those students, an increase in teacher stress is likely.

However, with the previous positives being stated, numerous other studies demonstrate less than favorable consequences (Jones, 2007; Katsiyannis et al., 2007; McGill-Franzen & Allington, 2006; Nichols, 2007). Whether discussing students with or without disabilities, many in the high-stakes testing arena believe that sufficient research and evidence does not exist (Hagedorn, Lester, & Cypers, 2010). What data that do exist predominantly highlights the negative or unintended consequences of this testing (Haney, 2000; Jones & Egley, 2004).

Overall, the findings from the most rigorous studies on high-stakes testing do not provide convincing evidence that high-stakes testing has the intended effect of increasing student

> learning … Studies that consider performance on NAEP suggest that by and large, high-stakes testing does not lead to "real" learning gains, but rather manufactured ones that are more likely the result of greater attention to the material that will be tested. (Nichols, 2007, p. 53)

Nichols also found when "comparing graduation rates and SAT scores in states with a graduation exam against states without a graduation exam, states with graduation exams had lower graduation rates and lower aggregate SAT scores" (p. 53). Nichols and authors of similar studies made no correlation other than the statement that states with graduation exams had lower SAT scores and graduation rates than states without graduation exams. In fact, Nichols stated that all her conclusions were drawn in light of the limitations of the study, such as the graduation rate calculation reliability and the SAT takers scores.

Increased stress on teachers for student success with high-stakes testing may be leading to more "teaching to the test," thereby having less time to focus on the act of learning rather than on specific content. These data are discouraging. Robert Linn, recipient of AERA's career achievement award, said, "The unintended negative effects of high-stakes accountability uses often outweigh the intended positive effects" (as cited in McGill-Franzen & Allington, 2006, p. 762). The bottom line is that this lack of evidence leads to a very real concern about the effectiveness of high-stakes testing in improving education.

College Readiness

Another area that may have a relationship to teacher stress is that of college readiness. In order to understand this correlation, a definition of college readiness is necessary. One definition, proposed by Latterell and Frauenholtz (2007), is "that students have what it takes to transition successfully from high school mathematics to college mathematics" (p. 8). The

American College Testing (ACT) has a more thorough response and "defines college readiness as 'the level of preparation a student needs to be ready to enroll and succeed — without remediation — in a credit bearing course at a two-year or four-year institution, trade school, or technical school'" (Latterell & Frauenholtz, 2007, p. 8). With this definition, the rest of the literature may be explored.

The literature tells us that the perception of many college faculty places the blame for lack of readiness on the secondary schools. For example, one study (Data, 2007) found that only 36% of college faculty believed that incoming freshmen were well prepared, and 41% said that the majority of their students did not have the basic skills to allow them to be successful in college. This same study showed that the vast majority of entering freshmen were not proficient or only marginally proficient in critical thinking, 98%, Level 3 Math, 96%, Level 3 Writing, 95%, and Level 2 Reading, 76% (Data, 2007, p. 25). The question then becomes, what do colleges consider to be proficient?

Byrd and MacDonald (2005) determined that colleges considered three areas when determining basic readiness: time-management, goal setting, and self-advocacy. These three factors were deemed necessary in addition to the expected academic preparedness. Academically, colleges:

> …expect students to be self-motivated and self-directed learners doing more of the coursework on the student's time and less in-class work than high school. College mathematics courses cover topics at a faster pace than secondary classes. In college, students are expected to read the textbook. In fact, some information that students are held responsible for is found only in the textbook. (Latterell & Frauenholtz, 2007, p. 10)

In regards to writing:

> The university standards expect students to use variety in sentence structure; demonstrate mastery of grammar and word usage; show evidence of a controlled style and voice; know the difference between a topic and a thesis; use a variety of methods to develop arguments, including compare–contrast, inductive–deductive, and general–specific; and distinguish between formal and informal styles, among other skills. (Brown & Conley, 2007, p. 151)

These expectations are not necessarily universally accepted by different colleges. According to one study, "Exactly what constitutes 'college-level work' is by no means clear. Institutions differ on this, and there are different expectations even within single institutions. Consequently, there is no objective or generally agreed upon cut-off below which college students require remediation" (Attewell, Lavin, Domina, & Levey, 2006, p. 887). Since this is the case, the responsibility for the lack of college readiness would seem to be greater than any one level of the educational process. Secondary education is attempting to improve by using various graduation tests, including state-developed proficiency tests as well as the ACT and SAT (Brown & Conley, 2007). In addition, Brown and Conley found that these tests often do not cover the skills necessary for college preparedness. In fact, the results of their study determined that many of these tests only aligned in the areas that were considered the most basic. Also, Brown and Conley (2007) noted:

> The university standards and objectives in reading comprehension and writing are more demanding and detailed than are corresponding state assessment items … State tests rarely cover these areas in adequate depth, nor do state writing tasks allow students to demonstrate many of these skills. Scoring guides used to score writing assessments may reference some of these objectives, but must omit many others. (p. 151)

Overall, there is another obvious disconnect between what secondary schools think they are doing and what colleges want them to be doing. One study "by Achieve, Inc. (2004) asserted there was a gap between such tests and the requirements of colleges and employers and insinuated that such exams were not demanding enough of high school students" (as cited in Williamson, 2008, p. 606). Another aspect of this weakness has to do with the students' reading abilities. As Williamson noted, high school texts are generally written at a lower reading level than college texts; therefore, students who appear to be prepared after high school experience difficulty upon reaching the post-secondary level.

Another consideration arises upon examination of student attitudes about school. Kuh (2007) stated:

> Many high school seniors are not prepared academically for college-level work and have not developed the habits of the mind and heart that will stand them in good stead to successfully grapple with more challenging intellectual tasks. The senior year in particular seems to be a wasteland: the overall engagement of high school seniors is much lower than that of any previous year. In fact, student engagement declines in a linear fashion between the first and the last year of high school. (p. 5)

Why this phenomenon is occurring is an area for future study. However, when students are only putting forth a minimum of effort to ensure graduation from high school, there are long-term ramifications in regard to college readiness. Once reaching college, "Almost 60 percent of full-time college and university students are studying less than 15 hours outside of the classroom each week, and many of those students are not studying at all" (Wyatt, Saunders, & Zelmer, 2005, p. 29). In fact, Wyatt et al. also found that the "collegiate culture [is] more focused on social than on academic activities" (pp. 29-30). The problem is not one that is based solely on

any one identifiable area or institution. Some studies suggest that college remediation fails to solve the problem (Bettinger & Long, 2009; Fine, Duggan, & Braddy, 2009; Howell, 2011; Levin & Calcagno, 2008). Solving this problem of adequate college readiness has been a topic of discussion in the literature.

Spence (2009) outlined one possible approach to addressing the college readiness problem is the development of state college readiness initiatives. According to Spence, California State University's Early Assessment Program proposed steps based on theory and practice that can aid in development of these initiatives. The following steps were highlighted by Spence:

- Identification and agreement by all public schools and higher education institutions statewide on one set of academic readiness standards in reading, writing, and math—the skills needed to learn at higher levels
- Diagnostic assessment of high school students' performance on the academic readiness standards to enable them to get further help during high school
- Inclusion of readiness performance as part of the state's public school accountability process, ensuring that high schools emphasize college readiness
- High school developmental courses, other learning activities, and supports focused on college readiness
- Intensive focus on postsecondary readiness during the senior year of high school
- Provision of preservice and in-service activities that help prospective and practicing teachers provide courses that focus on the specific learning skills associated with college readiness. (pp. 96-97)

Spence went on to note that the irony of this is that changes are a necessity. Rethinking how

schools are operated is a necessity. Communication is a necessity. For too long, blame has been tossed about with little or no suggestions or cooperation given between secondary and postsecondary educational institutions. A dialogue must be opened between these two institutions and both sides need to present a united front in order to get the political support needed from policy makers, which is so necessary for implementing any long-term change. If successful completion of high-stakes testing is to certify that a student is college ready, even more stress could be experienced by teachers as a result.

Common Core State Standards (CCSS)

CCSS are designed to "establish grade-level expectations in math and ELA for K-12 students…are aligned with college and work expectations, based on evidence and research, and internationally benchmarked so that all students are prepared to succeed in our global economy and society" (Center for Public Education, 2013, p. 1). These standards are intended to establish a national baseline of grade-level expectations (Center for Public Education, 2013). ELA and math were chosen "because they are the areas upon which students build skill sets that are used in other subjects" (National Governors Association, 2014, p. 4). While ELA and math are the focus, there is also an element encouraging changes across the curriculum.

Historically, questions and concerns about modern American education began in 1957 with the Soviet launch of Sputnik, as at this time the U.S. and the Soviets were in competition to see who could advance the most (Amrein & Berliner, 2002). The U.S. wanted to end communism and its proliferation, and the Soviets wanted to increase their power in the world. This led to the space race, specifically, and a technology race, in general. However, little actually changed in the realm of education until the passage of the Elementary and Secondary Education Act (ESEA) of 1965. This act authorized "grants (1) to improve the education of

disadvantaged children and youth, (2) to acquire school library resources, textbooks, and other instructional materials, (3) to establish supplementary education centers, (4) to stimulate educational research and training, and (5) to strengthen state departments of education" (ESEA, 1965, p. 1). ESEA also strictly forbids governmental "control over the curriculum, program of instruction, administration, or personnel of any educational institution or school system, or over the selection of library resources, textbooks, or other printed or published instructional materials by any educational institution or school system" (ESEA, 1965, p. 32). However, despite, or perhaps because of, the efforts of ESEA, the 1970s still showed a decline in SAT scores (College Entrance Examination Board 2012). This led to the *Nation at Risk* Report in 1983. Again, American public education was questioned and new recommendations were made.

Ultimately, revisions of ESEA took various forms, including the Goals 2000: Educate America Act of 1994, No Child Left Behind (NCLB) of 2001, and the Common Core State Standards Initiative (CCSSI) of 2010. The CCSS were developed with major financial support from the Bill and Melinda Gates Foundation and have been encouraged by the government by the awarding of funds from Race-to-the-Top grants (Center for Public Education, 2013). Race to the Top is:

> …a competitive grant program designed to encourage and reward States that are creating the conditions for education innovation and reform; achieving significant improvement in student outcomes, including making substantial gains in student achievement, closing achievement gaps, improving high school graduation rates, and ensuring student preparation for success in college and careers; and implementing ambitious plans in four core education reform areas. (U.S. Department of Education, 2009, p. 2)

Also, the U.S. Department of Education has awarded $346 million to PARCC and SMARTER

Balanced Assessment Consortium (S-BAC) for test development (Center for Public Education, (2013).

There are many positive and negative arguments regarding the CCSS. For example, proponents of the standards state that the CCSS rigor is increased compared to most states' existing standards. There are also clear and consistent guidelines established for each grade level. At the present time, there is no unified system designed to compare local school performance to performance of other school systems nationwide. CCSS, with its national curriculum, would establish a national metric making this comparison possible (Henderson et al., 2014). In addition, reading is taught and emphasized across the curriculum. Along with rigor and consistency, college preparation and quality education for all students is also touted (Conley, 2014; Wallender, 2014). In a survey on School Reform, Henderson, Howell, and Peterson (2014) found an increase in the support of school accountability systems and school choice. Proponents of CCCS cite these factors as support for the initiation of CCSS.

Opponents of CCSS believe the standards represent a government or corporate takeover of education. Robbins (2013) called the CCSS "a radical redirection of American education," and said that CCSS "may advance a political agenda more than it does effective education" (p. 9). With an emphasis on competing in a global economy and preparing students for the workplace, opponents further suggest the loss of deep intellectual thought in favor of a more utilitarian outcome. Some even say that the CCSS is "designed to produce right-thinking cogs for the economic machine" (Robbins, 2013, p. 13). Due to this perceived political agenda, a government or corporate takeover of state, local, and parent rights is also foreseen (Robbins, 2013). An additional concern is the cost of implementation for both technology and teacher training. Furthermore, according to Kornhaber, Griffith, and Tyler (2014), the supposed benefit

of educational equity is questionable at best. Finally, some people even question the necessity of implementing the CCSS.

Krashen (2014) stated that one of the main reasons for CCSS is the perceived poor international test rankings. According to Krashen's research, American international test scores have not declined. Krashen also stated that "In fact, when we control for the effects of poverty, American students rank near the top of the world" (p. 37). Krashen also pointed out that "the U.S. economy is ranked as the fifth most innovative in the world out of 142," and "two to three qualified graduates are available for each science/tech opening" in the U.S. (pp. 37-38). Ultimately, the money spent on CCSS might be better spent dealing with poverty. Overall, the ultimate effect of CCSS is unknown at this time. However, teacher stress due to this curriculum may be increasing.

Ohio Teacher Evaluation System (OTES)

OTES has its origins in 2004, when the Governor's Commission on Teaching Success used Senate Bill 2 to create the Educator Standards Board (ESB; ODE, 2015a). The ESB created Ohio Standards for the Teaching Profession, for Principals, and for Professional Development. In 2009, the ESB, via House Bill 1, recommended a model evaluation system for teachers and principals (ODE, 2015a). OTES is the result. As of May 2013, OTES evaluated teachers on two components: (a) teacher performance rating (TPR), and (b) student academic growth (SAG).

The teacher performance rating is derived through examining a professional growth plan and conducting four observations, two 30-minutes and two walkthroughs (ODE, 2015a). These observations are intended to highlight teacher strengths and areas of needed improvement. Each formal observation requires a preconference between the teacher and the principal/observer (ODE, 2015a). During this pre-conference, the teacher introduces the lesson plan for the day of

the observation, instructional strategies for the lesson, student activities, differentiation, and assessment. Also, the teacher needs to discuss the prior learning experiences and characteristics of the students (ODE, 2014b). These pre-conferences can last 15-50 minutes. After the 30-minute (minimum) formal observation, a post-conference, also lasting 15-50 minutes, is held (ODE, 2015a).

During the post-conference, the teacher is to reflect on the lesson and his performance, while the principal/evaluator is to identify the strengths of the teacher and lesson, as well as any areas needing refinement (ODE, 2015a). During the post-conference, the evaluator also goes over the Teacher Performance Evaluation Rubric. The rubric, scored holistically, evaluates the educator's Focus for Learning, Assessment Data, Prior Content Knowledge/Sequence/Connections, Knowledge of Students, Lesson Delivery, Differentiation, Resources, Classroom Environment, Assessment of Student Learning, and Professional Responsibilities (ODE, 2014b). Each of these areas is rated as either *ineffective*, *developing*, *skilled*, or *accomplished*.

As of May 2013, the TPR accounted for 50% of the final evaluation. Student academic growth is more complicated, but ultimately accounts for the other 50% of the final evaluation. For the 2014-2015 school year, House Bill 362 instituted an alternative evaluation. School districts can either stay with the current 50/50% evaluation method or implement the new evaluation system. The alternative system is based on 42.5% TPR, 42.5% SAG, and 15% using a department-approved instrument, such as student surveys, teacher self-evaluations, peer review evaluations, or student portfolios (ODE, 2014b). However, as of December 2015, House Bill 64 changed the alternative system (ODE, 2015a). The updated alternative framework is 50% TPR, 35% SGM, and 15% based on one, or a combination of any, of the following: "student surveys;

teacher self-evaluations; peer review evaluations; student portfolios; or other district-determined component" (ODE, 2015a, p. 6).

Teachers, principals, districts, and states develop Student Growth Measures (SGM). For the purposes of OTES, student growth is defined as "how much academic progress students are making by measuring growth between two points in time" (ODE, 2014b, p. 1). The SGM is derived from three possibilities: (a) teachers with Value-Added data available (both exclusively and not exclusively), (b) teachers with approved vendor assessment data available, or (c) teachers without either of these data available (ODE, 2015a, p. 9). In many cases, the following procedure is followed. Every student takes a pre-test and an academic growth target is established per student. Near the end of the school year, a post-test is taken. The pre-test and post-test scores are compared to the academic growth target established for each student. Each score is then categorized as Below Expected Growth, Expected Growth, or Above Expected Growth (ODE, 2015a). Finally, a percentage score is developed to give the teacher a grade on overall student growth. This score, combined with the teacher performance on standards rating, results in a Final Summative Rating (FSR) of Accomplished, Skilled, Developing, or Ineffective (ODE, 2015a).

Based on the FSR, rewards or consequences are meted out. Rewards include continued contracts, fewer evaluations, and/or pay increases, and consequences could include non-renewal of contract, pay freezes, increased evaluations, and mandatory teacher development. In the 2014-15 school year, the SGM for grades 4-10 was based on scores received on standardized tests in ELA and math as developed by PARCC (ODE, 2015a).

One professed concern with implementing CCSS and the new OTES system at the same time is that educators could possibly be judged unfairly due to the enormous workload entailed

with the new curricular requirements (Murphy & Torff, 2014). The results of a different study suggested a different potential problem. According to Grossman, Cohen, Ronfeldt, and Brown (2014), "value-added measures shift when different tests are used to assess student achievement" (p. 293). Winters and Cowen (2013) noted:

> Value-added measures contain information that can help to identify teachers who will prove to be ineffective in later school years … in part … But our evidence also indicates that no system of evaluation will eliminate flaws from the measurement of teacher ability. (p. 330)

Harris, Ingle, and Rutledge (2014) stated, "some principals give high value-added teachers low ratings because the teachers exert too little effort and are 'lone wolves' who work in isolation and contribute little to the school community" (p. 73). While not advocating for the abolition of OTES, these and other researchers do question the overly fast implementation of any new policy.

Partnership for Assessment of Readiness for College and Careers (PARCC)

PARCC "is a group of seven states working together to develop a common set of computer-based K–12 assessments in English language arts/Literacy and math linked to the new, more rigorous Common Core State Standards (CCSS)" (PARRC, 2013, p. 1). As of 2018, the PARCC states are Louisiana, Maryland, Massachusetts, New Jersey, and New Mexico. The District of Columbia is a participating district, and the U.S. Virgin Islands is a participating territory included in the list of seven. The PARCC assessments replaced state tests currently used to meet the requirements of the federal ESEA of 1965 (PARCC, 2013). According to PARCC, "The new tests are being developed in response to the longstanding concerns of educators, parents and employers … They will provide more meaningful, actionable and timely information for educators, parents and students" (PARCC, 2013, p. 1). For example, the PARCC

ELA assessments will evaluate both writing and critical-thinking skills. Math assessments will require students to solve and explain complex, real-world problems. Overall, the PARCC assessment system covers ELA and math for grades 3-11.

There are several components to the PARCC system. A diagnostic assessment in reading, writing, and mathematics and a mid-year assessment in ELA/literacy and mathematics are optional. Performance-based assessments (PBA) in ELA/literacy and mathematics and End-of-year assessments (EOY) in ELA/literacy and math will be required, and the scores will be combined to generate a student's summative assessment score. The PBA for ELA requires students to "read texts and write several pieces to demonstrate they can read and understand sufficiently complex texts independently; write effectively when using and analyzing sources; and build and communicate knowledge by integrating, comparing and synthesizing ideas" (PARCC, 2013, p. 1). For math, the PBA will require students "to solve problems involving the key knowledge and skills for their grade level (as identified by the CCSS), express mathematical reasoning and construct a mathematical argument, and apply concepts to solve model real-world problems" (PARCC, 2013, p. 1). Finally, a speaking and listening component for ELA will also be required. All of these tests went online in the 2014-2015 school year (PARCC, 2013, p. 1).

As with OTES, the PARCC assessments come with expectations and concerns. Some of the positive expectations are that the new assessments will give a better picture of a student's actual ability and their readiness for college and careers (Henderson et al., 2014; PARCC, 2013). Also, since the assessments are computer-based, less cheating and more interactivity will exist. Finally, with test and academic consistency, college and career readiness measures will no longer vary from state to state (PARCC, 2013). Some of the concerns about PARCC are similar to those expressed with the CCSS. Opponents believe the assessments represent a government or

corporate take-over of education and state, local, and parent rights (Robbins, 2013; ESEA, 1965). Another concern is the cost of implementation for both technology and teacher training (Kornhaber et al., 2014).

The technology concern is also more intensive with PARCC. Since the assessments are primarily computer-based, with certain exceptions, and all students in a grade level are expected to take the assessment at the same time, many school systems expect an increased need for computers and available bandwidth. Yet another concern is the rate of implementation. Many educators feel as if the testing is being rushed. There is no available complete resource to allow teachers to understand how the test will be completely structured and what material will be covered.

The guidelines for implementation also seem to be in flux. In fact, one district in Ohio was informed that their schedule, which was previously approved, was changed. With inconsistency and continual changes, the apparent readiness of the PARCC system seems to be in question, seemingly increasing the stress of teachers and administrators responsible for preparing their students for this assessment. Overall, the ultimate effect of the new PARCC assessments is unknown at this time. However, as of the 2015-2016 school year, Ohio is dropping PARCC and adding AIR tests (ODE, 2015b).

American Institutes for Research (AIR)

After one year of PARCC assessments as of the 2015-16 school year, the ODE made the decision to switch to a new test product developed by AIR after numerous complaints about the length and overall amount of required testing from parents, educators, and administrators. According to the ODE website, “The math and English language arts tests will be shorter than those given last year” (ODE, 2015b, p. 1). As a whole, the information available is currently

somewhat limited as to the content of the tests. Per the ODE website, the tests will not be completed until December 2015. However, the students will still be required to take the tests in the spring of 2016. While there are caveats that consequences "tied to state tests will not be in effect for this year's test results" (ODE, 2015b, p. 2), the teachers will still be under a great deal of stress to show student improvement.

Summary

What is currently known about high-stakes testing and teacher stress is that very little is actually known. Researchers have conducted studies that both support and oppose high-stakes testing. Proponents of high-stakes testing claim that the testing will improve educational outcomes and improve teacher accountability (Elliott et al., 2008; Erickson et al.,2007; Katsiyannis et al., 2007; Marchant et al., 2006; Thurlow et al., 2005). Opponents claim that there is not enough research to support these claims and the increased pressures will lead to teaching to the test (Amrein & Berliner, 2005; Brinckerhoff & Banerjee, 2007; Elliott et al., 2008; Fletcher et al., 2006; Hoffman & Nottis, 2008; McGill-Franzen & Allington, 2006; Nichols et al., 2002; Salend, 2008). However, from the teacher stress standpoint, little has been studied in relation to the Common Core, PARCC, AIR, and OTES. Again, proponents of CCSS, PARCC, AIR, and OTES claim that these changes are necessary and long overdue (Elliott et al., 2008; Erickson et al., 2007; Katsiyannis et al., 2007; Marchant et al., 2006; Thurlow et al., 2005). CCSS will standardize American education, PARCC or AIR will fairly measure student learning, and OTES will adequately evaluate teachers, again resulting in better American education all around.

Opponents claim that CCSS will destroy teacher autonomy and lead to robotic teaching (Amrein & Berliner, 2005; Brinckerhoff & Banerjee, 2007; Elliott et al., 2008; Fletcher et al.,

2006; Hoffman & Nottis, 2008; McGill-Franzen & Allington, 2006; Nichols et al., 2002; Salend, 2008). PARCC or AIR will force teachers to focus on the test, cutting important curricular material from the classroom. Along with this, OTES will unfairly evaluate teachers and lead to favoritism. The current study could shed some light on this inconsistency, at least for the state of Ohio. Ultimately, a single study will only go so far as to establish the existence, or lack thereof, of a relationship between Common Core high-stakes testing in Ohio and teacher stress. However, the researcher hopes that the results of this study will begin to address the gaps in the existing literature regarding teacher stress and high-stakes testing.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative research study was to explore high-stakes Common Core testing and teacher stress. At present, the only subjects tested under Common Core are English (grades 9 and 10), math (grades 9 and 10), biology (grade 10), and social studies (grades 10 and 11). Teacher stress was examined in teachers of Common Core State Standards (CCSS) courses and those teachers who do not teach CCSS courses in the southwestern Ohio educational system. This study examined teacher stress levels since the implementation of the CCSS and OTES in the 2017-2018 school year in Ohio. Chapter Three explores the design, research question, hypothesis, participants and setting, instrumentation, procedures, and data analysis.

Design

This study uses a quasi-experimental causal-comparative research design. In order to quantitatively determine if high-stakes Common Core testing was related to higher teacher stress, and, since this study examines two groups, in which "the independent variable is present or absent," and then determines "whether the groups differ on the dependent variable" (Gall, Gall, and Borg, 2007, p. 306), the causal-comparative design is most appropriate. By using this type of research design, it is possible to make a comparison between the teacher stress levels of English (grades 9 and 10), math (grades 9 and 10), biology (grade 10), and social studies (grades 10 and 11) teachers who teach a Common Core tested course to the teacher stress levels of teachers of non-Common Core tested courses.

The independent variable for this study is whether or not a subject is a Common Core high-stakes tested subject. Teachers are differentiated between those teachers who teach a Common Core high-stakes tested course and those teachers who are not teaching a Common

Core high-stakes tested course. English (grades 9 and 10), math (grades 9 and 10), biology (grade 10), and social studies (grades 10 and 11) are currently the only subjects associated with the high-stakes Common Core testing in Ohio.

The dependent variable is the stress of teachers as measured by the Teacher Stress Inventory (TSI) (Fimian, 1988). The TSI measures two different aspects related to stress: (a) perceived job stress levels, and (b) the level of stress-related manifestations. As indicated by Fimian (1988), "The 5 stress source factors are Time Management, Work-related Stressors, Professional Distress, Discipline and Motivation, and Professional Investment; the 5 stress manifestations factors are Emotional Manifestations, Fatigue Manifestations, Cardiovascular Manifestations, Gastronomic Manifestations, and Behavioral Manifestations" (p. 8).

Research Question

RQ1: Is there a significant difference in the total stress scores, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes tested courses and teachers not assigned to teach Common Core high-stakes tested courses?

Null Hypothesis

$H_0$1: No statistically significant difference will exist in the total stress score between those teachers assigned to teach Common Core high-stakes tested courses and those teachers not assigned to teach Common Core high-stakes tested courses.

Participants and Setting

The population of this study was secondary teachers in southwest Ohio. Participants from 11 high schools were invited to participate in the study. Convenience sampling was used for this study. The researcher identified the sample based on the number of teachers who returned the completed Teacher Stress Inventory. Each teacher at each participating school

district received an emailed letter describing the study and the survey and a follow-up exhortation email to complete the survey.

For an independent samples *t*-test based on a level of significance of $\alpha = .05$ and a statistical power of .7 with a medium effect size, the minimum sample size needed is 100 (Gall, Gall, & Borg, 2007). The required minimums were met. The sample size was 204, with 144 females and 60 males participating in the study. The participants' mean average age range was 40-49 years old. The grade levels taught ranged from 9 to 12.

There were two groups within this sample. Group One consisted of those teachers who were not assigned to teach Common Core high-stakes tested courses, and Group Two consisted of those teachers who were assigned to teach Common Core high-stakes tested courses. The groups were naturally occurring.

Group One (non-Common Core testing subjects) had 56 females and 23 males participating in the study. The total group size was 79. Group One's mean average age of participants was 40-49 years old. The grade levels taught ranged from 9 to 12. Subjects taught by Group One were art (8 teachers), business (6 teachers), English (12 teachers), math (3 teachers), music (6 teachers), science (1 teacher), social studies (0 teachers), special needs (13 teachers), and other (37 teachers). The mean average years of teaching experience was 16.6 years.

Group Two had 88 females and 37 males participating in the study. The total group size was 125. Group Two's mean average age of participants was 40.2 years old. The grade levels taught ranged from 9 to 11. Subjects taught by Group Two were English (48 teachers), math (30 teachers), science (33 teachers), and social studies (32 teachers). The mean average years of teaching experience was 14 years.

Instrumentation

The instrument used in this study was the Teacher Stress Inventory (TSI; See Appendix D). The purpose of this instrument was to survey teachers and measure stress sources and stress manifestations. This survey was developed in response to a gap in the teacher stress literature, as identified by Fimian (1988). Since the previous studies focused on specific groups, special education and regular education, of teachers, Fimian decided to develop a stress survey that would be more generalizable. After numerous iterations of the survey, and "[b]ased on the analyses conducted on the data aggregated from 21 different teacher samples," (p. 42), Fimian developed the current version of the TSI. The instrument has been used in numerous studies (e.g., Kourmousi et al., 2014; Richards, 2012; Vaezi & Fallah, 2012).

The validity of the TSI was established through face, factorial, content, and convergent validity. The TSI is divided into two sections, with five factors representing stress sources and five events that work as stress manifestations (Fimian, 1988). Fimian described the five stress source factors as Time Management, Work-related Stressors, Professional Distress, Discipline and Motivation, and Professional Investment (p. 8). Time management was defined as "whether a teacher is able to find the necessary time for every important professional or personal need" (Kourmousi et al., 2014, p. 82). Work-related Stressors defined as "teaching or administrative workload, size of classes, professional responsibilities, etc." (Kourmousi et al., 2014, p. 82). Professional Distress was defined as "stressful factors such as promotion opportunities, recognition, career development, and earnings" (Kourmousi et al., 2014, p. 82). Discipline and Motivation was defined as "whether a teacher feels capable of maintaining classroom control while motivating his or her students" (Kourmousi et al., 2014, p. 82). Professional Investment was defined as "a teacher's involvement and beliefs regarding his or her job" (Kourmousi et al.,

2014, p. 82).

Fimian (1988) described the five stress manifestations factors as Emotional Manifestations, Fatigue Manifestations, Cardiovascular Manifestations, Gastronomic Manifestations, and Behavioral Manifestations. Emotional Manifestations was defined as "teachers' emotional responses to stress, e.g., anxiety, depression, etc." (Kourmousi et al., 2014, p. 82). Fatigue Manifestations was defined as "teachers' physical responses to stress, e.g., changes in sleep, exhaustion, etc." (Kourmousi et al., 2014, p. 82). Cardiovascular Manifestations was defined as "teachers' cardiovascular system responses to stress, e.g., blood pressure, heart rate, etc." (Kourmousi et al., 2014, p. 82). Gastronomic Manifestations was defined as "teachers' gastronomical system responses to stress, e.g., stomach pains, cramps, etc." (Kourmousi et al., 2014, p. 82). Behavioral Manifestations was defined as "the methods that teachers use in order to cope with stress, e.g., use of prescription drugs/alcohol, sick leave, etc." (Kourmousi et al., 2014, p. 82).

The TSI "is a 49-question, 10-factor instrument that assesses the degree of occupational stress experienced by American teachers in the public schools" (Fimian, 1988, p. 8). The 10 factors have the following number of questions: Time Management (8), Work-related Stressors (6), Professional Distress (5), Discipline and Motivation (6), Professional Investment (4), Emotional Manifestations (5), Fatigue Manifestations (5), Cardiovascular Manifestations (3), Gastronomic Manifestations (3), and Behavioral Manifestations (4). The instrument uses a five-point Likert scale that ranges from *major strength; extremely noticeable* to *no strength; not noticeable*. Responses to the stress sources questions are as follows: *major strength* = 5, *great strength* = 4, *medium strength* = 3, *mild strength* = 2, and *no strength* = 1. Responses to the

stress manifestation questions are as follows: *extremely noticeable* = 5, *very noticeable* = 4, *moderately noticeable* = 3, *barely noticeable* = 2, and *not noticeable* = 1.

Each of the 10 factors are added independently and then divided by the number of questions for the factor. For example, if the eight questions for Time Management equaled 32, the score would be divided by eight, resulting in a score of four for this factor. After calculating this for all factors, those 10 scores are then added together and divided by 10 (Fimian, 1988). This leads to a Total Stress score ranging from one to five. Each of the 10 factors and the Total Stress score are then compared to decile tables developed by Fimian, which identify the intensity of stress. The possible score range on the TSI is one to five points. A score of one is the lowest possible score, meaning that the respondent had no stress sources or stress manifestations. A score of five is the highest possible score, meaning that the respondent had stress of major strength sources and extremely noticeable stress manifestations.

Each of the 10 factors are added independently and then divided by the number of questions for the factor, resulting in a factor score range of one to five. After calculating this for all factors, those 10 scores are added together and divided by 10 (Fimian, 1988). This leads to a Total Stress score, resulting in a Total Stress score range of one to five. Each of the 10 factors and the Total Stress score were then compared independently to decile tables developed by Fimian which identified the intensity of stress (Fimian, 1988).

Interpretation of the data was conducted as prescribed by the makers of the survey (Fimian, 1988). This was accomplished in three ways. First, "each teacher's Total Stress Score can be compared in a relative fashion with the anchor points on the 1-to-5 strength-rating scale" (Fimian, 1988, p. 14). Second, an aggregate norm group was established by the creators of the TSI. The individual and group scores from the current study were directly compared to this

norm group. Third, the creators of the TSI developed decile charts based on their norm sample. A further comparison between the data from the current study was compared to that norm sample.

The entire survey, which was taken online, took approximately 5 to 15 minutes to complete. The researcher tabulated the data on an Excel spreadsheet and then analyzed these data using IBM's Statistical Package for the Social Sciences (SPSS). The reliability of the Teacher Stress Inventory measures used in the current study have been continually established by the creators of the survey and the innumerable users of the survey since 1988 (Fimian & Fastenau, 1990). The established Cronbach's Alpha coefficient for each of the 10 factors is, respectively: .75 (Time Management), .82 (Work-related Stressors), .83 (Professional Distress), .86 (Discipline and Motivation), .87 (Professional Investment), .80 (Emotional Manifestations), .88 (Fatigue Manifestations), .78 (Cardiovascular Manifestations), .82 (Gastronomic Manifestations), and .82 (Behavioral Manifestations) (Fimian & Fastenau, 1990). Permission to use the TSI was obtained from Dr. Fimian on April 4, 2014 (See Appendix E).

Procedures

The first step in this study was obtaining Institutional Review Board (IRB) approval (See Appendix A). Next, due to the topic of study and the availability of the data, eliciting permission from the participants was necessary. Two letters were included with the survey to secure principal permission to contact teachers (See Appendix B) and to secure the respondents' permission for inclusion in this study (See Appendix C). Following this, data collection occurred.

The researcher collected the data from the respondents on the TSI from secondary teachers in southwest Ohio. Survey Monkey was used to collect the data. The researcher

obtained email addresses for each school district's central office. An email was then sent out to the participants with a link to Survey Monkey (See Appendix F). Participants agreeing to participate clicked the link taking them to a consent form. Once the consent form was agreed to, the participant proceeded to the next page and read the instructions for taking the survey. See Appendix D for the instructions, survey, and demographics. When the participants were finished, a thank you page appeared. Through this product, multiple layers of confidentiality and security were present. Along with this, the data were only available to the researcher. Finally, based on the types of questions, there was no possibility of someone identifying a participant through their responses. The data were entered into a spreadsheet and SPSS, which was password protected. All data will be kept for a minimum of three years.

Data Analysis

Since this was a causal-comparative study, an independent *t*-test was used. According to Gall et al. (2007), the "*t*-tests provide accurate estimates of statistical significance" (p. 315) when comparing means of two groups. Therefore, the independent samples *t*-test was most appropriate. The researcher analyzed the data by collecting the Teacher Stress Inventories and evaluating them as per the established guidelines (Fimian, 1988). Data screening included a box-and-whisker plot for each group to look for extreme outliers. Assumption testing included Kolmogorov-Smirnov test and Shapiro-Wilk test for normality in order to check for normality of each group, and Levene's Test for Equality of Variance in order to verify that the sample distributions had the same variances.

The alpha level was set at .05. Effect size was measured using Cohen's *d*. Small effect size was .2, medium effect size was .5, and large effect size was .8 (Green & Salkind, 2014). The *t*-test used in the study was used to determine what, if any, statistically significant

differences existed when comparing the total stress scores, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes tested courses and teachers not assigned to teach Common Core high-stakes tested courses.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this quantitative, causal-comparative research study was to explore high-stakes Common Core state-mandated testing and the stress levels, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach high-stakes Common Core tested courses and teachers not assigned to teach high-stakes Common Core tested courses. The TSI measures two different aspects related to stress: (a) perceived job stress levels, and (b) the level of stress-related manifestations. Data were collected from 204 secondary teachers. Descriptive statistics were used to analyze demographic impact for the different scores. Since this was a causal-comparative study, an independent samples *t*-test was used to compare the means of the two groups.

Research Question

RQ1: Is there a significant difference in the total stress scores, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach high-stakes Common Core tested courses and teachers not assigned to teach high-stakes Common Core tested courses?

Null Hypothesis

$H_0$1: No statistically significant difference will exist in the total stress score between those teachers assigned to teach high-stakes Common Core tested courses and those teachers not assigned to teach high-stakes Common Core tested courses.

Descriptive Statistics

Table 1 displays the participants in the survey. Of the 204 educators, there were 79 respondents who taught non-Common Core tested courses (38.7%) and 125 respondents who taught Common Core tested courses (61.3%).

Table 1

Survey Respondents - Non-Common Core Testing vs. Common Core Testing (N = 204)

Non-Common Core Testing vs. Common Core Testing	*n*	%
Non-Common Core Testing	79	38.7
Common Core Testing	125	61.3

Table 2 displays the descriptive statistics for the results of the TSI survey for the teachers of non-Common Core tested subjects. These statistics included the mean, median, mode, and standard deviation for each of the following sections of the TSI: Time Management, Work-related Stressors, Professional Distress, Discipline and Motivation, and Professional Investment, Emotional Manifestations, Fatigue Manifestations, Cardiovascular Manifestations, Gastronomic Manifestations, Behavioral Manifestations, and Total Stress Score.

Table 2

Non-Common Core Testing TSI Descriptive Statistics (N = 79)

TSI Category	*M*	*Mdn*	*Mode*	*SD*
Time Management	3.28	3.38	3.13	0.73
Work-related Stressors	3.39	3.50	3.50	0.98
Professional Distress	2.56	2.40	1.80	0.93
Discipline and Motivation	2.90	2.83	2.83	0.99
Professional Investment	2.34	2.25	2.50	0.85
Emotional Manifestations	2.58	2.60	3.00	1.05
Fatigue Manifestations	2.50	2.40	2.00	0.95
Cardiovascular Manifestations	2.25	2.00	1.00	1.06
Gastronomic Manifestations	1.85	1.67	1.00	0.95
Behavioral Manifestations	1.57	1.25	1.00	0.75
Total Stress Score	2.52	2.55	2.49	0.59

Table 3 displays the descriptive statistics for the results of the TSI survey for the teachers of Common Core tested subjects. These statistics included the mean, median, mode, and standard deviation for each of the following sections of the TSI: Time Management, Work-related Stressors, Professional Distress, Discipline and Motivation, and Professional Investment, Emotional Manifestations, Fatigue Manifestations, Cardiovascular Manifestations, Gastronomic Manifestations, Behavioral Manifestations, and Total Stress Score.

Table 3

Common Core Testing TSI Descriptive Statistics (N = 125)

TSI Category	*M*	*Mdn*	*Mode*	*SD*
Time Management	3.42	3.38	3.13	0.64
Work-related Stressors	3.45	3.33	3.17	0.86
Professional Distress	2.71	2.60	2.40	1.00
Discipline and Motivation	3.18	3.33	3.33	0.93
Professional Investment	2.47	2.25	2.00	0.87
Emotional Manifestations	2.53	2.40	2.00	1.04
Fatigue Manifestations	2.61	2.60	3.00	0.92
Cardiovascular Manifestations	2.15	2.00	1.00	0.97
Gastronomic Manifestations	1.83	1.67	1.00	0.94
Behavioral Manifestations	1.54	1.25	1.00	0.65
Total Stress Score	2.59	2.54	2.00	0.60

Table 4 displays the descriptive statistics for the results of the TSI survey for all teachers surveyed. These statistics included the mean, median, mode, and standard deviation for each of the following sections of the TSI: Time Management, Work-related Stressors, Professional Distress, Discipline and Motivation, and Professional Investment, Emotional Manifestations, Fatigue Manifestations, Cardiovascular Manifestations, Gastronomic Manifestations, Behavioral Manifestations, and Total Stress Score.

Table 4

All TSI Descriptive Statistics (N = 204)

TSI Category	*M*	*Mdn*	*Mode*	*SD*
Time Management	3.36	3.38	3.13	0.68
Work-related Stressors	3.43	3.50	3.50	0.91
Professional Distress	2.65	2.50	2.40	0.98
Discipline and Motivation	3.07	3.00	3.50	0.96
Professional Investment	2.42	2.25	2.00	0.86
Emotional Manifestations	2.55	2.40	2.00	1.04
Fatigue Manifestations	2.57	2.60	2.00	0.93
Cardiovascular Manifestations	2.19	2.00	1.00	1.01
Gastronomic Manifestations	1.84	1.67	1.00	0.94
Behavioral Manifestations	1.55	1.25	1.00	0.69
Total Stress Score	2.56	2.55	2.00	0.59

Results

The following section contains detailed discussions on data screening, null hypothesis results, and data analysis techniques.

Null Hypothesis

The null hypothesis for this study stated that "No statistically significant difference will exist in the total stress score between those teachers assigned to teach Common Core high-stakes tested courses and those teachers not assigned to teach Common Core high-stakes tested courses." An independent samples *t*-test was completed to determine if there were differences in

levels of total stress between those teachers assigned to teach Common Core high-stakes tested courses and those teachers not assigned to teach Common Core high-stakes tested courses as measured by the TSI.

Data screening for outliers was performed using boxplots (see Figure 1). One outlier was discovered in the Non-Common Core testing group. There were no other outliers.

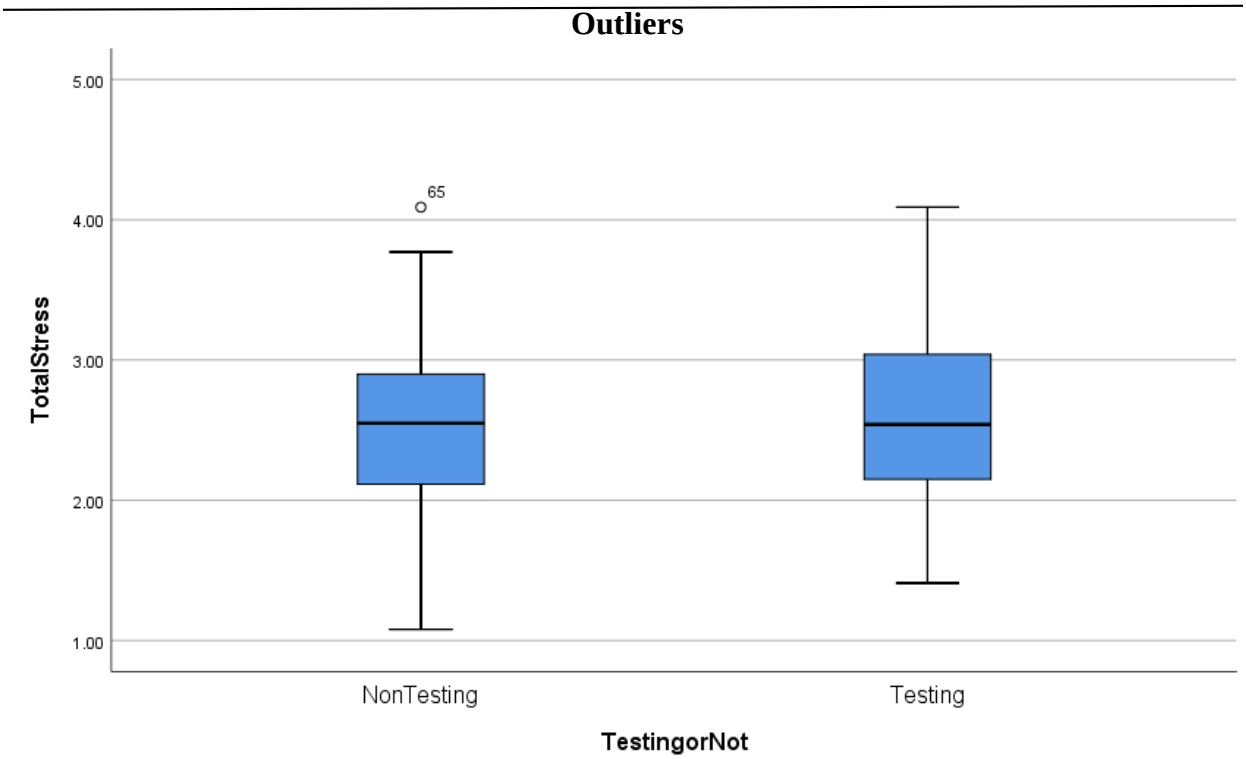

Figure 1. *Boxplots to Identify Outliers*

Assumption Testing

Additional data screening for assumption testing included Levene's Test for Equality of Variances (see Table 5), Q-Q plots for examining normal distribution of non-Common Core testing teachers (see Figure 2) and Common Core testing teachers (see Figure 3), and the Kolmogorov-Smirnov test and Shapiro-Wilk test for normality (see Table 6). The Levene's Test for Equality of Variances showed a significance of .597. According to Warner (2013), a

significance of .05 or higher indicates that equality of variances can be assumed. Therefore, equality of variances can be assumed between those teachers assigned to teach Common Core high-stakes tested courses and those teachers not assigned to teach Common Core high-stakes tested courses.

Table 5

Levene's Test for Equality of Variances

		F	Sig.
TotalStress	Equal variances assumed	.281	.597

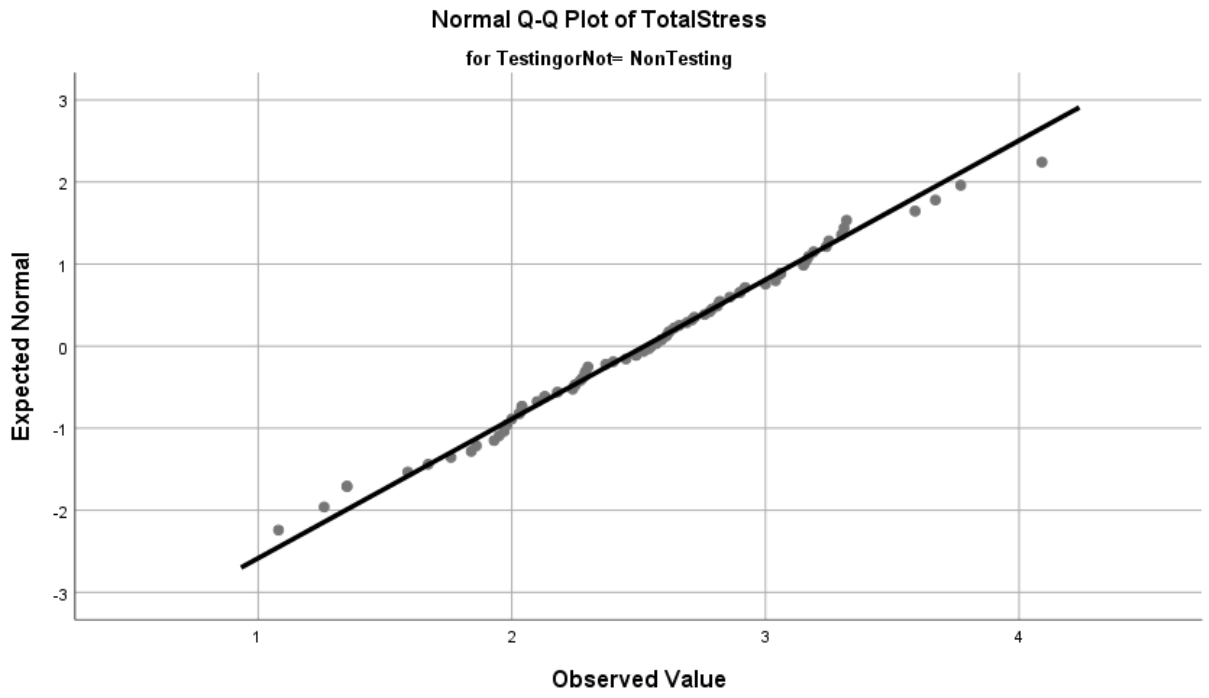

Figure 2. Normal Q-Q Plot of the Total Stress Score of Teachers of non-Common Core Tested Courses.

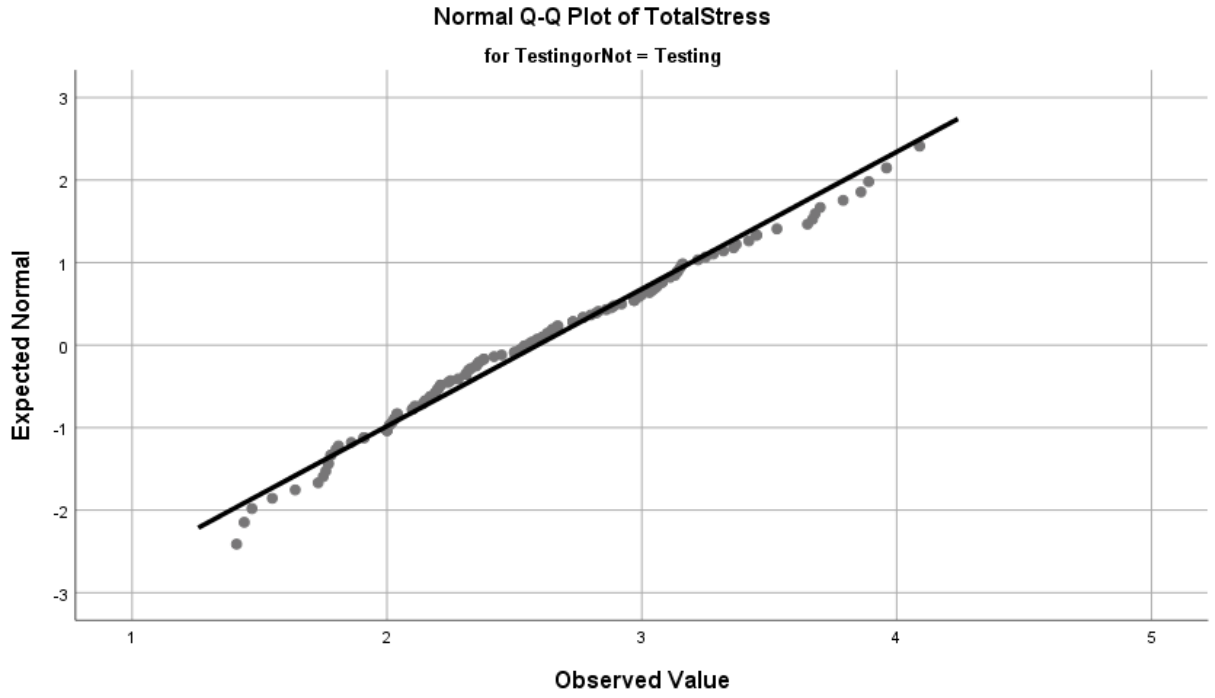

Figure 3. Normal Q-Q Plot of the Total Stress Score of Teachers of Common Core Tested Courses.

According to Warner (2013), if the sample is 50 or higher, then Kolmogorov-Smirnov should be used (see Table 6). For this study, p = .200 for the non-Common Core testing group and p = .066 for the Common Core testing group. Using a 0.05 level of significance, normality can be assumed. Cohen's *d* equaled 0.11. Therefore, the effect size is small. The alpha level was set at .05.

Table 6

Kolmogorov-Smirnov Test and Shapiro-Wilk Test for Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	TestingorNot	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Total Stress	NonTesting	.053	79	.200*	.994	79	.974
Total Stress	Testing	.077	125	.066	.982	125	.101

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 7

Independent Samples t-Test

							95% Confidence Interval of the Difference	
		t	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
TotalStress	Equal variances assumed	-.790	202	.430	-.06780	.08580	-.23698	.10139

According to Warner (2013), "when the degrees of freedom (*df*) are greater than 100, and when we set α=.05, two-tailed, a *t* ratio greater than 1.96 in absolute value is considered large enough to be judged statistically significant" (p. 184). For this study, the degrees of freedom were 202, and the *t* ratio was -.790. Based on the previous information and Table 7, there was no statistically significant difference between the mean TSI total stress scores of the teachers of non-Common Core tested courses and teachers of Common Core tested courses. Therefore, these findings fail to reject the null hypothesis.

CHAPTER FIVE: CONCLUSIONS

Overview

This chapter discusses the comparison between the results of this study and the related literature. Through the lens of the research question, is there a significant difference in the total stress scores, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes tested courses and teachers not assigned to teach Common Core high-stakes tested courses, the results of the study are discussed. Related literature and education theory are discussed as well. The implications and limitations of the study are also examined, along with recommendations for further research.

Discussion

The purpose of this quantitative, causal-comparative research study was to explore Ohio teachers assigned to teach high-stakes Common Core tested courses and teachers not assigned to teach high-stakes Common Core tested courses and each group's stress levels, as measured by the Teacher Stress Inventory (TSI). This study focused on one research question:

RQ1: Is there a significant difference in the total stress scores, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach high-stakes Common Core testing courses and teachers not assigned to teach high-stakes Common Core testing courses?

The results from this study showed that there was no statistically significant difference between the mean TSI total stress scores of the non-Common Core testing and Common Core testing teacher groups. Therefore, these findings failed to reject the null hypothesis. Even though the mean total stress score was lower for teachers of non-high-stakes Common Core testing courses ($M = 2.52$), the mean for teachers of high-stakes Common Core testing courses was only slightly higher ($M = 2.59$). Through the independent samples *t*-test (see Table 7), this

difference was found to be statistically insignificant. When Fimian (1988) developed the TSI, he used teachers of regular education classes as his less-stressed group and special education teachers as his expected more-stressed group. According to Fimian's test norm tables, the current study's median scores paralleled his findings. In fact, the combined total stress score for both groups, teachers of non-high-stakes Common Core testing courses and teachers of high-stakes Common Core testing courses, was almost identical to Fimian's original findings. Fimian (1988) found a combined $M = 2.6$ with an $SD = 0.7$ (p. 57). The current study showed a combined $M = 2.56$ with an $SD = 0.59$. One finding in Fimian (1988) is that the group of teachers he predicted to have higher stress, the special education teachers, had slightly lower scores in seven of the categories, the same scores in two categories, and a slightly higher score in one area (p. 57). The current study's findings showed the opposite. Teachers of non-high-stakes Common Core testing courses were suspected as being the group with lower stress, which was found to be true for six of the 10 categories on the TSI. Teachers of high-stakes Common Core testing courses had slightly lower scores in four of the categories examined. As previously discussed the teachers of non-high-stakes Common Core testing courses had a $M = 2.52$ and teachers of high-stakes Common Core testing courses had a $M = 2.59$. Overall, the similarities in the findings between the current study and Fimian's are not surprising. The results of Fimian and numerous others attest to the fact that teaching, in general, is highly stressful (Aloe et al., 2013; Brown, Davis, & Johnson, 2002; Chaplain, 2008; Cox & Brockley, 1984; Dunham & Varma, 1998; Fisher, 2011; Geving, 2007; Hodge, 1994; Klassen, 2010; Jepson & Forrest, 2006; Kyriacou, 2000, 2001; McCarthy & Lambert, 2006; McCarthy, Lambert, O'Donnell, & Melendres, 2009; Smith, Brice, Collins, Matthews, & McNamara, 2000; Travers & Cooper,

1996;). As previously discussed, teaching is tied with nursing as the two occupation with the highest levels of stress (Landsbergis et al., 2018).

Another area that this study parallels is in the various educational theories discussed in Chapter Two. For example, social constructivism states that "There is no knowledge independent of the meaning attributed to experience (constructed) by the learner, or community of learners" (Hein, 1991, p. 1). This idea could, in part, explain the wide variety of total stress scores. Depending on previous experiences, either positive, neutral, or negative, respondents to this study's survey brought their history to their responses.

The same is true for Bandura's (1994) social cognitive theory, specifically self-efficacy. According to Putwain and von der Embse (2018), "Higher self-efficacy positively correlates with job satisfaction (Klassen and Chiu 2010), higher occupational commitment and lower intention to leave the profession (Klassen and Chiu 2011), and teachers with higher self-efficacy are judged as being more effective teachers in terms of student performance and observations by independent evaluators (Klassen and Tze 2014)" (p. 5). With this being said, teachers with a higher self-efficacy may be more inclined to respond to surveys or other research opportunities since they are more likely to feel that their feedback matters. Since higher self-efficacy appears to be critical in relation to stress reduction, examining ways of increasing self-efficacy is necessary. Bandura (1994) delineated four main influences on an individual's efficacy. The first influence is mastery experience. If an individual is successful in an endeavor, then his/her self-efficacy increases. The second influence is through social models. When an individual observes another achieving through hard work and determination, he/she becomes more motivated to mimic the work ethic of the social model, thus increasing self-efficacy. The third influence is social persuasion. If a person's peers or superiors evince confidence in his/her abilities, the

person's self-efficacy is likely to increase. Finally, the fourth influence on self-efficacy is "to reduce people's stress reactions and alter their negative emotional proclivities and misinterpretations of their physical states" (Bandura, 1994, p. 3). If this is accomplished, an individual's sense of self-efficacy increases. Exploring programs that implement these four influences could aid in decreasing stress in teachers.

Another area of study is Brewer and McMahan's (2003) person-environment (PE) fit theory, which identifies how the individual interacts with his or her workplace. Brewer and McMahan (2003) identified three main areas where fit may have a significant impact. The first area is the person and their environment. "Stress can occur if there is a mismatch between the *reality* of the work environment (objective) and an individual's *perceptions* of the work environment (subjective). Likewise, lack of fit between the demands placed on individuals and their abilities to meet those demands can result in stress" (p. 126). By examining PE fit theory, administrators could develop additional programs or curricular plans that could also aid in decreasing teacher stress. Again, this comes back to the idea that teaching is an extremely stressful occupation.

Implications

The results of this study added to the existing body of knowledge and theory by showing a continued connection between teaching and stress. Also, by exploring the aspect of high-stakes teaching and its relation to teacher stress, a gap in the literature was addressed, even though the null hypothesis was not rejected. To date, there is little research on teacher stress in relation to high-stakes testing and its potential impact on job security, self-efficacy, and PE fit theory. Also, none of the studies drew their populations from southwest Ohio. Once the OTES is taken into account, there are even fewer research studies available. The studies that do exist relate to the

individual educator and how job security, self-efficacy, and PE fit theory can help reduce stress. For job security and job satisfaction, Landsbergis et al. (2018) found that programs such as mentoring, peer assistance and review programs, teacher assistance teams, teacher training, and job redesign, at least in part, aided in reducing teacher stress. Lavy and Bocker (2018) suggested that changes in a teacher's work environment can lead to positive increases in self-efficacy. One additional study performed by McInerney, Korpershoek, Wang, and Morin (2018) explored psychological well-being at work, which is similar to PE Fit theory, finding reduced stress with increased psychological wellbeing. These, and the few studies like them, provide data that could help reduce teacher stress.

This study may help improve the conditions, lives, work environment, etc., of others by bringing awareness to the idea of teacher stress, whether specifically related to high-stakes testing or not, and its potential impact on student outcomes and success. By exploring various aspects of this study, especially those listed in the previous paragraph, administrators could greatly reduce, or at least work toward reducing, teacher stress. The ultimate implication of this study is that much more research needs to occur in this area.

One area of study that seems to be developing as a body of research is that of merit pay, teacher incentives, and pay-for-performance, or other similarly named programs. In these programs teachers are exposed to extrinsic motivators in some way. These motivators range from financial (Wayne, Garet, Wellington, & Chiang, 2018), to prestige (Mintrop & Ordenes, 2017), to accountability/job retention (Morgan, 2016). Findings of these studies, however, are contradictory at best. According to Wayne, Garet, Wellington, and Chiang (2018), pay-for-performance programs studied by the National Center for Education Evaluation (NCEE) showed that both reading and math student achievement improved under this program. At the same time,

the same study (Wayne, et al., 2018) showed that, under performance evaluations only, reading achievement remained unchanged and math achievement improved. On the other hand, Mintrop and Ordenes (2017) found that "Neither rewards, nor accountability, seemed to regulate [teacher] behavior in a deep way" (p. 1). A third study (Morgan, 2016) showed that accountability/job retention programs led to negative outcomes, including corruption and cheating by educators, less collegial collaboration, unfair treatment of educators, and biased teaching. For merit pay, teacher incentives, and pay-for-performance, or other similarly named programs to be instated in schools as possible stress for educators, more studies need to be performed. The findings of the current study, as well as those mentioned previously and following, could be used by administrators in developing teacher retention programs.

On a more positive note, Morgan (2016) discussed programs in Finland, Japan, and Singapore, which apparently have resulted in some of the world's finest education systems. For Finland, "the Finns use a teacher evaluation system based on trust, encouraging teachers to be responsible to the school, the students, and the other teachers (Morgan, 2016, p. 71). Japan places importance on testing, "but it is the university entrance exams that are most important, not those administered in schools. Additionally, parents and students, not teachers, usually worry more about test outcomes" (Morgan, 2016, p. 71). Singapore, while it "uses standardized tests to hold teachers accountable, it does not rely exclusively on them. Several professionals within each school evaluate teachers on a broad range of components in addition to using test scores" (Morgan, 2016, p. 71). The point demonstrated in these examples is that high-stakes testing, by itself, is not an effective means for evaluating teachers. The United States needs further investigation into teacher evaluation that works.

This study showed that, at least in the sample of respondents, high-stakes testing did not significantly impact teacher stress; therefore, further examination of this topic is warranted. More recent studies have shown that there is a statistically significant connection between high-stakes accountability and teacher stress (Ryan et al., 2017; von der Embse, Pendergast, Segool, Saeki, & Ryan, 2016a; von der Embse, Sandilos, Pendergast, & Mankin, 2016b; von der Embse, Schoemann, Kilgus, Wicoff, & Bowler, 2017). For example, Ryan et al. (2017) stated that, "states have begun implementation of accountability pressure which has raised the stakes for teachers" (p. 9). Ryan et al. also stated:

> All aspects of test-based accountability influenced teachers' decisions to ... leave the profession entirely .... Moreover, test-based accountability has an indirect effect on teacher attrition by raising test stress and burnout overall, which also influences attrition. (p. 9)

Another study (von der Embse et al., 2016b) stated, "the implementation of test-based accountability policies may, in part, be related to greater teacher stress and subsequently lower job satisfaction" (p. 316). This same study also showed "differing relationships of test stress with job satisfaction based upon type of perceived capability (i.e., efficacy)" (p. 316). Self-efficacy was often found to be the major determinant as to whether or not a teacher experienced stress (von der Embse et al., 2016b). However, the focus was still on high-stakes testing accountability. In Ohio, the accountability system is OTES, which will count for 50% of a teacher's evaluation up until the 2020-2021 school year. At that point, value-added data based on student performance on a single test will no longer be required as part of the teacher's evaluation. Other studies have focused more on individual potential stressors, such as assigned subject matter (Gonzales et al., 2017), student behavior, poor school climate, and large class

sizes (Harmsen, Helms-Lorenz, Maulana, van Veen, & van Veldhoven, 2018), and teacher race and degree attained (Ouellette, Frazier, Shernoff, Cappella, Mehta, Maríñez-Lora, Cua, & Atkins, 2018). With the increasing number of studies suggesting that high-stakes accountability is significant for increased teacher stress, school administrations and state and national governments need to investigate alternative evaluation models.

Limitations

The sampling, number of respondents, and the self-report nature of the survey were limitations in this study. Convenience sampling was a limitation because it is not ideal for inferential statistical analysis. Also, because the survey was related to teacher stress and high-stakes testing, more Common Core testing teachers responded to the survey than non-Common Core testing teachers. A more balanced grouping would improve the sampling.

The number of respondents is also a limitation to this study. Due to the voluntary nature of responding to the survey, the researcher had limited control over acquiring completed surveys. Many variables could have caused the limited number of responses. Another aspect out of the researcher's control is the requirement for principal approval before sending the surveys to teachers. Numerous principals denied access to their teachers. Increasing teacher workload is a concern any time of the school year, but the number of rejections was surprising. A broader release of the survey to every secondary teacher in Ohio would have drastically increased the number of respondents.

The self-reporting nature of the survey was also a limitation. There was no external motivator, other than continued reminders and requests from the researcher, to encourage completion of the survey. The very stress that this survey was studying may have been a limiting factor. If the teacher was already experiencing significant amounts of stress, completing

additional work may have been asking too much. Along with this, some respondents may have spent more or less time in thinking about their responses. The survey had 57 questions, possibly leading to a more cursory reading and thinking process. All of these elements caused threats to the internal validity of this study.

External validity was also explored as a possible limitation. Having 204 respondents to the survey limited the generalizability of the study. For an independent samples *t*-test based on a level of significance of $\alpha = .05$ and a statistical power of .7 with a medium effect size, the minimum sample size needed is 100 (Gall, Gall, & Borg, 2007). Although 204 met theses specifications, the researcher would have preferred a much larger number of respondents.

Each of these limitations were considered in the development of this study. Every effort was made to minimize the impact; however, by the nature of the study, most of the limitations were out of the researcher's control.

Recommendations for Future Research

After completion of this study, many possible paths for future research were identified. In order to increase the body of knowledge about teacher stress and high-stakes testing, the researcher recommends the following:

- Any future research in this area should focus on a single school or a pool of equivalent schools. This will put teachers in a group of others who have the same testing expectations, student bodies, etc.
- A broader stress test baseline needs to be established. From this, a better understanding of levels of stress could be determined in relation to teachers specifically. This may highlight the significance of even a small difference in mean total stress scores.

- Additional demographic information (gender, race, age, etc.) and analysis would increase the depth of comparison in future studies.
- Replicating this study with a different standardized test, such as the ACT or SAT, could increase the sample size substantially.
- Study of school districts using the pay-for-performance model should be conducted. This would help to explore the impact of other extrinsic motivators.
- Self-efficacy of teachers needs to be explored. Identifying levels of self-efficacy could be used as another demographic variable for analysis of responses.
- A qualitative study should be conducted as a follow-up to responses on the TSI. However, this would require additional commitment from the teachers involved in the study.
- Expanding the study to include all teachers, pre-K through 12, would also increase the benefits of this study.
- Narrowing the study to explore each high-stakes Common Core testing subject separately could give a greater insight into stress causes.
- Since the OTES is relatively new, a longitudinal study of five to 10 years would give a much clearer picture as student test scores continue to be used for high-stakes accountability and become increasingly important in teacher retention and renewal of contracts.
- Finally, a broader analysis of each component of the TSI would be appropriate with larger samples.

Teacher stress in relation to high-stakes testing and OTES is currently understudied. Any research that adds to this knowledge base could be critical for the future of teachers, students, and society in general.

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APPENDIX A: IRB APPROVAL

February 5, 2018

Gary P. Wegley

IRB Exemption 3038.020518: The Effects of Common Core State-Mandated, High-Stakes Testing on Teacher Stress in School Districts in Ohio

Dear Gary P. Wegley,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

> (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

[redacted], **MA, CIP**
Administrative Chair of Institutional Research
The Graduate School

Liberty University | Training Champions for Christ since 1971

APPENDIX B PERMISSION LETTER

Date: 7/15/2017

Dear southwest Ohio High School:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctorate of Education in Teaching and Learning. The title of my research project is *The Effects of Common Core State-Mandated, High-Stakes Testing on Teacher Stress in School Districts in Ohio*, and the purpose of my research is to examine the effects, if any, of high-stakes testing in relation to high school teacher stress.

I am writing to request your permission to contact members of your staff to invite them to participate in my research study.

Participants will be asked to go to Survey Monkey to complete the Teacher Stress Inventory. The data will be used anonymously to identify whether or not Common Core state-mandated, high-stakes testing has had a significant impact on the stress levels, as measured by Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes testing subjects. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please email me at gwegley@liberty.edu and provide a signed statement on approved letterhead indicating your

approval. Copies of your signed letters can be submitted as a scanned pdf, or you can mail the original to the following address:

xxxxxxxxx.

xxxxxxxxxx, xx

Sincerely,

Gary Wegley

APPENDIX C CONSENT LETTER

CONSENT FORM

The Effects of Common Core State-Mandated, High-Stakes Testing on Teacher Stress in School Districts in Ohio

Gary P. Wegley
Liberty University
School of Education

You are invited to be in a research study of high-stakes testing and teacher stress. You were selected as a possible participant because you are a teacher at a GWOC high school. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

Gary Wegley, a doctoral candidate in the School of Education at Liberty University and an English teacher at Beavercreek High School, is conducting this study.

Background Information:

The purpose of this study is to explore the relationship between Common Core state-mandated, high-stakes testing and the stress levels, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes testing subjects and teachers not assigned to teach Common Core high-stakes testing subjects. An increase in teacher stress is expected among Ohio teachers assigned to teach Common Core high-stakes testing subjects.

This study seeks to answer whether Common Core state-mandated, high-stakes testing in the state of Ohio has increased teacher stress.

The primary instrument being used is the Teacher Stress Inventory (TSI). Findings of the study will identify whether or not Common Core state-mandated, high-stakes testing has had a significant impact on the stress levels, as measured by Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes testing subjects.

Procedures:

If you agree to be in this study, I would ask you to do the following things:
1. Through the use of an on-line survey, each participant will answer the questions on the TSI survey, including researcher added demographic questions.

2. Each participant will answer the demographic questions. This should take 5 to 10 minutes.

3. The TSI "is a 49-question, 10-factor instrument that assesses the degree of occupational stress experienced by American teachers in the public schools" (Fimian 1988). This should take 30 to 45 minutes to complete.

Data collection is anonymous. Participants' TSI responses will be housed online at Survey Monkey. The Survey Monkey account will be password protected. Each high school will be assigned a pseudonym to ensure anonymity.

Risks and Benefits of being in the Study:

The only potential risk involved in this study is a breach in confidentiality if the data is lost or stolen. The risks, as stated, are no more than the participant would encounter in everyday life.

Participants are not expected to receive direct benefits. However, possible benefits to society include primarily a better understanding of the impacts of high-stakes testing on teachers. This can also help to inform society on possible physical and psychological effects, and corresponding costs, of teacher stress, if applicable.

Compensation:

You will receive no compensation for taking part in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records. The data will be collected through the Teacher Stress Inventory via Survey Monkey. Participants' TSI responses will be housed online at Survey Monkey. The Survey Monkey account will be password protected. Each high school will be assigned a pseudonym to ensure anonymity. Deletion of data will be performed by Survey Monkey. Any printed information will be shredded.

Voluntary Nature of the Study:

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

Contacts and Questions:

The researcher conducting this study is Gary Wegley, AP English teacher at Xxxxx High School. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at gwegley@Liberty.edu. You may also contact the research's faculty advisor, Dr. [redacted], at [redacted].

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Carter 134, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information to keep for your records.

Statement of Consent:

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

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

Signature:_____ Date: _____

Signature of Investigator: _____ Date: _____

APPENDIX D TEACHER STRESS INVENTORY

TEACHER CONCERNS INVENTORY

http://www.instructionaltech.net/TSI/

Demographic Variables

Your gender: M F

Number of years you have taught? 1-5 6-10 11-15 16-20 21-25 26-30 31 or more

Your age: 22-29 30-39 40-49 50-59 60-69 70 or older

How many students do you teach each day?

0-30 31-60 61-90 91-120 121-150 151 or more

What subject do you teach? (Select all that apply)

Art Business Math English Music Science Social Studies Special Needs

What grades do you teach? (Select all that apply)

9 10 11 12

Which is the most advanced degree you have?

Bachelors Masters Doctorate

Do you and your peers support one another when needed? Yes No

APPENDIX E PERMISSION TO USE TSI

On Friday, April 4, 2014 12:38 PM, Michael Fimian <Fimian@InstructionalTech.net> wrote:

Sure Gary, NP.

http://www.instructionaltech.net/TSI/index.htm

Good luck with your dissertation!

Regards,

[redacted]

Dr. [redacted]

InstructionalTech.net

37 Gray Rd

Brookfield, MA 01506

508-867-5909

http://www.instructionaltech.net/

From: Gary Wegley [mailto:xxxxxxx]

Sent: Thursday, April 03, 2014 9:06 PM

To: Fimian@InstructionalTech.net

Subject: Teacher Stress Inventory

Hello,

My name is Gary Wegley, and I am a doctoral student at Liberty University. My dissertation is exploring teacher stress brought on by the Common Core high-stakes testing requirements in Ohio. I am interested in using your Teacher Stress Inventory. Please let me know if this is acceptable.

Thanks for your time and consideration,

Gary Wegley

xxxxxxxxxx

gwegley@liberty.edu

APPENDIX F PARTICIPANT REQUEST EMAIL

March 11, 2018

High School Educators

Dear Educator:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctorate of Education in Teaching and Learning degree. The purpose of this research study is to explore Common Core state-mandated high-stakes testing and the stress levels, as measured by the Teacher Stress Inventory (TSI), of Ohio teachers assigned to teach Common Core high-stakes testing subjects and teachers not assigned to teach Common Core high-stakes testing subjects., and I am writing to invite you to participate in my study.

If you are 18 years of age or older, are a public high school educator in Ohio, and are willing to participate, you will be asked to go to Survey Monkey to complete the Teacher Stress Inventory. It should take approximately 15 to 30 minutes for you to complete the procedure listed. Your participation will be completely anonymous, and no personal, identifying information will be collected.

To participate, click on the link provided at the end of this letter.

A consent document is provided as the first page you will see after you click on the survey link. Please click on the survey link at the end of the consent information to indicate that you have read the consent information and would like to take part in the survey.

Sincerely,

Gary Wegley

https://www.surveymonkey.co.uk/r/ZF9G76G