AN EXAMINATION OF PSYCHOLOGICAL VARIABLES AND READING ACHIEVEMENT IN UPPER ELEMENTARY STUDENTS

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ABSTRACT

Julie Anderson: An Examination of Psychological Variables and Reading Achievement in Upper Elementary Students
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Data in the United States shows that perceptions of student well-being are low, childhood mental health disorders are rising, and performance on high-stakes tests in reading is stagnant across the early grades. Substantial effort, time, and money have been invested in school improvement policies, high-stakes school climates, and literacy curricula. Missing in the literature is current evidence on the contribution that psychological variables make to reading outcomes. Psychological variables were examined in relation to high-stakes reading outcomes for fourth, fifth, and sixth graders in a rural Title I school in a mid-Atlantic state. An electronic survey measuring Well-being (Hope and Engagement), Attribution, and Mindset was administered one day after the end of grade testing in June 2016. A significant relationship was found between Hope and high-stakes reading scores and Mindset and high-stakes reading scores. Hope and race were found to be significant predictors of high-stakes reading outcomes. Engagement, Attribution, and Mindset were not significant predictors of reading outcomes. Significant group differences were found for Hope and reading scores for race but not for gender and grade. No significant differences were found on measures of high-stakes reading, Well-being, Hope, Engagement, Attribution, and Mindset between fourth, fifth, and sixth graders. These results provide supportive evidence that there is a significant relationship between Mindset and achievement. These results contradict evidence that there are differences in achievement

between boys and girls, and that there are significant relationships between well-being and achievement and engagement and achievement and attribution and achievement. Contrary to earlier findings, a significant relationship between well-being and test scores was not found. These results provide new evidence that psychological variables as measured by Hope and Mindset predict reading outcomes above and beyond demographic variables.

Keywords: Well-being, hope, engagement, attribution, mindset, high-stakes reading tests

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contribute to the climate of and experiences at school. It is my hope and intention that this work can begin a conversation in the reduction of invisible barriers to learning. Children only grow up once, and America has a duty to preserve and protect their childhood.

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CHAPTER I: INTRODUCTION

Children's well-being and mental health are increasingly recognized as critical factors affecting learning and achievement. There is a documented relationship between healthy, resilient minds, and educational success (Bostic & Bagnell, 2012; Michael, Merlo, Basch, Wentzel, & Wechsler, 2015). Factors that are considered to be psychological aspects of education are evidencing increased awareness, gaining movement in research, policy and practice, and are becoming major predictors to student achievement (Dweck, 2006). There are two social sectors that serve vital roles in the promotion of well-being and prevention of childhood mental health disorders by cultivating better dynamics for child well-being and life success (Price, 2016; Vella-Broderick, 2016). Specifically, these sectors include schools and mental health systems. They can both have a direct influence on a child's development, can promote mental health, and play a pivotal role in academic achievement (Adelman & Taylor, 2010; Bostic & Bagnell, 2012; Price, 2016) because research supports a reciprocal relationship between child well-being and achievement (Basch, 2010). A synthesis of current practice in education reveals that many schools are employing reform models addressing this issue, but the quality and planning of these programs is poor and not effectively linked to desirable outcomes (Basch, 2010). Therefore, implementation has been marginal. Unfortunately, schools viewed these programs to have poor predictive capacity on achievement outcomes (Michael et al., 2015). Studies have mostly investigated the relationship between physical health and achievement (Michael et al., 2015); however, there is ample evidence that child mental health and well-being are significantly related to achievement and desirable outcomes. Missing in the literature is a

collective understanding of the contribution that psychological variables make in the prediction of high-stakes test scores. The scope of maximized achievement can indeed be evidenced through an examination of these capacities.

This study will examine well-being, attribution, and mindset as they contribute to the prediction of outcomes on a high-stakes test in reading. Even though there is critical evidence that overall mental health is linked to academic achievement (Basch, 2011), no United States Department of Education programs were found targeting a reduction in mental health disparities as a means to maximize achievement. In order to implement programs that improve outcomes, systematic research needs to examine which psychological variables might be related to achievement. Sufficient time needs to be devoted to helping youth develop social-emotional and psychological skills (Basch, 2010) that support and promote success. School reform programs focus on the improved teacher performance and school management (Adelman & Taylor, 2016). Now is a reasonable time for school leaders to begin implementing well-being based interventions.

Success at school is a rudimentary, prominent factor in the promotion of future outcomes. Factors that protect students from the grasp of failure include psychological variables above and beyond academic proficiency (Lyons, 2001; National Association of School Psychology, 2001). Neuroscience and developmental science are discovering that school practices that bridge relationships between academic, emotional, and interpersonal characteristics enhance mental health functioning well into adulthood (Bostic & Bagnell, 2012). The role that mental health prevention programs contribute to child well-being is an untapped area; however, school leaders recently identified hope and engagement as two strategic factors that fostered this relationship (Gallup Poll, 2015), and contributed to the prediction of childhood academic success (Gallup,

2014). Students that feel "engaged and hopeful are excited about learning and have a positive vision for the future" (Gallup, 2015, p. 16). Consequently, school engagement has been shown to be related to high standardized test scores, better grades, and lower dropout rates (Grover, Limber, & Boberiene, 2015).

Research is showing that nurturing the whole child is critical to the landscape of preferred outcomes and maximized learning (Lund, 2010). Strengthening a child's approach to learning becomes significant to well-being, and well-being is essential for capitalized learning (Dweck, 2006). Nurturing the whole child involves cultivating relationships, cultivating goals, creating supportive climates, teaching problem solving, and developing self-management techniques. These variables enhance life success inside and outside the classroom (Blad, 2016). More specifically, the Gallup Student Well-Being Poll (2014) showed that psychological factors such as hope and engagement contributed to the prediction of test scores. As actionable predictors, research has shown that hope, engagement, and well-being can predict success measured by grade improvement, graduation, and employment (American Psychological Association, 1997; Basch, 2011; Fredricks, Blumenfled and Paris, 2004; Gallup, 2014). While research has shown that psychological variables predict achievement, a lack of evidence was found in support of the predictive capacity that psychological variables have on high-stakes tests.

The past few decades have been marked by an improved awareness of the association between well-being and achievement (Volk, Sanetti, & Chafouleas, 2016). Well-being is defined as an individual's evaluation of his or her life: the degree to which perceptions and affective reactions indicate that life is desirable and proceeding well (Diener, Oishi, & Lucas, 2015). Key national indicators of well-being have been found to be emotional or behavioral in nature, are critical to childhood development, and contribute to the improvement of a child's sense of well-

being (Forum on Child and Family Statistics, 2015). Since a child's approach to learning affects well-being and well-being is critical to learning (Dweck, 2006), ensuring a robust sense of well-being logically influences components related to school outcomes such as graduation, grades, and test scores.

In particular, hope and engagement are known as critical components for student well-being (Gallup, 2014). For the purpose of this study, hope is defined as a student's ideas and energy for their future. Engagement is defined as the involvement and enthusiasm students feel for their school (Gallup, 2014) and the support they feel from their teacher (Wilson & Buttrick, 2016). Engagement is purported to be one of the keys addressing low student achievement and high drop-out rates, and students reporting higher levels of engagement are more likely to perform better on standardized tests (Blad; 2016; Center for Evaluation and Education Policy, 2016). Cultivating this component has been shown to protect against depression, to increase life satisfaction, and to facilitate learning and creativity (Seligman, Ernst, Gillham, Reivich, & Linkin, 2009); however, little is known about the contribution that this variable makes in the prediction of scores on high-stakes tests in reading.

For the future of our children, promoting childhood joy is a noble agenda (Simeonsson, 1994), and the United States has made a vital call to intervene in order to maximize and endorse childhood well-being. Research shows that there is a positive relationship between well-being and achievement and a child's well-being is an ultimate catalyst for full potentiation. Investing in the nation's youth strengthens the future of our country. Although some psychological variables have gained recent popularity, more research is needed to establish their relationship with achievement and testing outcomes. School climate, hope, and engagement have become important tools in the school improvement process. "These components implemented

independently cannot move the needle alone for academic achievement" (Michael, et al., 2015, p. 754). We need systemic change that braid these constructs into the fabric of every child's life.

Statement of the Problem

A child's sense of well-being is contingent on many internal and/or external variables. Some of these can be changed and some cannot be changed. Three concerns support the theory this study is based upon. First, data in the United States shows that students' perceptions of well-being are low, and there is a heightened sense of student disinterest in and disengagement from school (Gallup, 2015). Additionally, data from the High School Longitudinal Survey (Ingels, 2013) indicated that tenth graders did not like school. Results revealed that only 24% of high schoolers reported liking school a "great deal", 65% percent reported that they liked school "somewhat", and 12% reported they "did not like school at all". In contrast, 81% of students reported that the teaching is good. If students' perception of teaching is positive, Ingels' survey suggested that teaching does not offer the only explanation for low achievement and low engagement. Consequently, reform models that focus on the improvement of teaching have not considered this study. In other words, developing quality teaching in isolation may not result in dramatic improvements in student achievement. In another recent survey, researchers from the Yale Center for Emotional Intelligence found that out of 22,000 high school students, they reported feeling stressed 80% of the time (Brackett, 2016). Further investigation can reveal the anecdotal explanations for this stress. Missing in this equation is the contribution that psychological variables make to reducing barriers to learning and enhancing testing outcomes. Secondly, childhood mental health disorders are rising, (Center for Disease Control, 2013). Between 13 and 20 percent of young children in the United States currently have a mental health disorder (National Research Council and Institute of Medicine, 2009). Lastly, performance on

high-stakes tests in reading is stagnant across the early grades (Fuller, Writgth, Gesicki, & Kang, 2007; National Association of Educational Progress, 2015). Approximately one-third of students tested in the United States read at or above a proficient level, another third read at the basic level, and one-third read at below the basic level (Rampey, Dion, & Donahue, 2009). Evidence presented will substantiate these concerns including three indicators: a school climate of high-stakes testing, policies that initiate and promote high-stakes testing, and changes in curriculum. American students' poor performance on national and international assessments identifies the United States as having a "national problem appropriate for federal intervention" (Sloane & Kelly, 2003, p. 12). It is time to view education through a different lens.

Despite the evidence suggesting decreasing levels of hope and engagement, increasing levels of mental health disorders, and stagnating standardized Reading Scores at the national level, school improvement programs have continued to focus only on technical enhancements of reading skills (decoding and comprehension) with minimal focus on psychological variables shown to correlate with reading success (Michael, et al., 2015). As one of the richest nations in the world (World Atlas, 2016), the United States' evidence of decreasing levels of hope and engagement, rising mental health concerns, and stagnant results on high-stakes reading tests is noteworthy. The National Association of Health Education Centers (2005) reports that academics are the leading cause of stress for nine- to thirteen-year-olds. The high-stakes tied to annual testing can contribute to student stress, making it hard to think or perform at times (National Scientific Council on the Developing Child, 2014; Save Our Schools, 2014). While there are various factors that contribute to student stress and theories to explain this stress, this study reviews the data on well-being, childhood mental health disorders, and high-stakes Reading Scores. In support of these concerns, indicators include school climates focused on

high-stakes test outcomes, policies that engineer this climate, and curricula that is narrowing and not always matched to a student's developmental needs. This study will investigate the contribution that psychological variables make to the prediction of outcomes on a high-stakes test in reading.

Concern #1: Well-being

The United States is recently concerned with balanced well-being for all children. The National Clearinghouse on Families and Youth (2015) called for the promotion of young people's well-being and the insurance of future success. Adding to this conversation, Gallup polls are investigating psychological variables that contribute to positive futures for American students. The first component powering this theory is that well-being is low. Well-being is a critical component for success (Dweck, 2006), but from 2014 to 2015, students in fifth through twelfth grade reported increasing levels of school disengagement and reported feeling a lack of hope for the future (Gallup, 2015). This student poll connected psychological metrics with outcomes of student success. Based on the most recent survey, only 50% of students surveyed reported feeling engaged and 48% reported feeling hopeful. This is a change from Gallup results in 2014. In 2014, statistics revealed that 53% reported feeling engaged and 53% reported feeling hopeful. Our youth are experiencing diminishing hope and engagement, and since well-being and achievement have been shown to be correlated (Upadyaya & Salmela-Aro, 2013), these feelings may be integrally related to achievement outcomes. Lamb-Sinclair (2016) reports results from this Gallup poll to suggest that the number one indicator of college success is a feeling of hope for the future. Further investigation is necessary to examine variables that contribute to testing outcomes.

Achievement in school is not only contingent on academic access but also on the perception of success (Bostic & Bagnell, 2012). The National Education Policy Center (2016) reported that academic success is not solely dependent on teaching, but rather an interaction between larger issues such as unemployment, poverty, and access to resources. Additionally, research has indicated that, social-emotional skills (e.g., collaboration, motivation, effort, and approach to learning) are important predictors of academic achievement (DiPerna & Elliot, 2002). Evidence is lacking related to the predictive capacity psychological variables make on high-stakes tests. The pathway from well-being to achievement is relatively unexplored for young children in schools. While much of the research reviews overall well-being, few studies examining the contribution psychological variables make in the prediction of high-stakes testing outcomes were found nor do they serve as risk indicators.

The United States is under critical pressure to reduce the risk of children developing mental health disorders and to promote their resilience and well-being (Simeonsson, 1994). "Recognizing and fostering motivation, mastery, drive, will, trust, and initiative, can have a profound effect on the success of individuals and groups" (p. 330). Although we know that academic success is influenced by a child's support systems including the interaction between behavior, environment, family, culture, and other institutions (Bronfenbrenner, 1979), current research leads us to examine the contribution that psychological variables make in the prediction of scores on high-stakes tests in reading.

Well-being has been shown to be significantly related to achievement outcomes (Ickovics, Carroll-Scott, Peters, Schwartz, Gilstad-Hayden, & McCaslin, 2014; King, 2015) and has been shown to function in a reciprocal manner (Ng, Huebner, & Hills, 2015). Barriers to well-being not only impact academics but also lead to long-term consequences such as

depression, anxiety, school dropout, unemployment, or anti-social behavior (Denham and Weissberg 2004; Seifer, Gouley, Miller, & Zakriski, 2004). In a study by Antaramian, Huebner, Hills, and Valois (2010), middle school students displaying the presence of positive well-being and the absence of symptoms had the best advantage for maximized school performance. They studied how the promotion of well-being improved educational outcomes. Similarly, a meta-analysis of the effects of social-emotional intervention found that for after-school programs targeting psychological skills, there was an overall positive and statistically significant impact in three categories (Durlak, Weissberg, and Pachan, 2010). These categories include: feelings and attitudes, indicators of behavioral adjustment, and school performance. Specifically, statistically significant increases resulted in students' self-perceptions, engagement with school, positive social behaviors, school grades, and achievement test scores. With this being the case, intervention development needs to draw upon this research.

Concern #2: Rise in childhood mental health disorders

There is evidence that mental health problems are increasing. According to the Forum on Child and Family Statistics (2015), the percentage of teenagers who experienced a psychological problem increased in 2015 and is increasing every year (Gold, Pinder-Amaker, Kaplan, & Palmer, 2016). Unfortunately, these problems are going untreated. Up to 80% of children with a diagnosable anxiety disorder and 60% of children with diagnosable depression receive no treatment, according to the Children's Mental Health Report (Child Mind Institute, 2015). In a study in North Carolina, Jones, Jones, and Hardin (1999) found that 61% of teachers perceive that students felt more anxiety and less confidence due to testing.

Research has demonstrated that anxiety in children can start as early as kindergarten (Center for Disease Control, 2013; Fleege, Charlesworth, Burts, & Hart, 1992), and this anxiety

is often complicated by successive low-performing test results (Crocker, Schmitt, & Tang, 1988). For example, one study demonstrated that students traumatized by Hurricane Katrina showed that post-traumatic stress disorder, a severe form of anxiety, was a significant predictor for high-stakes achievement test scores (Baumeistser, 2010). What is lacking in the literature is evidence of the predictive capacity of milder forms of anxiety and overall well-being as it contributes to the predictability of achievement test scores. No studies have been found determining what specific psychological variables contribute to the predictability of scores on high-stakes tests.

While there are some positive effects from No Child Left Behind (NCLB) such as increases in high quality teachers and increases in teacher compensation (Dee & Jacob, 2011), there have also been some negative effects, such as a rise in stress and anxiety felt by students, increased grade retentions, and increased in dropout rates (Nichols, 2007; Viadero, 2003). Despite the evidence to delineate increasing child mental health problems, there is little research identifying the specific psychological variables that contribute to the predictability of a score on a high-stakes test. It is evident that the frequency and intensity of both stressful life events and daily hassles are greater among low-socio-economic status (SES) children (Attar, Guerra, & Tolan, 1994), but prolonged stress is associated by a sense of detachment and hopelessness (Bolland, Lian, & Formichella, 2005). Johnson (1981) found that low-SES students are more likely to give up or become passive and uninterested in school. Although this is a problem, there are research based practices to overcome these responses. For example, giving students appropriate amounts of control over their daily lives at school helps diminish the effects of acute stress, increases engagement (Jensen, 2013), and is associated with achievement (Martin & Marsh, 2003). An example of this is the schoolwide program The Leader in Me. Based on a qualitative review (Westgate, 2014), it is a proven program in which principals indicated

improved academic performance, better state test scores, decreased frequency of F's in academic classes, and improved attendance.

Mental health disorders and diagnoses in teenagers and children have increased steadily since 2005. On the American Psychological Association's Stress in America survey, 83% of teens report that school is the source of their stress (American Psychological Association, 2014). The U.S. surgeon general reports that approximately 20% of children experience mental health problems in any given year and that 10 to 15% of these students will show consequential impairment in their ability to learn and be successful at school (Merikangas, 2010). Merikangas (2010) delineates the prevalence of the following disorders: anxiety disorders (31.9%), behavior disorders (19.1%), mood disorders (14.3%), and substance use disorders (11.4%). The median age of onset for disorders was earliest for anxiety (6 years), followed by behavior (11 years), mood (13 years) and substance use (15 years).

A study from the Center for Disease Control (2013) reports that the prevalence of these conditions is increasing. Based on the National Research Council and Institute of Medicine (2009) report that summarized findings from previous studies, it is estimated that 13 to 20 percent of children living in the United States (up to 1 out of 5 children) experience a mental disorder in a given year and an estimated $247 billion is spent each year on childhood mental disorders. Despite this money spent, one study showed that for every dollar spent in prevention produced an average of 11 dollars of benefit (Belfield, Bowden, Klapp, Levin, Shand, & Zander, 2015). Another study (Heckman, 2012) has shown that early intervention to address psychological skills results in a return on investment for distal outcomes, such as academic performance.

Children are experiencing increases in anxiety, depression, eating disorders, sleep deprivation, and thoughts of suicide (Abeles, 2015). What is concerning is that any amount of stress can impact how the structure and architecture of the brain forms (Shonkoff & Garner, 2012). "Sustained activation of the stress response system can lead to impairments in learning, memory, and the ability to regulate certain stress responses" (National Scientific Council on the Developing Child, 2016, p. 5). Neuroscience is revealing that emotional centers of the brain are involved with learning and that "when a child is immobilized by distressing emotions, the centers for learning are temporarily hampered" (Goleman, 2004, p. vii). Furthermore, heightened levels of the stress hormone cortisol can injure the myelin and can cause inefficiency in brain circuit functioning (Abeles, 2015). The impact on communities, families, and children is an important public health issue, since the overall well-being of America's youth is in crisis (Gallup, 2015).

Stress levels in teenagers are stated to surpass measured levels of adult stress (American Psychological Association, 2013). The Center for Disease Control (2013) reported a 23% increase since 2010 and a 78% increase since 2007 in the diagnosis of childhood mental disorders. Furthermore, only half of teens are feeling confident about their ability to cope and manage their stress (APA, 2013). The APA (2013) survey also revealed that a third of teens surveyed feel overwhelmed, depressed, or sad as a result of stress and more than a third (36%) reported feeling nervous or anxious. What is clear is that teenagers are feeling higher levels of stress and lower levels of knowing how to cope. Stress takes a toll on physical and mental well-being, and can affect learning, behavior, and health in children (Center on the Developing Child, 2016). Furthermore, increased levels of stress promote inflammation, increased cortisol, and stress hormones. Another nationally representative study completed by the United States

Healthcare Cost and Utilization Project (2010) reported that mood disorders were among the most common principal diagnoses for all hospital stays among United States children. Additionally, the rate of hospital stays among children for mood disorders increased 80% during 1997-2010; from 10 to 17 stays per 10,000.

Further evidence that there is a rise in mental health diagnoses in children is provided by Blanchard, Gurka, and Blackman (2006). They revealed that the most commonly diagnosed problems among children 6-17 years of age were learning disabilities (11.5%), attention-deficit/hyperactivity disorder (8.8%), and behavioral problems (6.3%); among preschoolers, speech problems (5.8%) and developmental delay (3.2%) were most common. Rates of parental concerns about emotional, developmental, or behavioral problems are also increasing. Forty-one percent of parents had concerns about learning difficulties and 36% of parents had concerns about depression or anxiety in their children. Additionally, the 2012 National Survey of Children's Health reported a 24% increase in inpatient mental health and substance abuse admissions among children during 2007-2010, as well as increases in use and cost of these services and psychotropic medications for teenagers specifically over the same period. Beidel, Turner, and Trager (1994) asserted that approximately 40% of children suffer from test anxiety.

We have ongoing federal surveillance of child mental health in the United States. These data are used to estimate the prevalence of mental health disorders in children by agencies such as the Center for Disease Control, Health Resources and Services Administration, and the Substance Abuse and the Mental Health Services Administration. Child mental health conditions and ongoing examination of data indicates rising prevalence of: attention-deficit/hyperactivity disorder, disruptive behavioral disorders such as oppositional defiant disorder and conduct disorder, autism spectrum disorders, and mood and anxiety disorders

including depression, tic disorders, and substance use disorders. Over the last half century, there have been notable increases in the prevalence of mental health conditions (Houtrow, Larson, Olson, Newacheck, & Halfon, 2014). Arango (2012) indicates that the first symptoms of most mental health disorders appear during childhood and adolescence. Based on data from the Maternal and Child Health Bureau (2012), there was an increase in the percentage of children in the United States with a special mental health care need that included ongoing emotional, behavioral or developmental problem and required treatment or counseling. Between 2005 and 2009, the increase of 6- to 11-year-olds with special health care needs rose from 4.9% to 6.1%. For children ages 12 to 17, the increase in special health care needs rose from 5.4% to 6.5%. No explanation was found in the literature explaining this increase.

With relevance to schools, the National Research Council (2011) concluded that the emphasis on high-stakes testing yielded little learning progress and caused significant harm. Regardless of the documented harm associated with high-stakes testing, teachers and students continue to be held accountable (Weber, 2014). However, no studies were found associating the increase in mental health problems and performance on high-stakes test outcomes. The current study will explore student experiences in education that may be associated in part with the current rise in mental health disorders in children under the age of 18.

Concern #3: Student Achievement

Mental health disorders do not affect emotional health in isolation; they can co-occur with social interactions and educational achievement (DeSocio & Hootman, 2004; Humensky, 2010). School failure has been shown to have devastating effects in terms of a child's self-esteem, social development, opportunity for further education and ultimately gainful

employment (Lyon, 2001). In his 2001 statement before the U.S. House Subcommittee on Education and the Workforce, Lyon explains that:

> Nowhere are consequences more apparent than when a child fails to learn to read. Specifically, in our NICHD-supported longitudinal studies, we have learned that school failure has devastating consequences with respect to self-esteem, social development, and opportunities for advanced education and meaningful employment. Nowhere are these consequences more apparent than when children fail to learn to read. Why? Simply stated, the development of reading skills serves as the major foundational academic ability for all school-based learning. Without the ability to read, the opportunities for academic and occupational success are limited indeed. Moreover, because of its importance, difficulty in learning to read crushes the excitement and love for learning, which most children have when they enter school.

Poor performance on national and international assessments is a "national problem appropriate for federal intervention" (Sloane & Kelly, 2003, p. 12). The National Assessment of Adult Literacy finds that literacy scores of high school graduates dropped between 1992 and 2003 (Gallagher, 2009). The time and money spent on school reform has produced a changing educational climate in an attempt to address reading failure. According to Layton (2013), the United States is lagging behind the rest of the world because our international Reading Scores are stagnant, and we are not seeing improvement in the performance of our 15-year-olds. Closing achievement gaps between racial, cultural, and income differences are of critical importance as America pursues higher educational status ranks. Comprehensive school reform initiatives may help in this endeavor, but research shows that teacher quality (Vandevoort, Amrein-Beardsley, & Berliner, 2004) combined with formative assessment (Hattie & Temperly, 2007) can be the most important predictors in determining how a child reads.

Comprehensive School Reform (CSR) has not been found to be an efficient approach for improving student achievement (Yeh, 2008), and education in the United States is showing minimal improvement (Michael, et al., 2015). CSR is typically defined as school improvement programs known as whole-school or comprehensive reforms, emphasizing a coherent vision of

education, a challenging curriculum, and high expectations for academic achievement. In 2001, the reauthorization of Title I limited CSR funding to scientifically based whole-school reform models, increasing pressure on CSR developers to show that the models improved student achievement (U.S. Department of Education, 2002). Congressional appropriations for CSR totaled $1.9 billion from 1998 to 2006 (U.S. Department of Education, 2004; 2006), in addition to over $150 million provided by George W. Bush's New American Schools (Borman, Hewes, Overman, & Brown, 2004). Funding for CSR has totaled well over $2 billion; however, significant improvement in achievement results has not been demonstrated (OECD, 2013; Michael, et al., 2015).

In addition to low levels of well-being and increased levels of mental health problems for youth and school failure, national standardized test scores in reading are showing some improvement, but high-stakes test are showing the opposite. "Given the past two decades of standards-based education reform and test-driven school accountability policy, American educational policymakers are left with a puzzle: Standardized achievement test scores have not risen, while more high school students have taken advanced courses in math and sciences and also more high-stakes tests for promotion and/or graduation" (Lee, 2010, p. 801). Lee (2010) demonstrated that changes on the National Association of Educational Progress (NAEP) reading test for fourth grade Reading Scores were essentially the same in 2005 as they were in 2002. Dee and Jacobs (2009) revealed that of student test scores from a national low-stakes testing database, there are statistically significant increases in math scores of fourth graders and moderate effects for eighth graders in math. Of critical importance was the finding that "NCLB had no impact on reading achievement among either fourth or eighth graders" (p. 4). Neill (2016) also shows in the most recent study on NAEP scores that reading results of twelfth

graders have remained the same from 2002 to 2015. He concludes that a test-driven climate has contributed to minimal academic progress. To add to this data, Dee and Jacob (2011) found that accountability systems under NCLB resulted in improvements in low-stakes "NAEP math scores for fourth graders, but no evidence was found to show that NCLB influenced reading achievement" (p. 442).

There are several concerns with the implementation of a high-stakes testing culture. In another study, researchers showed that high-stakes tests do not always provide a pure measure of achievement (Dee & Jacob, 209). Reading Scores can sometime reflect test anxiety levels more than a true reading ability (McCabe, 2003). Tests can also be associated with socio-economic status. Lee and Reeves (2012) analyzed the effect that poverty had on reading scaled scores. They found that a 10 percentage point increase of low SES students (one standard deviation above state average poverty rate) was associated with a 2.4 point loss in average reading scaled scores for fourth graders. Furthermore, a report spanning over two decades demonstrates the results of accountability in education (Amrein and Berliner, 2002). Their study demonstrated how states experienced major penalties due to minimal academic improvement. They concluded that some high-stakes tests may encourage struggling students to seek alternative schooling paths and leave the traditional diploma system.

As an alternative to high-stakes tests, the National Association for Educational Progress administers a test that is semi-annual and low-stakes and is not mandated by NCLB (Mullholland, 2015). In the year 2015, "NAEP scores were a political disaster for CCSS" (Loveless, 2016). Overall national reading proficiency is 36% for fourth graders and 34% for eighth graders (NAEP, 2016), but every state has shown improvement between 2002 and 2015 (NAEP, 2015). The Institute for Education Science recent report (2015) compares scores

between 2013 and 2015. Fourth grade averages were no better in 2015 than 2013 and eighth grade averages showed a lower mean in 2015 than 2013. Looking at data that shows the percent of students at or above a basic level of reading comprehension shows a different picture. From 2002 to 2015, every state has shown improved percentages for the total population, not when analyzing sub-groups (NAEP, 2016). Results may suggest arguments against education policy that includes high-stakes testing (Collier, 2016).

With an increased proliferation of reading initiatives and money spent on reading programs, these results are less than desirable. Reading failure is of specific concern to the nation, and data suggests that high-stakes reading responsiveness is stagnant. Even though rigorous research by the National Reading Panel in 2000 identified five big ideas necessary to establish the appropriate protocol for reading instruction, there remains a lack of substantial improvement associated with this national initiative. A key component of reading success is often measured by comprehension (Almasi, Garas-York, & Shanahan, 2006). Reading comprehension is defined as the ability to understand and interpret written material. There are many variables that contribute to success in reading which include language, vocabulary, attention, memory, engagement, motivation, and metacognitive strategies (Snow, 2002). Another important determinant in reading comprehension is "a readers' perceptions of how competent she or he is as a reader" (Snow, 2002, p. 22). Numerous evidence-based reading programs, financial support for teacher training, and research in reading materials have been infused into schools to maximize reading outcomes. Unfortunately, national curricula and standards place minimal time and emphasis on the promotion of well-being and development of psychological skills as they relate to enhanced achievement. The proposed study will examine psychological variables as they contribute to the predictability of outcomes on a high-stakes test

in reading. The promotion of well-being and insulation from the effects of high-stakes testing failure is a critical call for schools in America. If America is to compete in the race to the top, programs to address barriers to reading need to focus on critical components that are psychological in nature (Schoen & Fusarelli, 2008).

In addition to evidence for the role psychological skills play in reading comprehension, there is a stated association between states that have rigorous testing standards and a decline in test scores. Fourth grade low stakes NAEP scores show reading improvement for the period between 2003 and 2015, but state high-stakes test scores show a decrease in the percentage of students that read at or above grade level for fourth grade for the same period. Both tests measure reading comprehension (NAEP, 2016). In 2005, The Nation's Report Card indicated that twelfth grade readers score lower in reading assessments compared to 1992. Moreover, there was even a decline for students that were at or above basic level. From 1992 to 2005, the overall decline decreased from the 80th percentile to the 73rd percentile. For students that were identified to be at or above the proficient level, the decline was from the 40th to the 35th percentile for the same time span (Nation's Report Card, 2007). Loveless (2016) found that states that adopted CCSS had NAEP scores associated with no more than a single point difference (plus or minus) in fourth grade reading and math outcomes. It has been noted that states that did not adopt CCSS performed better than non-adopters because their scores declined less as opposed to improving more. "None of the states are setting the world on fire" (Loveless, 2016). Even though standardized tests can serve as an effective measure for comparison and holding schools and teachers accountable, they can also be detrimental to students because they measure a very narrow set of skills and are highly stressful (Craig, 2007).

In summary, three concerns scaffolding this study have emerged. These include: a decline in student well-being, an increase in childhood mental health disorders, and scores on high-stakes tests in reading that show minimal improvement. The indicators to support to support these concerns include: school climate, policy and accountability initiatives, and changing curriculum.

Indicator #1: School Climate

School climate research is gaining popularity with three main definitions found in the literature. These include: physical, social, and academic. For the purpose of this study, climate will refer to the social and academic climate children experience at school. Research-based efforts to enhance the social experience of school have been given tremendous attention including: character education, social emotional learning, and the promotion of mental health (Thapa, 2013). School climate has been shown to influence (a) the motivation to learn (Eccles & Wigfield, 2002); (b) the minimization that low socioeconomics has on academic success (Astor, Benbenisty, & Estrada, 2009); and (c) protective factors that improve learning and enhance positive life outcomes (Thapa, Cohen, Guffey, & Higgins-D'Allessandro, 2013). Cohen (2006) found that the assurance of a safe, caring, and responsive school climate where children are participatory agents builds a foundation where achievement flourishes. Specific variables found to contribute to the predictability of achievement include: relationships, fair and equitable teacher treatment, school safety, school comfort, quality of instruction, and high expectations (Loukas, 2007). In addition to the pressure that children are under to improve their academic performance (Schonert-Reichl, Oberle, Lawlor, Abbott, Thomson, Oberlander, & Diamond, 2015), schools also face increased pressures to improve academic performance (Jones & Bouffard, 2012; Schoen & Fusarelli, 2008). For over three decades, concerns related to the

impact of this movement have focused on academic demands and testing pressures imposed at younger and younger ages (Crain, 2016). In schools without supportive climates, students are more likely to experience reduced academic achievement (Astor, Guerra, & Van Acker, 2010). In addition it was shown that school climate contributes to academic outcomes in reading scores of fifth graders (Marten, 2012), is predictive of test scores (Cohen, McCabe, Michelli and Pickeral, 2009), and is significantly related to the improvement of student well-being (Organization for Economic Cooperation and Development, 2010).

A nine-year study implemented by the National Research council (2011) drew the conclusion that an emphasis on testing yielded little learning progress and could cause significant harm. Nichols (2007) reviewed the literature on high-stakes testing and found no evidence suggesting that it resulted in increased learning or achievement. She adds that "there is some evidence to support the notion that high-stakes testing may have a negative effect for some student groups (low income population) and in some subject areas (e.g., reading)" (p. 47). Furthermore, "early academic pressure and time spent preparing for the test robs children of the chance to develop in psychological areas" (Crain, 2003, p. 155). This increased pressure is associated with a fear of failure (Hardy, 2003), and an overreliance on tests can mean more test anxiety and more stress (Cizek & Burg, 2006). Such a "high-stakes environment drives our children to chronic insecurity, fear, anxiety, disconnection, loneliness, and record rates of depression" (Abeles, 2015, p. 8). Research studies have demonstrated that students are experiencing increased levels of stress and test anxiety now more than ever, possibly from the effects of high-stakes testing (Brown, Galassi, & Akos, 2004; Segool, Carlson, Goforth, von der Embse, & Barterian, 2013; Zeidner, 1998).

If low student achievement is related to low engagement, school reform models are not currently addressing this relationship. Dillon (2010) stated that the Secretary of Education at the time, Arne Duncan, viewed international test results on the Program for International Student Achievement (PISA) as a wake-up call, and that America is being out-educated. Reform efforts have focused on school improvement at the exclusion of psychological skills that cultivate life-long success. Meier's (2004) data demonstrated that minimal change in school improvement has been evident in recent years. For decades, billions of dollars have been allotted to address reading test scores of students across the nation. In the early years of NCLB, more than 6 billion was spent federally to fund scientifically based reading programs (Byrnildssen, 2002), additional money being spent at the state level. Even with all the initiatives, there have not been consistently significant gains in reading achievement, and high-stakes tests have not shown much improvement since the report A Nation at Risk (1983) and the law NCLB (2000). The National Association of Education Progress (2014) shows that the average reading literacy score in the U.S. was not measurably different in 2012 than any earlier comparable time point (2000, 2003, and 2009). Furthermore, there was no measurable change on the 2009 and 2012 PISA scores in the United States. To add to this data, a report from the National Center for Fair and Open Testing revealed that there has been no improvement in the National Assessment of Educational Progress (NAEP) scores for high school seniors on reading or math since 2009, and little progress over the previous decade has been made. According to Neill (1998), NAEP results do not support the claim that high-stakes testing leads to higher educational quality. It appears that proponents that support testing have based their rationale on ideology and not on evidence. In practice, then, the use of tests for accountability may actually undermine real improvement in student achievement, or at least inhibit it, because it narrows curriculum and instruction.

Gallagher (2009) stated that we are "developing test takers at the expense of readers" (p. 7), and the term high-stakes testing has entered our vocabulary (Fiske, 1991). Kuhn (2014) reported that some states are using test scores to rate educator preparation programs, but these are the very programs which produce teachers that teach the students who take the high-stakes tests.

Climates that stress results on high-stakes tests can foster fear as teachers and students concern themselves with the outcomes of these tests. It has been shown that persistent states of fear can lead to increased levels of anxiety and depression (Ohman, 1993). The irony is that anxiety and depression trigger a release of chemicals that actually interfere with clear brain function, clear thinking, and memory (Abeles, 2015; Francis, Caldji, Champagne, Plotsky, & Meaney, 1999; Carrion, Weems, & Reiss, 2007), and negative affect can interfere with the higher level of cognitive processing required for academic success (Debowski, Wood, & Bandura, 2001). Chronic stress has been shown to increase susceptibility to stress-related disorders and is not good for immune functioning (O'Leary, 1990).

Recent initiatives are just beginning to focus attention on the development of students' social and emotional competence and the cultivation of psychological skills to provide a blueprint for success. Not only are these protective indicators but they are also components that could maximize resilience. Parents, policymakers, and other agencies are becoming aware of the importance of these skills and working together to create solutions to reduce the effects of stress at school (Mental Health America, 2011; Roeser & Eccles, 2014). The practice of developing and improving students' social-emotional competence in relation to academic outcomes is gaining recognition in the literature (Schonert-Reichl & Weissberg, 2014). Positive education efforts may not only enhance young teen-agers engagement, hope, affect, and well-being, but it may also protect them from declining mental health (Belfield, Boweden, Klapp, Levin, Shand, &

Zander, 2015). In an effort to minimize mental health problems, the Committee on the Prevention of Mental Disorders and Substance Abuse Among Children, Youth, and Young Adults (2009) is working to advance research and create promising interventions to strengthen resilience against school stress in children and young adults. The Collaborative for Academic, Social, and Emotional Learning (CASEL, 2002) reported that a focus on school climate can affect students' social, emotional, and behavioral skills. Preparing lifelong learners that can persist when challenged promotes an academic mission in important ways. If the social emotional climate of schools and capacity of students is heightened, the capacity to learn is maximized (CASEL, 2002). Positive educational climates and the improvement of social-emotional skills might not only promote well-being and protect against mental health diagnoses (Belfield et al., 2015), but these skills might also protect students from high-stakes testing climates. An examination of the contribution that psychological variables make in the prediction of high-stakes testing outcomes is warranted.

More and more schools are enduring global climate pressures due to policy changes affecting climate and curriculum. Funding resources have unfortunately failed to allocate enough resources to support well-being initiatives in the high-stakes testing climate (Doll, Spies, & Champion, 2012). The focus on academic rigor has overshadowed other aspects of development, and children are often observed as lethargic and unhappy due to being so stressed out (Crain, 2016). Research shows that some students experience more stress than others, and schools have not had the time to explore the skills necessary to buffer against stress and anxiety (Greenberg, Weissber, O'Brien, Zins, Fredericks, Resnik, Elias, 2003).

Test taking in the United States has exploded in public school systems in the last decade (Layton, 2015); however, evidence has shown that the use of high-stakes testing shows no

benefit to student achievement (Dianis, Jackson, & Noguera, 2015; Nichols, Glass, & Berliner, 2006). More specifically, Nichols et al. (2006) drew three conclusions:

> High-stakes testing pressure is negatively associated with the likelihood that eighth and tenth graders will move into 12th grade, increases in testing pressure are related to larger numbers of students being held back or dropping out of school, and increased testing pressure produced no gains in National Association of Education Progress Reading Scores at the fourth-grade or eighth-grade levels (p.ii).

In situations where school performance is measured, "emotional reactions to tests often create feelings of fear, unease, distress, or depression" (McDonald, 2001, p. 90). Fear accompanies high-stakes testing climates, and this fear has become pervasive in schools (Schoen & Fusarelli, 2008).

Similarly, not only is testing negatively associated with promotion, retention, and a lack of Reading Score improvement, but it is also related to cognitive obstruction and anxiety and better explained the variation in scores in a study of eleventh graders on high-stakes tests (von der Embse & Witmer, 2014). In other words, the cognitive obstruction due to the fear associated with high-stakes testing may be interfering with test performance. After years of complaints from teachers, parents, and students, the Obama administration has announced (Ure & Liptak, 2015) that the United States is requesting a cap on high-stakes testing. In October 2015, new guidelines acknowledged that children spend too much time taking unnecessary exams in school, and teachers reported that their students frequently became nauseous under the pressure (Oh, 2015; Oliver, 2015). The Obama administration even announced that the emphasis on high-stakes testing had gone too far and urged schools to limit tests to only those that provided meaningful measures of progress (Lurie, 2015). Specifically, the administration called for a cap on high-stakes testing so that no student would spend more than two percent of classroom time

on standardized tests, and called on Congress to reduce over-testing. Testing has unfortunately taken a front seat in education, and often at the expense of students' well-being.

The stress is not just experienced by the students. Duncan (2015) reported that his conversations with teachers revealed that many educators are understandably stressed and concerned with the overemphasis on testing. This resulted in time for test preparation and practice, and this is time lost for meaningful instruction. Duncan concluded that this contributes to a school climate with elevated levels of stress. Children's well-being is being hijacked by a growing sense of disengagement and hopelessness (Gallup, 2014). Children's academic well-being is in part, the responsibility of school systems. Students need to "feel safe, to feel membership in a community, and to experience a sense of caring" (Simeonsson, 1994, p. 334). Additionally, students do not need to internalize failure or view themselves as bad or worthless (Straus, 2014). The increase in stress is experienced by students, teachers, and administrators, and DeNoon (2002) suspects there may be evidence that this stress is in part related to standardized testing and a fear of failing these tests. The current study aims to examine the contribution that psychological variables make in the prediction of a score on a high-stakes test in reading.

It is evident that the academic climate of school is changing. Osburn, Stegman, Suitt, and Ritter (2004) suggest that children today are placed under great pressures to perform well on standardized tests, and they speculate that psychological variables are adversely affecting performance outcomes. No studies were found determining the exact variables that are associated with testing outcomes. Bradshaw (2015) has indicated that reforms are requiring teachers to disregard research on developmental practices and forcing teachers to engage in

practices that are not only ineffective but actively harmful to child development and the learning process. In a personal reflection she states:

> Like many other teachers across the nation, I have become more and more disturbed by the misguided reforms taking place which are robbing my students of a developmentally appropriate education. Developmentally appropriate practice is the bedrock upon which early childhood education best practices are based, and has decades of empirical support behind it. I just cannot justify making students cry anymore. They cry with frustration as they are asked to attempt tasks well out of their zone of proximal development. They cry as their hands shake trying to use an antiquated computer mouse on a ten-year-old desktop computer which they have little experience with, as the computer lab is always closed for testing. Their shoulders slump with defeat as they are put in front of poorly written tests that they cannot read, but must attempt. Their eyes fill with tears as they hunt for letters they have only recently learned so that they can type in responses with little hands which are too small to span the keyboard.

Furthermore, Osburn et al. (2004) reveal that some researchers examined overall school climate, including teacher anxiety, student pressure to succeed, and administrators' use of testing results, and suggested that school climate is a possible predictor of academic achievement. Although "tests are a huge source of unhealthy stress on children" (FairTest, 2007; Strauss, 2014; Abeles, 2015, p. 104), minimal research has been conducted that examines how individual students perceive this pressure, whether or not students' overall level of well-being is related to specific achievement outcomes, and what psychological variables contribute to the predictability of scores on high-stakes tests.

Supportive and engaging learning environments are important for achievement. Teachers can play a critical role in the development of high school engagement. Akey (2006) reveals that if students view teachers as supportive, this can contribute to a student feeling in control and confident about his or her ability to succeed. Wang and Holcombe (2010) suggest that a supportive learning environment seems to be important for high academic achievement and that learning trajectories are related to school climates. Years of brain studies demonstrate that learning occurs best when children feel supported, connected, and not constantly stressed

(Abeles, 2015). Distress affects brain development, academic success, and social competence (Evans, Kim, Ting, Tesher, & Shannis, 2007). Distress also reduces attentional control (Liston, McEwen, & Casey, 2009), boosts impulsivity (Evans, 2003), and impairs working memory (Evans & Schamberg, 2009). Positive school climates in turn facilitate the development of learning and guide students toward achieving productive and satisfying lives (Cohen,McCabe, Michelli, Nicholas & Pickeral, 2009).

Since the implementation of NCLB in 2002, high-stakes testing has escalated. Indeed, tests are used for many purposes and can be a valuable tool to educators, students, and parents. However, when tests are considered high-stakes, they are tied to a level of importance by stakeholders. The result of high-stakes testing is having a negative effect on education, the character of children's thoughts, and the self-doubt it is reinforcing (Abeles, 2015). High-stakes tests also engender student retention issues and many teachers' performance and pay is dependent on their students' test performance. Nichols et al. (2005) alleged that it might be state law to hold students back if they fail end-of-year exams, but the actual "threat" of this consequence as it is experienced by students, teachers, and parents depends on the weight assigned to test performance. Their study demonstrated that pressure associated with testing and retention resulted in minimally significant gains. Teaching to the test is a dilemma facing education. Since the explosion of high-stakes testing, not only have teachers altered the way they teach (Jennings & Bearak, 2014; Rentner, Kober, Chudowsky, Chudowsky, Joftus, & Zabala, 2006), but learners have altered the way they learn and view themselves in school (Kuhn, 2014).

Another common element of high-stakes testing is the public reporting of test results. Current policies mandate that test results and decisions about a school's future rely on the

performance of the school population. Consequently, students and teachers are feeling stressed by high-stakes testing. At Irvington High School in Fremont, California, when redistricting lines were drawn to include more affluent families, the student's standardized test scores "shot up as did its rates of student anxiety, sleep deprivation, and stress-induced illnesses" (Abeles, 2015, p. 17). The infiltration of a high-stakes landscape began under NCLB, requiring that all students be tested annually in grades three through eight (Bovaird, 2011), but consequently state accountability reports have noted negligible change in graduation rates for students in states that require high-stakes testing (Cavendish, 2013). Moreover, a California school district reported a negative impact of high-stakes testing in graduation for students with low scores on the exit exam and minimal effect on graduation likelihood for youth with scores near the exit exam passing score (Reardon, 2010). Clearly, high-stakes testing is associated with a climate that not only effects well-being, but is also associated with stagnating reading results and graduation rates.

Indicator #2: Policy and Accountability

There are some positive aspects to accountability programs and high-stakes tests, but there is also evidence that these policies and requirements have contributed to the landscape of school climates (Dollarhide & Lemberger, 2006). In the last fifteen years, several polices have attempted to reform education. Most recently, the Supportive School Climate Act (2015) required schools to provide supports for all students in addressing the learning environment by promoting student engagement. This is particularly important since research shows that a student's sense of school engagement is a critical component to maximized outcomes (Gallup, 2014). In 2001, the NCLB Act was approved by Congress and signed into law by President Bush. NCLB was engineered in the hopes that achievement would be maximized and public

education would become an ultimate model of accountability (Altshuler & Schmautz, 2006). The NCLB Act dramatically increased the prevalence of and stakes in standardized testing, and critics of this culture are concerned that the increase in accountability has negative consequences for the overall cognitive development of children (Nichols & Berliner, 2007). NCLB required states to administer annual tests in the areas of reading and mathematics every year from third grade through eighth grade (Segool, 2013). Since these test scores were publicly reported and linked to reward programs, these tests became known as high-stakes in nature. Unfortunately, Schoen and Fusarelli (2008) suggested that there are unintended and negative consequences from NCLB. They come with a substantial price tag (Brookings, 2012), and these consequences may include fear and frustration related to a high-stakes testing environment (Schoen & Fusarelli, 2008). These reactions can result in higher dropout rates, greater teacher attrition, and essentially the stifling of creativity in schools (Schoen & Fusarelli, 2008). Recent standards based initiatives and high-stakes testing are factors that might also contribute to current school climates with implications on students' sense of well-being.

Relatively little research was found that examines the relationship between student well-being and high-stakes testing outcomes (Segool, Carlson, Goforth, von der Embse, & Barterian, 2013). Despite efforts to reform education, achievement gaps and achievement score averages have plateaued over the last few years (National Association of Educational Progress, 2014). After fifty years of Title I services and nearly fifteen years of NCLB implementation, NAEP data shows minimal response in reading test scores to these policies and investments. NCLB legislation increased the importance of standardized testing and accountability for schools and teachers (Osburn, Stegman, Suitt, & Ritter, 2004), and administrators, teachers, and parents have

questioned the value of these tests and their ability to strengthen academic achievement. (Bernauer & Cress, 1997).

The "Goals 2000: Educate America Act" emphasized the inclusion of all students in education reform components, expected all students to achieve world-class educational standards, and required that students demonstrate proficiency with challenging curricula. However, with the advent of NCLB legislation, there has been a narrowing of the curriculum (Abeles, 2015). Recent changes to curriculum standards surrounding the Race to the Top has led to the Common Core State Standards (CCSS). Some of the standards involve a change in curricula that encourages memorization, slower pacing guides, and an emphasis on finding evidence in texts. These skills are stated to be more aligned with being college and career ready (Weingarten, 2013). Research on the effectiveness of the CCSS suggests that they are not working (Cuomon, 2015; Christie, 2014). The CCSS were adopted by states in 2012 in an effort to improve educational outcomes. The standards were created as evenly spaced instructional components that are supposedly paced to suit the learner with the hope of enhanced performance. For some children, the demands are too great, and we know that teaching outside of the zone of proximal development can create motivation issues (Silver, 2011).

Since NCLB became law, high-stakes testing has increased in public schools, but what started out as a well-intentioned policy to facilitate the improvement of achievement has become a high-stakes testing endeavor (Gardner, 1999). Consequently, we have seen that NCLB did not effectively raise reading outcomes. In reality, NCLB's test scores represented more about inequality than the improvement of academic outcomes (Rethinking Schools, 2016). Now with the implementation of the CCSS, researchers are showing that the learning climate in schools has increased academic stress which can further threaten student mastery of content. There is a

possible connection between standards and physical symptoms manifest in children that might be related to the pressure to achieve those standards (Supovitz, Daly, & del Fresno, n.d.). Though standardized tests can serve as an effective measure for comparison as well as holding schools and teachers accountable, they can also be detrimental to students because they measure a very narrow set of skills and are highly stressful (Craig, 2007). Kentucky was one of the earliest adopters of the CCSS. In a report from the Brookings Institute analyzing fourth grade Reading Scores, NAEP reading results declined in 2009-2011 and 2011-2013 (Loveless, 2015). Since 2005, the incidence of mental health problems has risen (Annie Casey Foundation, 2016). It is possible that these high-stakes pressures associated with performance standards play a critical role in the relationship between students' well-being and high-stakes testing outcomes.

Indicator #3: Changing curriculum

There are many relevant viewpoints contributing to policies and a high-stakes testing climate, but the third indicator that may contribute to the concerns of this study is curriculum. Curriculum refers to learning objectives and standards that students are expected to meet and teachers are expected to teach. These are as determined by each state or by federal guidelines if the state adopted them. The two major issues found in the literature were a narrowing of the curriculum since NCLB and developmentally inappropriate curriculum. Curricula incorporating student's interests can have multiple benefits including an improved interest in academics (Brown, 2007). When curricula have age-appropriate objectives and encourage critical thinking, students tend to do well (Baines, 2011). There appear to be two critical issues in the literature: a narrowing of the curriculum since NCLB and potentially developmentally inappropriate curriculum.

It is possible that in a test-oriented culture of accountability, instruction has moved away from critical non-tested subjects to a focus on the tested subjects of reading and math (Dee & Jacob, 2009). Evidence shows that curriculum has narrowed as a result of all the focus on high-stakes tests and performance outcomes (Mulholland, 2015; Save Our Schools, 2014; Snow, 2002). Mullholland reported that the schools that have the biggest gains to make are those in communities that have the most disadvantages. Schools become test prep communities as teachers are driven to address what is being measured (Nichols & Berliner, 2007). High-stakes tests have been shown to narrow curriculum and result in feelings of disengagement with the whole school process (Darling-Hammond & Weingarten, 2014). Curriculum that was narrow and skill-based encouraged teachers to teach defensively when high-stakes were attached to their performance and the performance of their students (Taylor, 2008). This phenomenon follows Campbell's Law, which basically states that the more that a subject is used to quantify a social indicator (such as achievement), the more it becomes subject to distortion and corruption.

The NCLB report (2008) revealed that about 44 percent of districts increased time for tested subjects, all at the expense of social studies, art, science, music, and physical education. Pooling from the NAEP and state data spanning the 1992-2006 period, earlier test score growth of fourth graders has largely faded since the institution of NCLB in 2002 (Taylor, 2008). Taylor (2008) adds that most students she knows hate the unidimensional quality of school and are anxious about the high-stakes consequences.

Narrow instruction leads to inferior teaching and learning (Schoen & Fusarelli, 2008), and can potentially result in a lack of interest in school. Ravitch (2011) indicated that high-stakes testing altered the way teachers teach, focused on core subjects that were on exams, and ignored subjects that were not tested. The Center for Comprehensive School Reform (2006)

reported that parents and educators are concerned with how testing affects the curriculum and instruction itself. For example, some parents worried that item teaching and other test-preparation strategies were taking over instruction time. Tests can play an important role in education, but an over-emphasis on high-stakes testing may be contributing to an academic climate that is unhealthy for some students; one where testing conflicts with the social and emotional well-being of students (Ruff, 2011).

Due to a focus on high-stakes tests, the implementation of new curriculum and standards may show some developmental inappropriateness. A narrowing of the curriculum is neglectful with respect to teaching the whole child and in consideration of shaping the learner for positive results (Casbergue, 2010). Curriculum, if developmentally inappropriate, can have detrimental effects on the learner (Collins, 1985; Halpin, 1998). Learning is a natural phenomenon and children are constantly curious. "Curriculum steeped in multiple-choice test preparation drives shallow teaching and learning" (Gallagher, 2009, p. 8).

Decades of research on cognitive and developmental psychology revealed that current teaching styles and curriculum standards may have contributed to the erosion of play-based instruction that is critical to learning (Kamii, 2015). Current curriculum standards have intensified academic pressure under the pretense of rigor. Each child is supposed to master the same level of skill at the same age. Developmentally inappropriate instruction is ill-advised in that it undermines a child's independence (Rousseau, 1979). Classroom standards need to be adjusted to a student's instructional level (Margolis & McCabe, 2006; Margolis, 2006) so as to challenge them and not instill frustration (Strickland, Ganske, & Monroe, 2001; McCabe, 2003).

The capacity to understand written text is defined as maximized reading comprehension. Over the last twenty years, there has been a movement to establish rigorous benchmarks for

reading mastery at earlier and earlier levels for all students. "High interest reading is being squeezed out in favor of more test preparation practice" (Gallagher, 2009, p. 4). Policies that drive standards are just beginning to address multiple barriers to learning: including cognitive and psychological factors within the learner (Gallagher, 2009). The relationship between well-being and achievement is a new area of investigation. It is known that motivation plays a critical part in the relationship between well-being and achievement (Burton, Lydon, D'Alessandro, & Koestner, 2006). There is a lack of evidence examining the contribution that psychological variables make in the prediction of a score on a high-stakes test in reading. This study addresses this issue.

While the creation of CCSS was a well-intentioned initiative, there are a few problems to mention. There is little evidence that student attitude, motivation, and academic self-concept are incorporated into current standards (Common Core State Standards, 2016), and that CCSS was not supported by developmental science. For example, requiring children to read in kindergarten is not based on current research (Defending the Early Years, 2015; Abeles, 2015). In a study by the Brookings Institute (2014), states with standards most different from the CCSS gained the most on NAEP. Additionally, The Brown Center Report (2012) predicted that the CCSS will have little to no impact on student achievement. Furthermore, math standards selected for the Common Core are not grounded in the research that investigates how children learn math (Kamii, 2015). Although the CCSS were developed to address the quality of public education and standardize curricula, CCSS created standards that are set too early and Kamii (2015) stated that expectations that are too high can be detrimental. Furthermore, there is a reduced amount of time for unstructured, imaginative, play during school hours. Kids that do not play when they are young may grow into anxious, socially maladjusted adults (Wenner, 2009). Therefore,

allowing sufficient time for play has been linked to a variety of positive outcomes including increased cognitive skills, mental and physical health, language, and social skills (Ginsburg, 2006).

With the approval of the Every Student Succeeds Act (ESSA) in November of 2015, recent changes may develop in curricula with a new shift in school improvement policies. The ESSA provides hope that schools will begin to develop policies and initiatives to address nonacademic barriers to learning such as attitude, self-concept, and motivation. The act recommends the development of systems to cultivate learning supports. Some schools are beginning to include these components in their school improvement initiatives. States and districts are trending toward using the term "Learning Supports" to cover the range of psychological factors interfering with school success (UCLA, 2016). Learning supports are defined as the resources, strategies, and practices that provide physical, social, emotional, and intellectual supports to enable all students to have an equal opportunity for success at school by directly addressing barriers to learning and teaching. In the classroom and on a school-wide level, such supports encompass efforts to reduce the overemphasis on using extrinsic reinforcers and enhance an emphasis on intrinsic motivation to promote engagement and re-engagement. Two goals of learning support systems include: identification of the barrier to learning and identification of the strategy to re-engage students. From a prevention viewpoint, these are critical components of a system that maximizes the relationship between well-being and achievement. If students are not meaningfully engaged in learning, academic instruction is not independently sufficient to sustain outcomes for every child. Some children need the insulation that psychological variables contribute to their success. Classroom strategies that support the

whole student provide a focus on prevention and enable teaching practices and healthy approaches to learning (UCLA, 2016).

Summary

Three concerns woven together provide the foundation this study is based on. These include: decreasing levels of youth well-being, increasing reports of child mental health issues, and stagnating scores on high-stakes tests in reading. These three concerns are supported by a trilogy of indicators: school climate, policy and accountability, and curriculum changes. With these concerns and indicators, minimal evidence was found to examine the contribution that psychological variables make in the prediction of scores on high-stakes tests in reading. Measuring achievement involves more than just looking at test scores (Levin, 2002). Students' level of competence, their attitudes about hope, school engagement, and other dimensions of success may be factors that contribute to the predictability of scores on high-stakes tests. To maximize childhood success, a student must not only develop academic skills, but also develop academic affect and attitudes that facilitate achievement (Levin, 2012). This study is necessary to begin this conversation. A world-class educational system in the United States should consider these dimensions in addition to academic performance if we want to cultivate healthy mindsets in youth and maximize future potential.

Rigorous academic standards are tied to high-stakes testing. Students are experiencing increasing levels of stress, and there is evidence that students are feeling disengaged and hopeless (Gallup, 2015). Some studies estimated that by high school as many as 40 to 60 percent of youth are disengaged (Marks, 2000). Schools have the opportunity to intervene, create conditions where achievement is maximized, and to help students stay engaged academically and emotionally (ASCD, 2009). This study will investigate the relationship between psychological

variables and reading as well as predictive capacity. Specifically, this study will examine the contribution that well-being, attribution, mindset and demographic variables make in the prediction of a score on a high-stakes test in reading. This study will also examine the capacity these variables have in predicting whether or not a student passes or fails the high-stakes reading test. It is possible that psychological variables have significant relationships to high-stakes reading and predict high-stakes testing outcomes.

The Collaborative for Academic, Social and Emotional learning at School (2015) is creating systems within schools to promote social-emotional learning (SEL). There is substantial evidence to suggest that SEL has a positive impact on academic, social, and emotional benefits. Durlak, Weissberg, and Pachan (2010) demonstrated that SEL instruction resulted in an average of 11 percentage point improvement on test scores compared to students that did not receive SEL instruction. Additionally, their study showed greater motivation, deeper commitment to school, and fewer reports of depression, anxiety, and stress for those students that received SEL intervention. With this in mind, the intervention programs that target SEL may reduce risk factors related to performance on test scores.

Reading is a key to unlock the potential for success in life, reduces critical barriers, enhances college and career opportunities, and reveals successful academic outcomes. Maximizing a child's potential to read can serve as a protective factor for future success (Lyons, 2001). Education in America continues to encounter challenging times, but is it possible that there are psychological variables that contribute to the predictability of testing outcomes? This study will examine the psychological variables of well-being, attribution, and mindset and how they might be related to performance on a high-stakes test in reading. Negative long-term outcomes of school failure such as incarceration end up costing three times as much as

preventive measures (NASP, 2001), and so cultivating approaches to learning, reducing barriers, and strengthening psychological variables might insulate students from the effects of high-stakes testing. Children have a right to thrive in climates that cultivate a healthy minds and bodies. This can maximize personal potential and promote future success.

CHAPTER 2: LITERATURE REVIEW

Schools have the responsibility to broker a child's role in becoming resourceful, responsible, productive, healthy, and compassionate citizens of the United States. In pursuing this goal in education, we need to cultivate optimum climates that promote youth health and well-being. There has been an emerging interest in the consideration of the interaction between formal education, well-being, and the development of the whole child (Huppert and Johnson, 2010). Not only does this recent conceptualization focus on the identification and prevention of mental health problems (Vreeman & Carroll, 2007), but it also emphasizes addressing improvements in affect and attitudes related to learning (Adams, 2013). Successful students develop "personal strengths including grit, perseverance, and healthy mindsets" (Weissberg & Cascarino, 2013, p. 9). A reader's performance might change their interest in and motivation for reading. When a reader is successful at reading, this becomes motivating to the learner (Snow, 2002). These improved mindsets and attitudes can provide a base for better academic performance seen through improved test scores (Weissberg & Cascarino, 2013).

Education is a child's right in the United States. It is a right that should promote access to well-being, nurture successful agency, and cultivate maximized life outcomes, including college and career readiness. Education can be a vehicle to transport under-developed, marginalized children to a life that is productive. Unfortunately, education in the United States is encountering challenging times. Not only is there a lot of attention in the media regarding indicators that mark us as a failing country (New York Times, 2013; Layton, 2013; Michael et al., 2015), but there is also evidence that testing trends in reading over the last fifteen years have

shown a lack of significant growth (Institute for Educational Sciences, 2016). Consequently, the purpose of this study is to explore the contribution that psychological factors make to the predictability of a score on a high-stakes test in reading.

Maximized well-being is a vital national priority (Michael, et al., 2015) as the United States seeks to create school improvement policies and compete academically with other developing countries. Accordingly, recent research shows that the promotion of improved well-being enhances outcomes (Gallup, 2014). Not only is there evidence that well-being and achievement are related (Gilman & Huebner, 2003), but there is also an indication that the relationship is reciprocal (Quinn & Duckworth, 2004; Ng, Huebner, & Hills, 2015). In a study with middle school students, adolescents with higher well-being earned higher grades, and this in turn predicted higher well-being (Ng, Huebner, Hills, 2015). There is a growing body of evidence that suggests that students' social, emotional, and psychological skills are positively related to academic outcomes within the learning environment (Coleman, 2005; Wolters, 2003), but data are missing regarding the predictive capacity of these variables in high-stakes reading outcomes.

Given this supportive evidence in the relationship between psychological variables and student outcomes, school schedules unfortunately lack the time to incorporate interventions that intentionally improve well-being and consequent achievement. Furthermore, there is a shortage of research detailing which specific psychological variables predict performance on high-stakes reading. In a recent article by Wilson and Buttrick (2016), they reviewed the importance of addressing reading difficulties through students' beliefs about themselves, their teacher, and their environment. They showed six studies that verified changing these beliefs had a significant effect on grades, but effects on test scores was unavailable. Schools can introduce agency to

show children that they can change their mindsets and then help them find the pathway to do so. Middle school students with a high level of well-being had better reading skills, attendance, and academic self-perception than peers with low well-being (Suldo & Shaffer, 2008). Being able to manage elements of well-being is critical to improved achievement. They suggested that a blueprint for success could include curricula that targets goal setting, mentoring, and activities that foster positive emotions and manage negative emotions. Schools are in the position to teach and cultivate positive aspects of student functioning, address healthy approaches to learning, and promote a climate where students thrive and succeed.

In the promotion of positive climates for healthy youth development, positive psychology calls for the creation of environments that endorse healthy social and psychological adjustment (Seligman, & Csikszentmihalyi, 2000). This sense of positivity can buffer against mental illness and prevent dysfunction (Pittman, 1991). A positive school climate and optimistic attitudes toward reading have been found to be associated with reading achievement (McKenna, Kear & Ellsworth, 1995) and increased reading activity (Sainsbury & Schagen, 2004). Psychological variables found to moderate reading interest and achievement include attitude, motivation, locus of control, feelings, self-concept, and emotions (Alexandar & Filler, 1976; Martin & Marsh, 2003). Research has shown a positive relationship between psychological variables and achievement. Students who participated in universal curricula addressing psychological variables, had significantly improved academic performance on a high-stakes test. In fact, there was a group gain of 11 percentile points on the test between the treatment group compared to the control group (Durlak, Weissber, Dymnicki, Taylor, & Schellinger, 2011). Clearly, the development of psychological skills matters.

Psychological variables of learning are associated with achievement outcomes (Weiner, 1985; Hattie, 2012), but no recent data was found detailing the contribution psychological variables make in the prediction of high-stakes test scores in reading. Since 1986, four main psychological variables were shown to be significantly related to achievement. These include: learned helplessness (Schoenhals, 1991), self-concept (Bandura, 1997), test anxiety (von der Embse & Witmer, 2014), and motivation (Dweck, 1986; Elliot & Dweck, 1988). In Schoenhals' study (1991), a twelve-week intervention with fourth graders targeting attribution style resulted in significant improvements in reading scores compared to a control group. Similarly, Walden and Ramey (1983) demonstrated a significant relationship between attribution beliefs, grades in school, and test scores. That is, if a student felt responsible for positive outcomes, this was correlated with higher achievement. In contrast, if a student felt they were responsible for negative outcomes, they felt doubt, stress, and helplessness, which was correlated with low achievement. Even if self-doubt takes one percent of a student's attentional capacity, it prevents one hundred percent of their concentration (Garcia, 1998). Thus, the level of personal control a student felt they had was correlated with achievement outcomes (Butterfield, 1964; Martin & Marsh, 2003). Psychological variables contribute to the learning process.

Much of what is studied about reading achievement is linked to the development of techniques that improve and facilitate comprehension. Comprehension is the ultimate goal of reading and without it, text is meaningless. Not many recent studies were found that explore the relationship between psychological skills and performance on a high-stakes test in reading. Additionally, the relationship between well-being and academic achievement is a new area worthy of investigation. Even though there is evidence detailing a relationship between psychological variables and achievement, there is minimal evidence to support the capacity

psychological variables have in the prediction of high-stakes reading outcomes. In order to maximize student outcomes, many scholars have tried to develop interventions to reduce test anxiety, promote success, and avoid failure in the school setting (Robbins, Lauver, Le, Davis, & Lan, 2004). Some salient psychological variables identified in the literature related to achievement were found to be self-esteem and self-efficacy (Bandura, 1996; Marsh & O'Mara, 2008). Despite the evidence to support the relationship between students' beliefs of their own learning and reading (Parajes & Urdan, 2005; Schoenhals, 1991), further research is necessary to identify specific variables that predict performance on high-stakes reading tests.

Motivation and affect are significant psychological predictors contributing to improved reading performance (Hattie, 2012; Lim, Bong, & Yeon-Kyoungwoo, 2015; Kolic, Vehovec, Zubkovic, Pahljina-Reinic, 2014). Motivation as a psychological variable related to reading performance has been widely investigated, but there is less evidence investigating the contribution other psychological variables make in the prediction of reading performance. Fox and Alexander (2009) recommend greater consideration of the role of affective processes in reading. Affect can include attitudes or emotions (Efklides, 2011), but its critical role warrants further investigation. Attitudes represent a student's perceptions and how they feel about a task, which may affect their approach to learning. Alexander and Filler (1976) defined reading attitudes as "a system of feelings related to reading which causes the learner to approach or avoid a reading situation" (p. 1). Although we know that attitudes contribute to reading performance, current evidence is critical to delineate the contribution that other psychological variables make in the prediction of performance on a high-stakes test in reading.

Psychological variables can be emotions, thoughts, or behaviors. A learner's attitude and motivation toward reading are important variables related to interest and success in reading

(Hattie, 2012; Stanovich, 1986). To illustrate attitudinal control, McKenna and Kear (1990) demonstrated that students can modify their attitude related to the type of reading performed. In other words, if a student reads academic material, they might have one attitude, but if the material is recreational, they might utilize a different attitude. Recreational reading has been known to be related to positive reading attitudes (Guthrie & Alvermann, 1999), and positive attitudes are linked to enhanced achievement in reading (McKenna & Kear, 1990). This is a simple example of the Matthew Effect (Cunningham & Stanovich, 1998). Specifically, there is a strong positive relationship between amount of reading and performance in reading. That is, as reading amount increases, reading achievement increases, which sequentially improves attitude, and the cycle continues. If a good attitude promotes behavior, more frequent practice can contribute to improved performance. A study which explored the reading habits of 15-year-olds in thirty-two countries found that those students that were high achievers in reading were much more likely than low achievers to read for enjoyment (OECD, 2002). Similar results were subsequently obtained years later, in a 2009 PISA study (OECD, 2010). In conclusion, if a student has a positive attitude toward reading, their reading behavior and practice will increase (Jin Lim, Bong, & Yeon-kyoungwoo, 2015).

Hattie's (2012) meta-analysis of over 800 studies revealed that student understanding and investment in their achievement is most important. Recommendation from this review suggested that achievement will be influenced by creating tasks that increase confidence and address student fears and anxieties about taking tests. Overall, previous research shows that attitudes, psychological variables, and well-being can contribute to the prediction of reading outcomes. Some variables are barriers and some are facilitators. Additionally, school climate has been shown to impact aspects of a learner's identity and contribute to a student's well-being. If this is

the case, then it is possible that attitudes related to stressful school climates can interfere with reading outcomes just as attitudes related to healthy school climates can facilitate reading performance. In two recent studies, Allensworth (2005) and Carnoy (2005) delineate the relationship between stress and dropping out of school. In a study on the effects of high-stakes tests on dropout rates for elementary school students in Chicago, Allensworth (2005) found that students who were retained on the basis of low test scores were more likely to drop out years later in high school. The same trend was demonstrated in a study with high school students. It was shown that instead of decreasing dropout rates as NCLB intended, the high-stakes tests are actually increasing the number of high school students who fail to graduate (Carnoy, 2005).

Learning

A variety of attitudes toward learning develop across a child's lifespan including positive, negative, or multi-dimensional (Ocak & Yamaç, 2013). In addition to mastering academic skills, learning is partially dependent on the student's physical health, emotional health, mindset, and other learning variables (Carey, 2014; Dweck, 2006). Schools need to develop strategies to cultivate well-being and approaches to learning that are engaging and aligned with success (Pope, Brown, & Miles, 2015). Lee (2014) pointed out that the behavioral and psychological basis for learning varies across ages and that attitudes and enjoyment toward learning were the best predictors of achievement across thirteen countries. If this is true, critical components of maximized achievement should include educating the whole child (Rothstein, Wilder, & Jacobsen, 2007) including psychological variables such as school climate and attitude toward the learning process. Using tests to primarily measure rote learning can actually impede student learning (Marzano, 2006). Minimizing school failure is a critical initiative because if a child leaves school before graduation, they will be less likely to pursue further learning opportunities,

less able to competitively engage in the work force, and less likely to participate in social aspects of modern society (Lyons, 2001; OECD, 2010). Additionally, if children perceive a low likelihood of success, they disengage from school (Schoenberger, 2012; Kazdin, 1993). Students that feel more connected and supported at school are more likely to achieve higher grades and have higher test scores (Farrington, Roderick, Allensworth, Nagaoka, Keyes, Johnson, & Beechum, 2012). Notably, the ability to identify pathways that create engagement and hope can promote well-being and academic success.

Much of the literature focuses on the development of psychological skills critical to improved reading skills, but there is a lack of literature pertaining to the contribution psychological skills make in the prediction of a score on a high-stakes test in reading. Variables related to reading include: locus of control (Lefcourt, 1976; Martin & Marsh, 2003; Rotter, 1966), attribution style (Weiner, 1985; Weiner, Heckhausen, Meyer, & Cook, 1972), learned helplessness (Abramson, Seligman, & Teasdale, 1978; Schoenhals, 1991), and self-efficacy (Bandura, 1977; Bandura, Adams, & Beyer, 1977). Recent research on the specific contribution that psychological variables make to the prediction of a high-stakes test score in reading is limited. Additionally, the former variables all refer to different aspects of control and not overall well-being.

Even though data is limited verifying the predictive capacity for test scores, there is adequate evidence that supports the contribution psychological variables make to the improvement of achievement (Ashdown & Bernard, 2012; Brigman, Webb, & Campbell, 2007; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Durlak, Weissberg, & Pachan, 2010; Schoenhals, 1991; Sprinthall & Scott, 1989; Vrugt & Oort, 2008; Zins, 2004). Brigman, Webb, and Campbell (2007) demonstrated that after an eight-week intervention that cultivated success

skills, students in fifth through eighth grade had higher scores on state math tests compared to a control group. Schoenhals' (1990) study showed that fourth grade students in the intervention group targeting attribution and locus of control showed significantly more gains on reading comprehension tests compared to the control group. This occurred despite the fact that the intervention group received less direct instruction in reading comprehension than the control group. Furthermore, Dweck and Light (1990) analyzed children's attribution style when performing academic tasks. They observed marked differences in task approach between children with mastery style attribution vs. learned helpless style of attribution. Sprinthall and Scott (1989) studied high school girls, attribution, and math achievement and found that elementary age girls in the experimental group improved in achievement more than high school age girls after an intervention targeting attribution. No studies were found studying the relationship of attribution and mindset in the prediction of a score on a high-stakes reading tests.

Since research reveals that attitudes toward learning and the development of psychological skills correlate with improved achievement, we have evidence that intervention development is critical. A barrier to intervention development is that the research is inconsistent on which attitudes the intervention programs should target. If schools could mobilize interventions to cultivate attitudes that were correlated with higher achievement, there is the possibility of strengthening achievement outcomes among our youth. This study will begin the conversation and exploration of two malleable variables that might correlate with reading performance in elementary school. It is the hope that this study will facilitate a movement toward investigating psychological variables that contribute to the prediction of scores on high-stakes reading tests. There is evidence determining that critical academic components are

associated with reading success, but this study will investigate the critical psychological components associated with reading success.

Research on the development of negative attitudes related to failure supports the theory that psychological variables contribute to the prediction of scores on high-stakes reading tests. If a student feels hopeful, engaged, and well, they are more likely to have better academic outcomes. Dewberry and Richardson (1990) compared low and high anxiety conditions of college students and measured their optimism. They found that those in the higher anxiety condition experienced higher anxiety and had lower levels of optimism.

Well-being

Engagement

Over the past few decades, well-being and the role of both hope and engagement have increased dramatically as protective factors in many environments, have "received attention from the U.S. Department of Education, and have been targets of educational reform" (Michael et al., 2015, p. 755). One of these environments is academics (Onwuegbuzie & Snyder, 2000). There is increasing evidence that well-being consistently contributes to the prediction of positive school outcomes evidenced by grades and test scores (Suldo & Shaffer, 2008; Becker, Brandt, Stephan, & Chorpita, 2014). Well-being has been shown to be positively correlated with grades and contributes to the prediction of earning better grades (Quinn & Duckworth, 2004). Engagement is defined as a student's level of participation in and intrinsic interest they show in their school (Akey, 2006). Engagement at school can entail behavior (such as persistence, effort, attention) and attitude (such as motivation, positive learning values, enthusiasm, interest, and pride in success) (Johnson, Crosney, & Elder, 2001). Current evidence exists that engagement is a critical element to student achievement in reading and math (Chase, Hilliard, Geldhof, Warren,

& Lerner, 2014; Kirsch, de Jong, Lafontaine, McQueen, Mendelovits, & Monseur, 2002; Wang & Peck, 2013; Willms, 2003). These researchers agreed that students engaged at school learn and retain more knowledge compared to student groups who are not engaged at school. Willms (2003) observed that there is a "high prevalence of students who are disengaged from school (p. 53) based on an analysis of the Programme for International Student Assessment data and that "on average, schools with high levels of engagement tended to have high levels of literacy skills" (p. 56). School engagement has been shown to influence motivation (Eccles & Wigfield, 2002), minimize effects of low socio-economic status on academics (Astor, Benbenisty, & Estrada, 2009), and cultivate protective factors that improve learning and enhance positive life outcomes (Thapa, Cohen, Guffey, & Higgins-D'Allessandro, 2013).

Many school-level studies have identified higher levels of student engagement as important predictors of scores on standardized achievement tests, classroom learning and grades, and student persistence (National Research Council, 2000). Results from one study showed that students' engagement with school had several positive consequences for students' well-being, academic achievement, and future academic and vocational success (Upadyaya & Salmela-Aro, 2013). Unfortunately, Yazzie-Mintz (2010) reported an engagement gap that is evident between gender and race. Specifically, they found that girls reported higher levels of engagement than boys and students of Asian ethnicity reported higher levels of engagement than other students.

The most immediate issue for students and teachers is not low achievement, but student disengagement with school (Newman, 1992). While many components can play into students' well-being, engagement at school has been known to predict improved achievement (Gallup, 2014; Huitt, Monetti, & Hummel, 2009), be related to achievement across all levels of economic and social advantage, (Klem & Connell, 2004) and can be a critical protective factor in realizing

maximum achievement (CDC, 2009). Unfortunately, many students lack the skills that facilitate feelings of connectedness and school engagement which can ultimately jeopardize academic performance, behavior, and mental health (Blum & Libbey, 2004). School engagement can be related to well-being (Ryan & Patrick, 2001), and research is demonstrating a positive connection "between engagement and achievement across levels of economic and social advantage and disadvantage" (Appleton, Christenson, & Furlong, 2008, p. 369). The bad news is that many students are not engaged in specific ways that improve achievement (Baines & Romano, 2015). School engagement is the concept of students feeling a sense of belonging, connectedness and attachment to their school environment and what they are learning.

Learning in the zone of proximal development is critical to engagement. Tasks should not be so difficult that the student can never achieve it, but not too easy either (Shernoff, Csiskzentmihalyi, Schneider, & Shernoff, 2003). In order to promote success, researchers are discovering the important role of engagement (CDC, 2009). School engagement is one of the strongest predictors of academic performance as it improves achievement and enhances learning gains (Fredericks, Blumenfeld, & Paris, 2004). When students experience affective, behavioral, and cognitive engagement, they are ready for the full benefits of better mental health, higher grades, and greater school achievement (Conner & Pope, 2014). Furthermore, there is a lot of evidence supporting the strong association between grades and school engagement (Klem & Connel, 2004; Poorthuis, Juvonen, Thomaes, Denissen, Orobio de Castro, & van Aken, 2015) and in the prediction of math and Reading Scores among adolescents (Ryzin, 2011). Given this evidence, there has been minimal exploration of the relationship between school engagement and high-stakes testing. Furthermore, expectancy theory and self-efficacy theory emphasize cognitive processes as predictors of school engagement. In a meta-analysis by Upadyaya and

Salmela-Aro (2013), it was demonstrated that engaged students felt more positively toward academic achievement, well-being, and future success. In contrast, Guthrie and Davis (2003) revealed that students who are not engaged at school are much less likely to put forth effort to comprehend and consequently may be unable to become proficient in comprehending written text.

Hope

Teaching hopeful thinking strategies has the potential to enhance social and academic outcomes (Snyder, Ilardi, Cheavens, Michael, Yamhure, & Sympson, 2000). Hope is defined as the perception that goals can be met, but contemporary theory (Snyder, 1995; Snyder, Lopez, Shorey, Rand, & Feldman, 2003) elaborates that hope is the belief that an individual has an idea, knows how to accomplish it (pathway) and has the belief that change will result (agency). The cultivation of agency can result in the discovery of hope (Hughes, 2006). Goals can be any desired experience the individual wants to experience, obtain, get, do, or become. Hope-based interventions can have significant effects on various outcomes. Hope has been found to decrease depressed mood and anxiety (Cheavens, Feldman, Gum, Michael, & Snyder, 2006), improve goal achievement (Felman & Dreher, 2012), and improve GPA in college students (Feldman & Kubota, 2015). Many of the interventions teach hope in general terms as opposed to how it relates to academics. Feldman and Kubota (2015) demonstrated the importance of hope in relation to predicting enhanced academics through grade point average (GPA) as well as improved GPA in college athletes and non-athletes (Curry, Snyder, Cook, Ruby, & Rehm, 1997). There was a significant positive relationship between hope and GPA. While improved GPA has been demonstrated in relation to hope, there is little evidence to substantiate the relationship between hope and high-stakes testing.

On the other hand, although many studies explore the relationship between motivational strengths related to academic outcomes, minimal evidence was found exploring the relationship between hope and high-stakes testing outcomes. Hope is cultivated through a developmental progression (Snyder, Shorey, & Rand, 2002) and predicts many important outcomes, from physical and mental well-being to academic and athletic performance (Snyder, Shorey, Cheavens, 2002). For example, hope has been found to be a critical protective factor (Snyder, 1999) and one that is associated with higher achievement. In his study, Snyder (1999) found that after surveying 87 graduate students, those with higher scores on the hope scale tended to be more successful in academic areas than students with lower scores measured by the Examination-Taking scale. The Examination-Taking scale measures study skills and examination-related thinking. Hope has been positively correlated with student grades in a study of high schoolers (Curry, Snyder, Cook, Ruby, & Rehm, 1997). In a study with 129 college undergraduate students, hope was a better predictor to achievement above and beyond intelligence, personality, and previous achievement (Day, Hanson, Maltby, Proctor, Wood, 2010). Additionally, scores on the Hope scale have been found to predict college grades (Snyder, 1991), but no studies were found examining the contribution hope makes to high-stakes test scores in reading. In the Ciarrochi et al. (2007) study, seven hundred eighty-four high school students completed measures of verbal and numerical ability, positive thinking, and indices of emotional well-being (positive affect, sadness, fear, and hostility), as well as measures of hope, self-esteem, and emotional well-being. Results indicated that hope was the best predictor of grades and had a higher overall effect on school grades than did attributional style.

Snyder, Feldman, and Shorey (2002) discussed the relevance of hope and its predictive power for healthy mindsets. They also concluded that hope plays an important role in the area of

academic performance. As such, hope is not an emotion but rather a dynamic cognitive motivational system (Snyder et al., 2002). In this sense, Snyder and colleagues (2002) showed how emotions follow cognitions in the process of goal pursuits. Furthermore, hopeful students approach problems with a focus on success, thereby increasing the likelihood of goal attainment (Conti, 2000). Hope was positively correlated with achievement outcomes in 400 Kuwaiti college students (El-Anzi, 2005). Based on Hope Theory, Snyder, Hoza, Pelham, Rapoff, Ware, Rubenstien, and Stahl (1997) demonstrated that elementary aged children with higher levels of hope had better scores on achievement tests. Few studies were found examining the relationship between hope and performance on high-stakes testing in reading.

On a similar note, hope was found to correlate with grade point averages. High scores on a college student hope scale was shown to reliably predict higher GPA, higher graduation rate, and lower risk of being dismissed due to academic performance (Snyder & Shorey, 2002). Additionally, Onwuegbuzie (1998) found that there is a negative relationship between scores on a hope scale and anxiety in graduate students. Little evidence was found regarding the relationship between hope and achievement in upper elementary students. Interventions aimed at teaching metacognitive skills or self-regulated learning focus specifically on an academic domain with little concern for the psychological focus of learning. Teaching hopeful thinking has the potential to improve a students' goal pursuits in all areas of their lives, thereby leading to more positive emotions, greater psychological adjustment, and more social support. Interventions for successfully raising hope in clinical settings have been developed (Snyder, Michael, & Cheavens, 1999; Snyder, Ilardi, Cheavens, Michael, Yamhure, & Sympson, 2000) and middle school (Lopez, Floyd, Ulven, & Snyder, 2000), but few school-based intervention programs were found designed for the elementary school level to address hope, the promotion of

mental health, resilience, and improved achievement. Future research is warranted on raising students that have low hope and are at risk for academic failure in elementary school.

Attribution Theory

The evolution of attribution theory began with analysis of learned helpless styles of behavior. It began in a lab while studying animal behavior. When studying the relationship between fear and learning, Garber and Seligman (1980) discovered that animals who endured repetition of painful shock often failed to learn avoidance techniques to escape or avoid the aversive experience. Effective escape behavior was not implemented, the animal lay down and appeared to have lost control, giving up trying to avoid the shock. This is referred to as learned helplessness. Individuals that develop a style of helplessness have a higher expectancy of developing anxiety and depression (Garber & Seligman, 1980).

The original theory of attribution was explained in 1946 by Heider (Wiest, 1965), but psychologists and educators have formulated newer models of explaining success and failure. Weiner (1979) theorized that children make causal attributions to explain academic success and failure and that these explanations can affect effort and academic behavior as well as affective reactions to success or failure. Furthermore, there is evidence that young children are able to form meaningful attributions much the same way adults do (Stipek & Hoffman, 1980). The ability to make attributions starts around age 7 (Rose & Abramson, 1992), and it stabilizes around age 12 (Gibb, Alloy, Walshaw, Comer, Shen, & Villari, 2006). Attribution is defined by looking at explanations for the cause of events and reveals that one's experience with uncontrollable events leads to an expectation that nothing the individual does can control the outcome of the event. This can lead to deficits in motivation, cognition, and emotions (Maier & Seligman, 1976). A maladaptive attribution style along with several bad life events was found to

be related to higher levels of future depression and associated with lower levels of achievement (Nolen-Hoeksema, Seligman, & Girgus, 1986). These researchers studied third, fourth, and fifth graders that were predominantly white, from middle-class families, and ranged in age from 8 to 11 years old. Abramson, Seligman, and Teasdale (1978) elaborated on the original theory to suggest additional influences on this maladaptive attitude. They determined that people who habitually blame negative events on internal, stable, global causes will experience more helplessness than those that explain negative events on external, unstable, specific causes. A treatment program with fifth and sixth graders aimed at changing maladaptive attribution has been shown to significantly decrease depressive symptomology and changes in explanatory style and this was significantly associated with a reduction in depressive symptoms (Jaycox, Reivich, Gillham, & Seligman, 1994). Although this study lends evidence to the preventive nature of a child's mental health attribution, it does not examine the evidence for the contribution that attribution makes to the prediction of high-stakes tests in reading.

In another study, Abramson, Metalsky, and Allowy (1989) found that an internal attribution style was most often related to feelings of hopelessness compared to students with an external attribution style. Johnston and Winograd's (1985) theory of passive failure suggested that a child may not see a connection between effort and outcome. Even if a student has a good bank of strategies, s/he will not use them because s/he does not feel the strategy will result in improved performance. Additionally, Bandura (2006) reported that "unless students believe they can produce desired effects by their actions, they have little incentive to act" (p. 170). To prevent the development of passive failure and a learned helpless attitude, schools need to address psychological variables inherent to the learner.

Evidence in the literature confirms that all people make causal attributions to negative and positive events, and this changes with age (Bell-Dolan, Lan, & Wessler, 1994). Folette and Jacobsen (1987) revealed that an individual's attribution for exam performance was predictive of depressed mood and that individuals who attribute failure to lack of skill may be more susceptible to depressed mood than those who did not study or attend class. Students know that the latter is a behavior that can be easily changed. Folette and Jacobsen (1987) demonstrated a significant relationship between attribution and mood in college students. Fincham, Hokuda, and Sanders' (1989) data suggested that attributional style may moderate the impact of test anxiety on performance. Specifically, third through fifth graders' attribution in third grade predicted later reading achievement and found a significant relationship between helplessness and achievement consistent over a two-year period. Based on the theory of helplessness, Seligman, Abramson, Semmel and vonBaeyer (1979) indicated that individuals that make internal, stable, global attributions for positive outcomes also make external, unstable, specific attributions for negative outcomes and that this effects life stress and well-being. Houston (2015) also substantiated this relationship with eleventh graders and showed that an internal, stable and global attribution style for positive events predicted higher levels of academic performance.

Individuals apply components of Attribution Theory to judge the reason an event has occurred and create a perceived attitude about that event (Weiner, 1972). This judgment affects behavior, which affects achievement. According to this theory, attribution is assigned to positive and negative events due to internal or external explanations. Wittrock (1986) indicates that blaming failure on uncontrollable factors is demoralizing and causes learned helplessness but crediting success to these factors can result in positive feelings. Although there is a lack of current research regarding acquired learned helplessness, Johnson (1981) discusses the

relationship of school failure to achievement behavior, attributions, and self-concept. It was demonstrated that there is a relationship between learned helplessness, low self-concept, and school failure. These were predicted by school failure, internal attributions for failure, and external attributions for success. With college students, Peterson and Barrett (1987) found that students who explained bad academic events with internal, stable, and global explanation had lower grades compared to students who explained negative events due to external, unstable, and specific cause. In conclusion, students with a negative attribution style are at risk for poor grades.

Much of the literature discusses attribution theory as it relates to learning preferences and perseverance in students with disabilities (Berkeley, Mastropieri, & Scruggs, 2011), students in Taiwan (Liu, Cheng, Chen, & Wu, 2009), or high schoolers and grades (Ciarrochi, Heaven, & Davies, 2007). In the Taiwan study, 2000 high school students completed questionnaires and cognitive tests. Results showed that "(1) educational expectations accounted for a moderate amount of the variance in academic achievements; (2) students with high educational expectations and effort attribution exhibited higher growth rates in their academic achievements; and (3) students with lower educational expectations and those attributing success to others showed significantly fewer academic achievements and significantly lower growth rates in such achievements" (p. 911).

Miller, Walton, Dweck, Job, Trzesniewski, and McClure (2012) found an interaction between attribution and cognitive processes. That is, attributional factors can substantially affect the ability to recruit habits of mind and maximize learning over time. Additional research demonstrated that learned helpless styles of attribution are related to levels of anxiety. Battraw (2004) investigated attribution and helplessness in a junior high population. She found that

school failure is a major life event that resulted in habits of mind and subsequent behavior that was reinforced by attitude. As the student's helpless attitude progressed, further failure increased over time. In order to prevent academic failure in these situations, she recommended that schools build in time to address negative academic identities before failure occurs.

When considering attribution patterns, they can occur independent of intellectual abilities (Licht & Dweck, 1984), but there is evidence that the relationship between these patterns and children's achievement levels strengthens from third to fifth grade (Fincham, Hokoda, & Sanders, 1989). Little evidence was found on measured attribution and high-stakes testing in fourth, fifth, and sixth graders. Li and Chung (2009) found a significant positive relationship between anxiety and locus of control in the period before academic examinations with school children in China. Their study showed that the locus of control score was a good predictor of children's anxiety before a stressful situation, but no information was available regarding the effect on high-stakes outcomes. Dweck (1986) studied the application of attribution training in situations where students experiencing failure demonstrated more persistence in the face of failure, that this attitude persisted over time, and it generalized across tasks (Dweck, 1975). Overall, current data is limited regarding recent trends of psychological variables and how they contribute to the prediction of performance on high-stakes tests in reading.

Motivation, efficacy, and attitude can subsidize a student's effort at school which in turn contributes to outcomes on reading tests. Motivation and academic attitudes can be affected by stress. Research has shown that students under stress anticipating failure show lower intrinsic motivation and develop a negative attitude (Firmen, Hwang, Copella & Clark, 2004) and show lower self-efficacy (Bandura, 1982). In a study with university students in psychology classes between the ages of 17 and 20 (Firmen et al., 2004), hard questions were to be completed before

easy ones. They found that the group completing hard questions first had a tendency to give up more quickly due to frustration compared to a group of students that completed easy questions first. The conclusion was made that it was the perception of failure that was the catalyst making students give up. Perception of failure and the explanation for its cause is an important area of study in relation to attribution and achievement. Current literature explores the relationship between attribution and reading through case study, (Lindstedt & Zaccariello, 2008), goals and avoidant behavior (Vogler & Bakken, 2007), and middle school students (Spencer, 2009). Students in high and low achievement groups differed significantly in their beliefs about personal control. Researchers found that among fourth, seventh, and tenth graders, low achievers had maladaptive belief patterns related to outcome expectancies in reading when compared to high achievers. What this demonstrates is the importance of cultivating positive belief patterns and hopeful attitudes related to achievement even when achievement is low. For the low achieving group, those students that had high self-efficacy, positive outcome expectancy, and lower attribution to luck as a cause of success had higher achievement (Shell, Colvin, and Bruning, 1995).

After years of repeated failure in school, students can develop unhealthy attributions and these attributions are shown to contribute to feelings of hopelessness (Gibb et al, 2006). In a study with fourth and fifth graders (Gibb et al., 2006) and third and seventh graders (Abela, 2001), attribution was found to significantly be related to hope. Reis (2011) suggested that failure be viewed as a jumping off point and be used to cultivate growth, but other researchers found that negative life events significantly contribute to the development of maladaptive attribution styles (Nolen-Hoeksema et al., 1992). An attribution style that is negative can lead to a level of learned helplessness when students feel they have no control over events in their lives.

Abu-Heal (2000) analyzed attitudes toward math performance in students with a high level of learned helplessness. Results revealed that children with a helpless-oriented attribution explained their failure due to a lack of skill and blamed themselves. On the other hand, mastery-oriented children made surprisingly few internal attributions, but instead engaged in self-monitoring to improve their situation. In other words, helpless children focused on the cause of failure, whereas the mastery-oriented children focused on the remedy for failure. It is evident that the control is an important variable related to an individual's achievement striving behavior (Butterfield, 1964; Martin & Marsh, 2003).

During the last decade researchers have developed academic interventions to address psychological skills. Psychological skill improvement has been advocated for by educational psychologists as a useful intervention in an effort to increase achievement (Robertson, 2000; CASEL, 2015). Attribution theory conveys that learners are motivated or unmotivated as a result of their beliefs as to why they succeed or fail (Weiner, 1986). The ability to make causal attributions that are stable begins to develop when children move into the concrete operational period of development which starts around age seven (Gibb, Alloy, Walshaw, Comer, Shen, & Villari, 2006). Sakaki and Murayama (2013) performed a study with Japanese college students analyzing the relationship between attribution and achievement. They demonstrated that people automatically attribute their task performance to ability.

Furthermore, there is a historical body of evidence indicating that attributions are related achievement (Wilson & Linville, 1985; Van Overwalle & DeMetsenaere, 1990) and specifically reading and writing (Ehrlich, Kurtz-Costes, & Loridant 1993; Schunk & Swartz, 1993). Attribution is believed to exert an important motivating influence on children's reading and writing (Shell, Covan, & Bruning, 1995) for fourth and seventh graders. They discovered that

three components play a significant role in reading motivation: self-efficacy, attribution, and outcome expectancy belief. Consideration of the influence of attribution on reading is important, but also the consideration of effective intervention to address psychological variables that effect reading performance is important. Retraining in attribution style can result in significant increases in reading persistence in spite of repeated failure (Dweck, 1975). In a quasi-experimental approach Schoenhals (1991) demonstrated that a 12-week social-emotional intervention program resulted in significant differences in reading performance related to a learned helpless style of attribution. Ehrlich et al. (1993) demonstrated that good readers had more positive beliefs about their academic abilities compared to poor readers, but this study surveyed attitudes from seventh graders. Despite evidence supporting the relationship between attribution and achievement, little is known about the predictive capacity attribution has in high-stakes reading outcomes.

Mindset Theory

Children spend a great deal of time in school. Their interpretation of this environment and their role in it is not fixed, but malleable. Bandura (1997) demonstrated that a person's perception of self interacts with a person's perception of his or her environment. A review of current literature demonstrated that there is a relationship between mindset, learning, and academic performance. The cultivation of mindset relies on many variables. Control is an important aspect in the development of mindset. Bandura's (1986) social cognitive theory of human functioning showed that people have belief systems that allow them to control their thoughts, feelings, and actions. Consequently, a mindset is malleable. Furthermore, he explains that what people think and feel then affects how they behave. It has been shown that perception of outcomes has been a stronger predictor of success as opposed to prior success, skill, or

knowledge (Schunk, 1991). In a study with high school students, students who received an intervention on incremental theory teaching that control can be taught had lower cortisol and cardiovascular effects after a stressful event compared to a control group. A second phase of this research showed that students receiving incremental theory intervention had higher GPAs compared to the control group. Being exposed to the intervention also reduced threat-type reactions and these reactions mediated achievement. Thus, not only does teaching control reveal that people can change their cognitions, but there are also biological and academic results from this intervention.

Children in their most sensitive developmental periods are being given the message that their importance in the world relies on pleasing their teacher and school with a standardized test score (Lucido, 2010). On the other hand, teaching students through projects with real meaning versus rote memorization techniques "helps to shape kids' mindset about learning" (Abeles, 2015, p. 118). Weber (2014) indicates that we are producing over-stressed, uninterested, uncreative, standardized students who hate school and have lost their sense of wonder. Many educators are encouraged to address the technical side of reading failure; however, the relationship between psychological skills and testing outcomes is a newly examined area. This study will begin the conversation to investigate the relationship between psychological variables and testing, demographic variables and testing, as well as examine their contribution to high-stakes reading success or failure.

More recent literature defines the emergence of specific mindsets that significantly contribute to the prediction of success or failure. Dweck (2006) defines mindset as a variable with two dimensions: a fixed and growth mindset. Individuals that perceive that their success is based on innate ability are purported to have a fixed mindset. On the other hand, students who

believe success is a result of hard work, learning, training, and perseverance are said to have a growth mindset or incremental theory of intelligence. A student's mindset about learning is a moderate predictive factor of academic achievement (Blackwell, Trzesniewski, & Dweck, 2007). An emphasis on growth mindsets was found to cultivate higher motivation for learning, more effective learning strategies, and less anxiety related to the learning environment (Høigaard, Kovač, Øverby, & Haugen, 2015).

Mindsets are specifically relevant in response to failure. For example, a person with a fixed mindset dreads failure and has a negative outlook whereas an individual with a growth mindset will not fear failure but see it as an opportunity to develop his or her performance and improve ability due to the fundamental belief that learning results from failure. In a survey study (Lackey, 2014), there was a significant relationship between mindset and attribution. Educators can address maladaptive attribution styles for low performance through attribution re-training emphasizing variables within a student's control (Haynes, et al., 2009; Martin & Marsh, 2003; Perry, 2005; Soric & Palekcic, 2009).

In a study analyzing the relationship between mindset and achievement, McCutchen, Jones, Carbonneau, and Mueller (2015) showed that students' rate of achievement was dependent on their mindset. Their study also showed that students with a growth mindset showed a slower decline in standardized testing compared to students with a fixed mindset. Additionally, Aronson, Fried, and Good (2001) discovered that after implementing a mindset intervention, the treatment group experienced an attitude change about their intelligence which then had a significant effect on spring quarter GPAs as compared to the control group. In a study of over 1500 high school students, Paunesku, Walton, Romero, Smith, Yeager, and Dweck (2014), showed that after two 45-minute mindset interventions delivered via the internet, a

significant difference between GPA was found between an underperforming group of students compared to the control group of students.

Control is an important aspect in the development of an individual's mindset. Bandura's (1986, 1997) social cognitive theory is a theory of human functioning that subscribes the notion that humans can control their behavior. Individuals possess belief systems that enable them to exercise control over their thoughts, feelings, and actions. Therefore, their thoughts about their mindset are alterable. According to this theory of human behavior, "what people think, believe, and feel affects how they behave" (Bandura, 1986, p. 25). Bandura (1997) states that perception of one's capabilities is required to achieve maximized outcomes. It is ultimately the student's belief about their ability that is often a better predictor of success than prior accomplishments, skills, or knowledge (Multon, Brown, & Lent, 1991; Schunk, 1991). Sixty high school students participated in a study (Yeager, Johnson, Spitzer, Trzesniewski, Powers, & Dweck, 2014) where an intervention involved incremental theory showed that control can be taught and can have a significant effect on cardiovascular and cortisol levels. Students in the incremental theory group had lower cortisol levels after a stressful event than students in the control group. Students in the incremental theory intervention also exhibited less sympathetic nervous system activation such as heart rate, after a stressful event in the lab than did student in the control group. A second phase of this study examined the effect of intervention on grades. Students in the incremental theory intervention had higher core GPAs than did controls up to seven months after intervention. In summary, students in the intervention group who were taught to believe they had the potential to change in response to stressful events, showed improvements in cognition and physiology (neuroendocrine and cardiovascular effects). Furthermore, these students showed a reduction in a threat type reaction to stress which mediated effects on achievement.

In the last thirty years, social cognitive theory research has demonstrated that an individual's beliefs, values, and goals have a major influence on their achievement. That is, if schools realize that individuals' beliefs, achievement values, goals, and interests are major influences on their motivation, then there is the potential to directly affect their achievement (Eccles & Wigfield, 2002; Pintrich, 2003).

Mindset and attribution training have been shown to have an effect on grades. Yeager, Johnson, Spitzer, Trzesniewski, Powers, and Dweck, (2014) demonstrated that high school students exposed to an intervention targeting mindset and attribution intervention showed a slower decline in grades compared to a control group that participated in a physical education based intervention. The intervention required students to read an article suggesting that people's thoughts, feelings, and neurobiology can be changed. This is one of the first studies to explore the concept of how an intervention can address self-beliefs that extend to other variables such as stress, health, and academic performance. Furthermore, Yeager and Dweck (2012) investigated the theory of mindset and how it develops resilience in academic settings. In a recent large study of tenth graders in Chile, a growth mindset was shown to "buffer students from low-income families from the effects of poverty on academic achievement" (Blad, 2016, paragraph 1). Blackwell, Trzesniewski, and Dweck (2007) investigated mindset theory and math achievement in seventh graders and found that mindset theory and attribution became significant predictors of their math achievement. The good news is that the cultivation of mindset awareness is gaining current recognition in education literature. Yeager, Romero, Paunesku, Hulleman, Schneider, Hinojosa, and Dweck (2016) demonstrated that implementing a mindset intervention with ninth graders improved GPA by reducing the rate of poor performance by four percentage points. Their study also verified previous studies that mindset is associated with attribution.

Claro, Paunesku, & Dweck, (2016) reported that their study with Chilean ninth graders found growth mindset to be a significant predictor of success for students from all levels of socioeconomic levels. Those that held a growth mindset consistently outperformed those that did not. Additionally, they found a negative interaction between family income and mindset in the prediction of test scores in language and math and suggested that "lower income magnifies the deleterious effects of fixed mindset and growth mindset may mitigate the negative effects of economic deprivation on academic achievement." (Claro et al., 2016, p. 8666). Findings from their study demonstrated that "students from lower-income families benefit more from a growth mindset as opposed to students from higher income families (Claro et al., 2016, p. 8667), but were twice as likely to have a fixed mindset versus a growth mindset compared to high-income peers. Researchers concluded that mindset is a strong predictor of success for economically marginalized students and likely to lead to poor academic outcomes. "Low-income students often believe they cannot grow their intellectual abilities" (p. 8667). This study may suggest that the systemic problems lower SES students face including lack of adequate health care, nutrition, and homework help, are more problematic than psychological factors. Most importantly, this study showed that students from low SES with a growth mindset had comparable scores to students with high SES and a fixed mindset. Mindset is being shown to be an important element to achievement, but this is not to imply that psychological learner variables trump the systemic issues such as life situations, poverty, and race. Research from 60 high-poverty schools showed that the primary factor in student motivation and achievement is not the student's home environment, but rather, it is the school and the teacher (Irvin, Meece, Byun, Farmer, & Hutchins, 2011). Schools can foster programs to improve school climate, foster approaches to healthy learning, and support strategies for students to use when they fail or struggle.

Incorporating the work of Dweck, large school systems in California formed the California Office to Reform Education and are implementing a multiple measures approach to school improvement. They are incorporating measures of student engagement and mindset into their collaborative attempt to ensure quality schools. The School Quality Improvement Index is being implemented to include measures of academic progress (60%), social and emotional factors (20%), and school climate (20%). Furthermore, many of these metrics are required by other districts in the determination of their funding formulas (Adams, 2014). Despite current implementation and pilot testing, no studies were found exploring how attribution style and mindset contribute to the prediction of high-stakes test scores. The promotion of mental health well-being and the role it plays in the prediction of high-stakes test scores is a new area of research. Psychological variables have long been known to correlate with achievement (Johnson, 1981), but there is a lack of current evidence that examines which specific non-variables are related to high-stakes testing outcomes in reading. The well-being of our youth is a national priority and the role academic achievement plays in well-being comes at a critical time.

In addition to variables that are considered learner specific or affected by individual capacity, other variables have been shown to contribute to the prediction of reading outcomes. The literature demonstrates that group membership might "appreciably affect proficiency in reading comprehension" (Snow, 2002, p. 78), including gender, social class, ethnicity, and race. Not only are girls more willing to read compared to boys, they also attain better reading skills than boys do (Mullis, Martin, Gonzalez, & Kennedy, 2003; Mullis, Martin, Kennedy, & Foy, 2007; Swalander & Taube, 2007).

Group differences and Impact

Opportunity and racial gaps add to the concern of achievement gaps, but addressing the social and emotional needs can potentially narrow these gaps (Boykin & Noguera, 2011; Darling-Hammond, 2006). There are certain elements of low socio-economic status households that bear discussion as these variables can contribute to reading performance. A review of the effects of testing on low-income and minority students begins with the National Center on Fair and Open Testing (2012). Researchers showed that high-stakes tests in high school disproportionately penalize low income and minority students. These tests do not align with skills necessary for success in college or the working world. They also showed that these students are more frequently tracked into pathways that are heavily focused on drilling skills and practicing taking tests, but this only puts them further behind. Conversely, they also found that students from white, middle and upper class households were more likely to be placed on a gifted or college track where challenging curriculum encouraged investigation, exploration, and higher levels of thinking. Research has shown that lower socioeconomic status is often associated with viewing the future as containing more negative events than positive ones (Robb, Simon, & Wardle, 2009). Low or no expectancy (also known as learned helplessness) is commonly related to low socioeconomic status (Odéen, et al., 2012) and low well-being (Blad, 2016). Blair and Raver (2012) showed that children living in poverty experience higher levels of stress than do their more affluent counterparts. Stressful family environments can contribute to stress the children experience through the activation of the child's immune systems. This stress can have wide-reaching effects above and beyond the school environment.

Swalander and Taube (2007) define home literacy based on access to reading material and the number of books a family has in their home. A large study (Ngwidike, 2010) showed

that families categorized as low SES have fewer books and fewer educational materials in their home compared to families with a higher SES. There is a strong relationship between the literary environment in the home and reading skill (Bradley, Corwyn, Burchinal, McAddo, & Garcia, 2001). In summary, students from a low SES often demonstrate poor reading skills compared to their privileged peers as a result of environmental factors.

Rationale

Overall, high-stakes test outcomes are dependent on multiple factors, some of which include school climate, curriculum, and psychological variables that are inherent to the learner. Missing in the literature is evidence as to what psychological variables contribute to the predictability of high-stakes test scores in reading. Globally, there are interactions between the well-being of the learner, the climate they are in, the curriculum they study, and the attitudes which have been evidenced as related to reading achievement. What has not been shown is the contribution that psychological variables make in the prediction of high-stakes testing outcomes for upper elementary students. According to Felton and Akos (2011), there is evidence that students approaching third grade are developmentally sensitive to criticism, reluctant to take risks and more likely to give up when tasks become difficult for them. Attribution style has been studied with fourth and fifth graders, but this was in relation to measures of depression and hopelessness (Gibb, 2004), and no evidence was presented that examined the predictive capacity of attribution on achievement or test outcomes. Walden and Ramey (1983) discovered that when children's expectations of control were high, achievement scores were high. Conversely, if perceptions of control were low, achievement scores were low. Their study showed that children who had strong beliefs in their own ability to control their academic outcomes through effort and hard work, were more internally motivated, were more productive, were less distractible, and had

more success. This is also substantiated by Dweck's (2006) work on mindset. Although many researchers are exploring attitudes toward learning, there is a specific gap in the literature investigating how elements of a student's academic identity and psychological variables contribute to the prediction of high-stakes testing outcomes.

Public education has called for improved outcomes for years; however, many attempts to improve academic outcomes in reading have hovered around a mediocre mean without appreciable gains in reading and math (NCES, 2011). Furthermore, there is serious concern regarding the mental health crisis. Increasing numbers of youth are experiencing mental health problems that affect their ability to engage at school and be productive, successful students (Gold, Pinder-Amaker, Kaplan, & Palmer, 2016). It is clear that we need more evidence-based interventions that address all aspects of the learning climate and learner characteristics. Not only do we need to intervene earlier, but we need to consider the contribution psychological variables make to the prediction of high-stakes testing outcomes. Children view their abilities more favorably in the early years, but Dweck (1986) demonstrated that as they mature, their perceptions decline in late elementary school. This provides motivation to intervene in the early elementary years when children are formulating their academic identity. Children that experience learning challenges and repeated failure may experience accelerated decline of their academic identity and capacity (Hanick, 2004). This study clearly suggests that research needs to explore ways to help children feel adequate despite their academic performance and learn ways to modify their perceptions in order to maximize well-being and achievement.

Overall, current evidence suggests that well-being and psychological variables are related to achievement, but no recent studies were found to demonstrate the predictive capacity that well-being and psychological variables have on high-stakes test scores in reading. With changes

in school climate and curriculum over the last fifteen years, a rise in childhood mental health disorders, and stagnating achievement outcomes, there is a need for this study in the field of education. This study begins the conversation regarding the identification of psychological variables and the predictive role they play in high-stakes testing outcomes in reading.

This study will contribute important information to the field of education. America's youth are experiencing increased emotionality, mental health challenges, stagnant test scores and a reduction in levels of hope and school engagement. Since trends in well-being suggest that hope and engagement at school are less this year in comparison to last year (Gallup, 2015), this research comes at a critical time to begin the exploration of the relationship between psychological variables and high-stakes test scores. Along with this information, we know that there is a rise in emotionality and mental health diagnoses in young children. If this study can examine the relationship between well-being and reading and the contribution that other psychological variables make to reading, then the school improvement conversation can include aspects of test performance above and beyond academic skill and rigor. The conditions of successful learning environments need to incorporate critical components that promote overall well-being if maximized outcomes will be a reality.

Hypotheses

1. Well-being
    a. There is a significant relationship between Well-being and Reading Score.
    b. Well-being is a significant predictor of reading outcomes.
2. Attribution
    a. There is a significant relationship between Attribution and Reading Score.
    b. Attribution is a significant predictor of reading outcomes.

3. Mindset

   a. There is a significant relationship between Mindset and Reading Score.

   b. Mindset is a significant predictor of reading outcomes.

4. There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset and high-stakes reading between fourth, fifth, and sixth graders.

5a. There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Scores between races.

5b. There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Scores between genders,

5c. There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Scores between Reading Achievement levels.

5. The combination of psychological variables Well-being, Hope, Engagement, Attribution, Mindset, will add to the demographic variables race, grade, and gender and will significantly predict Reading Sore and Reading Achievement Category (P/F) on the high-stakes test in reading.

	Question	Hypothesis	Analysis
1.	Is well-being associated with reading and does well-being predict a score and score category on a high-stakes reading test?	Well-being is significantly associated with, and a predictor of high-stakes tests of reading in fourth, fifth, and sixth grade students.	Pearson correlation for Well-being and scaled score, regress Well-being on scaled score, regress Well-being on Pass/Fail.
2.	Is attribution associated with reading and does attribution predict a score and score category on a high-stakes reading test?	Attribution is significantly associated with and a predictor of high-stakes tests of reading in fourth, fifth, and sixth grade students.	Pearson correlation for Attribution and scaled score, regress Attribution on scaled score, regress Attribution on Pass/Fail.

3.	Is mindset associated with reading and does mindset predict a score and score category on a high-stakes reading test?	Mindset is significantly associated with, and a predictor of high-stakes tests of reading in fourth, fifth, and sixths grade students.	Pearson correlation for Mindset and scaled score, regress Mindset on scaled score, regress Mindset on Pass/Fail.
4.	Are there significant developmental differences by grade in Well-being, Attribution, and Mindset?	There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and high-stakes reading between fourth, fifth, and sixth graders.	Kruskal-Wallis Test by grade for each of the variables: Well-being, Hope, Engagement, Attribution, Mindset, and reading scaled score.
5.	Are there significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Score between races, genders, and Reading Achievement levels?	There are significant group differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Score between races, genders, and Reading Achievement level groups.	Test for normality of distributions. T-test for Attribution and scaled score. Mann Whitney U test for Hope, Engagement, Well-being, Mindsets.
6.	Do psychological variables significantly add to/contribute to demographic variables in predicting high-stakes reading outcomes?	Hope, Engagement, Attribution, and Mindset, will significantly add to grade, gender, and race in predicting Reading Score and Reading Achievement Category.	Hierarchical multiple regression for continuous and binary logistic regression for categorical variable.

CHAPTER 3: METHODS

In order to address the research questions and hypotheses proposed, the present study was conducted within a non-experimental design. The continuous independent variables are measures of Well-being (Hope and Engagement scores), Attribution, and Mindset. The categorical independent variables are defined as race, grade and gender. The continuous dependent variable is a scaled score on the high-stakes test in reading and the categorical dependent variable is a pass/fail (P/F) designation on the high-stakes test in reading.

Participants

Approximately one hundred students in each grade (fourth, fifth, and sixth) were eligible for recruitment. Letters introducing the study went home to parents requesting their permission (see Appendix B). One hundred and fourteen parent consent letters were returned. Each student whose parent returned a letter was offered a letter of assent (See Appendix C) and their signature was requested before participating in the study. If the student chose not to participate, s/he returned to class. The survey (See Appendix A) was administered in the school computer lab using UNC Qualtrics and included questions about well-being, attribution, and mindset. The school is located in the rural western part of a mid-Atlantic state and is described by the state Department of Public Instruction (DPI, 2015) as a Title I school with a report of 64% eligibility for free and reduced lunch. The students eligible for the study attend fourth, fifth, and sixth grade. In the town that the school is located, data (City-data, 2013) reported that 16.4% of the students were below the poverty line.

Based on 2014 reports (DPI), the overall school end of grade (EOG) score in reading was a letter grade of C. There were 661 students in the entire school and the average daily attendance rate was reported to be approximately 96%. There were 41 teachers and all were licensed and highly qualified. Teacher turnover was reported at 0%. The teacher/student ratio was reported at 1/16.3. The 2012 promotion rate to fourth grade was 88%. Participants in the study were drawn from the school racial distribution of: 74% white, 7% Hispanic, 7% African American, and 11% Asian. Scores from the 2014 high-stakes reading test at this school were as follows: 48% earned a failing score and 52% earned a passing score.

Procedure

After IRB permission was granted from the University of North Carolina at Chapel Hill, IRB approval was sought and granted through the research review board of the school system located in a rural county of a mid-Atlantic state. Parent consent letters (Appendix B) were sent home to all fourth, fifth, and sixth graders. Of those sent home, 114 letters were returned granting permission for their child to participate in the study. The county IRB stipulated that the survey be conducted after the high-stakes end of grade test was over. On the day of the survey, each child was given and read the letter of assent (Appendix C) and offered the opportunity to participate or not. If assent was granted, the participant was taken to the school computer lab to complete a Qualtrics survey online from an anonymous generated link. The survey was sub-divided into three blocks: well-being comprised of Hope and Engagement questions, Attribution, and Mindset. The survey questions are available in Appendix A.

The survey was implemented on June 3, 2016 since the school system IRB required that the survey occur after EOG testing was complete on June 1 and 2, 2016. Scaled scores were used in the statistical analysis as well as the pass/fail category that corresponded to the scaled

score based on North Carolina DPI guidelines (2013). In order to minimize survey bias, no discussion of outcomes was revealed to participants prior to survey participation in order to minimize survey bias. The study was explained to participants in the letter of assent (see Appendix C) which used general terminology and developmentally appropriate language.

Materials/Measures

In order to report the dependent variable of score on a high-stakes test in reading, de-identified scaled scores on the reading End of Grade Test were obtained on June 3. Scaled scores in the state are always converted to a numbered score 1 through 5 with the designation of pass or fail. This information was also obtained from the school registrar on June 3. A score of 1 or 2 signifies delayed reading performance and is considered failing. A score of a 3, a 4, or a 5 signifies reading performance that is "at or above grade level" and is considered passing (DPI, 2013). The state included in the study administers the End of Grade reading assessment every year beginning in third grade (DPI, 2016). The EOG test is a multiple choice, paper-and-pencil test, and is stated to be aligned with the CCSS for English Language Arts (DPI, 2016). All questions on the EOG pertain to reading passages presented. Although third graders participate in the EOG, they were excluded from the study since it is the first year they experience the EOG. Based on the 2014 form of the reading EOG, the reliability for grades fourth through six ranged from .88 to .91 on three different forms and the difficulty rating was reported at .68 to .73.

Reading Achievement Categories

Achievement Level 1-Fail

Students performing at this level have limited command of the knowledge and skills contained in the Common Core Reading Standards for Literature as assessed by referring to the text when asking and answering questions; recounting stories and determining a central message,

explaining how the message is conveyed through key details in the text; describing characters and explaining how their actions contribute to the plot; and determining the meaning of words and phrases as they are used in a text, especially literal and non-literal language. Students at this level will need academic support to engage successfully in this content area.

Achievement Level 2-Fail

Students performing at this level have partial command of the knowledge and skills contained in the Common Core Reading Standards for Literature as assessed by referring to the text when asking and answering questions; recounting stories and determining a central message, explaining how the message is conveyed through key details in the text; describing characters and explaining how their actions contribute to the plot; and determining the meaning of words and phrases as they are used in a text, especially literal and non-literal language.

Achievement Level 3-Pass

Students performing at this level have a sufficient command of grade-level knowledge and skills contained in the Common Core Reading Standards for Literature assessed at grade 3, but they may need academic support to engage successfully in this content area in the next grade level. They are prepared for the next grade level but are not yet on track for college-and-career readiness without additional academic support.

Achievement Level 4-Pass

Students performing at this level have solid command of the knowledge and skills contained in the Common Core Reading Standards for Literature as assessed by referring to the text when asking and answering questions; recounting stories and determining a central message, explaining how the message is conveyed through key details in the text; describing characters and explaining how their actions contribute to the plot; and determining the meaning of words

and phrases as they are used in a text, especially literal and non-literal language. They are academically prepared to engage successfully in this content area.

Achievement Level 5-Pass

Students performing at this level have superior command of the knowledge and skills contained in the Common Core Reading Standards for Literature as assessed by referring to the text when asking and answering questions; recounting stories and determining a central message, explaining how the message is conveyed through key details in the text; describing characters and explaining how their actions contribute to the plot; and determining the meaning of words and phrases as they are used in a text, especially literal and non-literal language. They are academically well-prepared to engage successfully in this content area.

The survey instrument was created using UNC Qualtrics and surveys were administered to students in a school computer lab utilizing a random and anonymous computer-generated link via Qualtrics. The calculated readability level of the Qualtrics survey is a grade equivalency of 2.5. No teacher indicated that any student read below this level so all surveys were completed independently. Measures were incorporated into the survey included questions related to well-being, attribution, and mindset in three blocks. The questions from the Gallup Student Well-being Poll (2014) addressed hope and engagement, the Children's Attributional Style Questionnaire (Seligman, 1991) addressed attribution, and block three Mindset questions (Dweck, 2006) resulted in an overall growth mindset score.

Gallup approval was granted to utilize questions from the Gallup Student 2014 poll pertaining to well-being (hope and engagement). The Gallup poll is offered annually to public schools in the United States at no cost nor any incentive to participate. This poll measures "non-cognitive metrics that predict student success" (Gallup, 2014, p. 6). The well-being score was

comprised of questions labeled by Gallup as hope and engagement. The maximum score for hope was 30 and the maximum score of engagement was 35 so the maximum score for well-being was 65. To measure well-being, the hope and engagement questions from the 2014 Gallup Student Well-being survey were utilize which are based on a 5-point Likert scale with 5 representing the best possible well-being. A total score of 65 was possible on the block 1 Well-being section with 30 points for hope and 35 for engagement. Higher scores delineate higher levels of well-being. Psychometric properties of the Gallup Poll reveal moderate internal consistency reliability. Chronbach's alpha ranges for the Hope scale were .65 to .78 (Khan, 2013). Reported levels of reliability for the Engagement scale based on Chronbach's alpha are between .70 and .76 (Lopez, Agrawal, & Calderon, 2010).

For block 2, Seligman's (1991) Children's Attributional Style Questionnaire (CASQ) was incorporated into Qualtrics. This is a 48-item forced choice questionnaire. For each item, hypothetical events are presented, and the child must choose one of two attributional explanations for the event. Responses to the CASQ were used to create an overall composite score (labeled Attribution) which was derived by subtracting the total score for attribution style for negative events (CN) from the total score for attribution style for positive events (CP). The lower the score, the more the child explains negative events in terms of internal, stable, and global causes and explains positive events in terms of external, unstable, and specific causes. This score essentially represents the extent to which children attribute negative events to internal, stable, and global causes and positive events to external, unstable, and specific causes. Scores on this composite can range from −24 to 24. An individual with a high CP attributes positive events to internal, stable, and global factors. Questionnaire titles were not a part of the survey to avoid biasing responses. Psychometric properties of the CASQ reveal moderate internal consistency

reliabilities. Specifically, test-retest reliabilities are .71 for the positive composite (CP) and .66 for the negative composite (CN) across 6 months (Seligman, Peterson, Kaslow, Tannenbaum, Alloy, & Abramson, 1984) and .35 for the overall composite over 12 months (Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998). The reliability for the overall attribution score is .73 (Seligman et al., 1984).

To measure mindset, Dweck's (2006) Mindset Questionnaire was embedded into the Qualtrics survey with a maximum score of 60. Higher scores suggest a tendency toward a growth mindset orientation. Questions were also based on a 5-point Likert scale with a 5 representing total agreement with the statement. In order to ensure confidentiality, all survey data and test scores were de-identified using the student's school identification number which is randomly generated when they enter the school system. Chronbach's alpha ranges for the Mindset scale are reported to be between .94 and .98 (Dweck, 2000).

All test scores will be included as they are reported by the state. This state did not report a standard error band in the year 2016 for EOG scores in reading.

Analysis of the data

In order to examine and describe the relationships between variables, descriptive statistics were analyzed. Next, correlation matrices, multiple regressions, and then hierarchical regression was conducted to determine the best predictive model as variables were entered to determine their contribution above and beyond all other variables. Because of a lack of normality, a Kruskal-Wallis Tests were used to address some of the research questions. T-tests and Mann Whitney U tests were run to compare overall means between categorical groups (race, gender, Reading Achievement Category). A correlation matrix was conducted to examine relationship on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Score

between races, genders, and Reading Achievement Category (not Reading Score). Binary logistic regression was conducted to examine predictive capacity the independent variables had on the dependent variable.

CHAPTER 4: RESULTS

This study posed six research hypotheses examining the contribution that demographic and psychological variables make in the prediction of outcomes on high-stakes tests in reading. The demographic variables included race, grade, and gender and the psychological variables included Well-being (Hope and Engagement sum), Attribution, and Mindset. The dependent variables were Reading Score (continuous) and Reading Achievement Category (categorical). The state represented Reading Achievement Category by an achievement level indicating whether or not a student passes or fails the test. A score of 1 and 2 are designated as failing the test and scores of a 3, a 4, and a 5 are designated as passing the test. These data were obtained from school test results. Analyses were carried out to support or reject each hypothesis.

Analyses of the data were carried out using IBM SPSS version 24. Of the 87 students who granted assent, two students left the computer lab before they had completed the survey, leaving a final sample size of 85. Before running regressions, data were analyzed for missing values, and summarized using descriptive and frequency commands. Correlations were completed, and assumptions of normality were tested. Scatter plots showed no homoscedasticity. Normality of variable distribution was examined using Shapiro Wilks, and skewness and kurtosis were checked. Transformation was executed on those variables that were not normally distributed, skewed, or kurtosis was outside +/- 1.96. Data were transformed on the Engagement variable using reflection and log10 for the negatively skewed distribution (Engagement = -1.2). Once these values were obtained, raw scores were converted to z scores

on the following variables: Reading Score, Well-being, Hope, Engagement, Attribution, and Mindset before parametric tests were performed. The Reading Scores and Attribution scores approached a normal distribution whereas remaining variables did not. One outlier was identified and removed using Mahalanobis D with a value greater than 20. This resulted in a sample size of n = 84 and descriptive data is reported in Table 1. All continuous variables were converted to z scores and dummy coding was implemented for grade, race, and gender for use in all statistical procedures. Before race was recoded into Caucasian and non-Caucasian, the sample was identified using the school-based categories: Asian (14.1%), Black (5.9%), Hispanic (14.1%), Indian (1.2%), Mixed (3.5%) and White (61.2%). Data was analyzed using n = 84 for all statistics.

Table 1.

Descriptive statistics on study variables

n = 84

	Well-being	Hope	Engagement	Attribution	Mindset	Reading Score	Pass/Fail
Range	36-60	16-25	20-35	-24 to 24	12-60	428-469	NA
Mean (SD)	53.67 (4.08)	21.49 (2.17)	32.18 (2.99)	5.69 (4.26)	43.62 (7.97)	449.16 (10.21)	NA
Females n=49	54.12 (3.66)	21.88 (1.99)	32.24 (2.71)	6.19 (4.11)	42.47 (8.07)	449.94 (10.55)	30/19
Males n=35	53.54 (3.54)	21.11 (2.19)	32.43 (2.7)	5.17 (4.52)	44.89 (7.55)	448.00 (9.90)	18/17
Grade 4 n=36	54.19 (3.58)	21.64 (2.23)	32.56 (2.38)	5.73 (4.23)	42.25 (7.17)	444.64 (9.35)	17/19
Grade 5 n=16	53.44 (4)	21.25 (2.08)	32.19 (2.26)	6.31 (4.24)	42.31 (8.15)	454.44 (7.70)	13/3
Grade 6 n=32	53.75 (3.51)	21.63 (2)	32.13 (3.23)	5.41 (4.47)	45.44 (8.41)	451.53 (10.53)	18/14

	Well-being	Hope	Engagement	Attribution	Mindset	Reading Score	Pass/Fail
Caucasian n=52	53.96 (4)	21.87 (2.06)	32.1 (3.02)	5.96 (4.37)	43.73 (8.27)	452.17 (9.71)	38/14
Non-Caucasian n=32	53.75 (2.91)	21.06 (2.09)	32.69 (2.06)	5.31 (4.17)	43.06 (7.39)	444.19 (9.30)	10/22
Pass	54.08 (3.71)	22.06 (1.78)	32.02 (3.01)	6.08 (4.49)	44.38 (8.35)	456.40 (6.21)	NA
Fail	53.61 (3.49)	20.89 (2.32)	32.72 (2.19)	5.22 (4.00)	42.28 (7.21)	439.44 (5.40)	NA

In order to address hypotheses 1, 2 and 3, Pearson product-moment correlations were derived to examine relationships (See Table 2). None of the correlations approached .9 or higher, indicating that there was no multicollinearity of variables. As partial scores automatically correlate highly with themselves, the correlation between Well-being and Hope/Engagement was omitted from the matrix. Six significant correlations were found for the sample: Hope and scaled score ($r = .30$, $p < .01$), Mindset and scaled score ($r = .24$, $p < .05$), Hope and Attribution ($r = .27$, $p < .05$), Hope and Mindset ($r = .22$, $p < .05$), Well-being and Attribution ($r = .30$, $p < .01$), and Engagement and Attribution ($r = -.24$, $p < .05$).

Table 2.

Correlation matrix of Independent and Dependent Variables. n = 84

	Well-being	Hope	Engage-ment	Attribution	Mindset	Reading Score
Well-being	1.00	--	--	.30**	.14	.12
Hope		1.00	-.15	.27*	.22*	.30**
Engagement			1.00	-.24*	-.09	.01
Attribution				1.00	.11	.14
Mindset					1.00	.24*
Reading Score						1.00

**Significant at $p < .01$, two-tailed
*Significant at $p < .05$, two-tailed

Hypothesis 1a. There is a significant relationship between Well-being and Reading Score.

The derived correlation coefficient between Well-being and Reading Score was not significant.

Hypothesis 1b. Well-being is a significant predictor of Reading Score and Reading Achievement Category.

In order to examine variation in Reading Score, bivariate linear regression was calculated. Well-being was used to predict systematic changes in the Reading Score. Preliminary analyses were performed to ensure that there were no violations of the assumptions of normality or linearity. The regression equation was not significant. Based on the adjusted R^2 value for Well-being, less than 1% of the variance in Reading Score is accounted for by Well-being ($F (1, 82) = 1.28$, $p = .26$). In order to examine predictability for the Reading Achievement Category, binary logistic regression was used. Well-being did not significantly predict Reading Achievement Category.

Hypothesis 1a: The relationship of Hope with Reading Score revealed a significant correlation coefficient ($r = .30$, $p < .001$), but the correlation coefficient between Engagement and Reading Score was not significant.

Hypothesis 1b: Based on the adjusted R^2 value for Hope, 9% of the variance in Reading Score is significantly accounted for by Hope: $F (1, 82) = 8.18$, $p = .005$). Based on the adjusted R^2 value for Engagement, less than 1% of the variance in Reading Score is accounted for by Engagement: $F (1, 82) = .02$, $p = .9$). In order to examine predictability for the Reading Achievement Category, binary logistic regression was used. Hope significantly predicted Reading Achievement Category. $(B) = .29$, $p = .01$, $r^2 = .01$). Engagement did not significantly predict Reading Achievement Category. $(B) = .20$, $p = .38$, $r^2 = .01$).

Hypothesis 2a. There is a significant relationship between Attribution and Reading Score.

The correlation coefficient between Attribution and Reading Score was not significant.

Hypothesis 2b. Attribution is a significant predictor of Reading Score and Reading Achievement Category.

In order to examine variation in Reading Score, a bivariate linear regression was calculated. Attribution was used to predict systematic changes in the Reading Score. Preliminary analyses were performed to ensure that there were no violations of the assumptions of normality or linearity. Based on the adjusted R^2 value for Attribution, less than 1% of the variance in Reading Score was accounted for by Attribution and was not significant: ($F(1, 82) = 1.28$, $p = .26$). To examine if Attribution predicted Reading Achievement Category, a binary logistic regression was conducted. Attribution was not found to significantly predict Reading Achievement Category. $(B) = .21$, $p = .36$, $r^2 = .02$).

Hypothesis 3a: There is a significant relationship between Mindset and Reading Score.

The correlation coefficient between Mindset and Reading Score was significant ($r = .24$, $p < .05$).

Hypothesis 3b: Mindset is a significant predictor of Reading Score and Reading Achievement Category.

In order to examine variation in Reading Score, a bivariate linear regression was calculated. Mindset was used to predict systematic changes in the Reading Score. Preliminary analyses were performed to ensure that there were no violations of the assumptions of normality or linearity. Based on the adjusted R^2 value for Mindset, approximately 5% of the variance in Reading Score was significantly accounted for by Mindset: ($F(1, 82) = 4.94$, $p < .03$). A binary

logistic regression showed that Mindset did not significantly predict Reading Achievement Category. (B) = .27, p = .23, r^2= .02).

Hypothesis 4: There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Scores between fourth, fifth, and sixth graders.

Given the lack of normal distribution, the Kruskal-Wallis Test was conducted to examine differences between grades. Means and standard deviations are reported in Table 1. Through examining Well-being, Hope, Engagement, Attribution, Mindset, and Reading Score, only one was found to be significantly different between grades: Reading Score (p = .001). To examine the contribution that psychological variables made in the prediction of a Reading Score, regressions were performed using grade as the sub-group and using a forward variable input method. For grade 4, 50% of the variance in Reading Score was accounted for by Mindset, race, and Hope; F(3, 32, p < .001) = 12.71. For grade 5 and grade 6, no variables significantly predicted Reading Score.

Hypothesis 5a: There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Scores between races.

The Mann Whitney U test was used to compare differences on Well-being, Hope, Engagement, Attribution, and Mindset, and Reading Score between races. For race, there were two significant differences. These were Reading Scores (p < .001) and Hope (p < .004) using Bonferroni correction.

Hypothesis 5b: There are significant differences on measures of Well-being, Hope, Engagement, Attribution, Mindset, and Reading Scores between genders.

The Mann Whitney U test was used to compare differences on Well-being, Hope, Engagement, Attribution, and Mindset, and Reading Score between genders. There were no significant differences.

Hypothesis 5c: There are significant relationships and differences on measures of Well-being, Hope, Engagement, Attribution, and Mindset between Reading Achievement Categories.

The Mann Whitney U test was used to compare differences on Well-being, Hope, Engagement, Attribution, and Mindset between Reading Achievement categories. There was a significant difference on the measure of Hope. Hope $M_{(pass)} = 22.06$; Hope $M_{(fail)} = 20.89$ ($p < .003$ using a Bonferroni correction).

A correlation matrix was used to identify significant relationships. Two significant relationships were found for non-Caucasians: Hope and Attribution ($r = .38$, $p = .03$) and Mindset and Reading Score ($r = .61$, $p < .001$). For Caucasians, significant correlations were found: Hope and Engagement ($r = -.29$, $p = .04$), Hope and Mindset ($r = .36$, $p = .01$), Engagement and Attribution ($r = -.32$, $p < .02$), and Well-being and Attribution ($r = .31$, $p < .03$). For gender, one significant correlation was found between Engagement and Attribution ($r = -.35$, $p < .05$) for boys. Three significant correlations were found for girls: Hope and Attribution ($r = .30$, $p = .04$), Hope and Reading Score ($r = .33$, $p = .02$), and Mindset and Reading Score ($r = .32$, $p < .03$). For Reading Achievement Category, two significant correlations were found for students that passed: Engagement and Attribution ($r = -.31$, $p = .03$) and Attribution and Well-being ($r = .33$, $p = .02$). No significant correlations were found for students that failed.

Hypothesis 6: The combination of Well-being, Attribution, Mindset, race, grade, and gender will significantly predict Reading Score and Reading Achievement Category on the high-stakes reading test.

Preliminary analyses were performed to ensure there was no violation of normality, linearity, or multicollinearity. Plots indicated no heteroscedasticity. Durbin Watson was .79 which suggests positive autocorrelation, and all VIFs were < 2, so multicollinearity was likely not an issue and tests for multicollinearity were less than .9. Preliminary analyses were performed to ensure there were no violations of assumptions of normality and linearity or homoscedasticity. Hierarchical regression revealed two significant predictors of Reading Score: race and Hope (Table 3). Demographic variables were entered early in the hierarchy and psychological variables were entered in the order in which they were hypothesized. Significant predictors were Hope and race. Looking at R^2 change, race significantly improved the model's predictive capacity the most ($R^2 = .29$, $\Delta R^2 = .12$, $F(4, 79 = 8.2, p < .001)$. Hope significantly improved the model's predictive capacity also ($R^2 = .35$, $\Delta R^2 = .06$, $F(6, 77 = 6.93, p < .001)$. Standardized beta weights are shown in Table 3 for each independent variable. Beta coefficients for race and Hope were statistically significant.

Table 3.

Hierarchical Regression of demographic and study variables on reading test scores

			F	R^2	ΔR^2	Regression R^2	p	β (p)	df
Model 1	Grade, gender	Race	8.2	.17	.12	.29	<.001	.30 (.002)	4,79
Model 2	Grade, gender, race	Engagement	6.52	.29	.001	.30	.69	.02 (.87)	5,78
Model 3	Grade, gender, race, Engagement	Hope	6.93	.29	.06	.35	.01	.20 (.05)	6,77
Model 4	Grade, gender, race, Engagement, Hope	Attribution	5.89	.35	.001	.35	.74	.02 (.82)	7,76
Model 5	Grade, gender, race, Engagement, Hope, Attribution	Mindset	5.72	.35	.03	.38	.07	.18 (.07)	8,75

To address the second part of Hypothesis 6, binary logistic regressions were run to examine what combination of psychological variables were the best predictors of Reading Achievement Category (Table 4). Two binary models were fitted to the data. The first logistic model was fitted to the data using all independent variables in a forward variable selection manner to test the research hypothesis regarding the predictive capacity of psychological variables regarding Reading Achievement Category. The original model had a predictability factor of 57.6 and was not statistically significant ($p = .16$). A test of the full model against the original model had a 75.3% predictive capacity and was statistically significant ($p < .001$). The variables that significantly predicted Reading Achievement Category were race ($p < .001$), grade 5 ($p = .01$), and hope ($p = .05$). Nagelkerke's R^2 of .35 indicated a fairly strong relationship suggesting that 35% of the variance in Reading Achievement Category outcomes is explained by

the model. The model was able to correctly predict 75% (83.7% for pass and 63.9% for fail) of the time which Reading Achievement Category a student would fall into. Grade, gender, Engagement, Attribution, and Mindset were not significant predictors.

Table 4.

Binary logistic regression models for Reading Achievement Category.

Model	Predictive capacity	Chi Square	Nagelkerke R	p
Race	71.4	14.40	.21	.001
Race, grade	73.8	20.41	.29	.001
Race, grade, hope	77.4	25.68	.35	< .001

CHAPTER 5: DISCUSSION

The current findings of this study both support and contradict previous research regarding the significance of the relationships between psychological variables and achievement, as well as the capacity these psychological variables have in predicting high stake reading outcomes. These results also build upon previous research providing new information and suggestions for further investigation. This research comes at a critical time when student well-being and reading performance are national concerns. Research regarding the contribution that psychological variables make in the prediction of Reading Scores and Reading Achievement Category is limited. Science is just beginning to examine how well-being, hope, engagement, attribution, and mindset function in the reading achievement of upper elementary students. This study also examined the additional contribution that the demographic variables grade, gender, and race made to the prediction of reading outcomes.

Survey results showed that students reported high levels of Well-being, Attribution, and Mindset. High means on these psychological variables at a Title I school provided new information not found in the literature. Blad (2016) reported that schools with high percentages of students eligible for free and reduced lunch do not manifest high levels of overall well-being, attribution, and mindset. A common challenge of survey research could contribute to these high reported means. First, students that participated in the current study may have not read the questions carefully or responded thoughtfully. This research was also based on a sample of convenience. Parents returned consent letters voluntarily, took the time to read the recruitment letter sent home, sign it, and return it. Two other explanations for higher means at a Title I

school include social desirability and school climate. The climate at this school may promote higher levels of resiliency factors such as well-being, attribution, and mindset. This school implemented The Leader in Me (TLIM) for three years before the study with consistent staff development and student training. TLIM is a school-wide leadership initiative designed to create a culture of student empowerment. Since results found no significant difference between low and high achievers on measures of Well-being, Attribution, and Mindset, it is possible that TLIM developed self-directed learners and strengthened skills necessary for twenty-first century learning. May and Sanderson (2013) found that strong leadership has an effect on student test scores. This school has strong leadership, as evidenced by this principal being named Regional Principal of the year for 2015-2016. Lastly, this school reported 100% teacher retention (DPI, 2014) which may foster a stable climate and nurture consistent, supportive relationships. To summarize, it is possible that the school-based intervention program, strong leadership, and low teacher turnover contributed to a school climate that built engagement, consistent relationships, and enhanced student well-being, contributing to the results of this study.

Previous research has shown a significant relationship between psychological variables and achievement and that psychological variables contributed to the prediction of achievement. Limited evidence was found in this study demonstrating the contribution that psychological variables make in the prediction of high-stakes reading for upper elementary students. In general, the Gallup (2015) survey reported that approximately half of the students surveyed reported feeling hopeful and engaged at school. As a student moves into adulthood, having a positive future orientation is a necessary feature of this transition. Setting goals can maintain a student's direction and having hope for those goals generates energy for the destination (Snyder, 2003). Hope is a survival element that facilitates this movement and emerged as a significant

predictor to reading achievement. If students feel the promise of hope, moving forward becomes a more natural task. Having hope generates momentum for critical times when obstacles interfere with forward movement, and the student can persist as opposed to giving up. Instead of helplessness, optimism arises. In simple terms, hopeful thinkers achieve more (Snyder, 2003). In school climates that are characterized by high-stakes, hope can serve as a protective factor.

For current survey results, the overall means of Hope and Engagement were high and the distributions were negatively skewed. Similar to previous research with fourth and fifth graders, the current research study also found significant relationships between Hope and Attribution (Abela, 2001, Abramson, Metalsky, & Allowy, 1989; Gibb et al., 2006) and Well-being and Attribution (Butterworth, Olesen, & Leach, 2012; Chen, Belkin, McNamee, & Kurtzberg, 2013). New relationships not found in the literature included significant relationships between Hope and Mindset and Engagement and Attribution. Although previous research has shown that there are differences in achievement between boys and girls (Snow, 2002; Mullins et al., 2007; Swalander & Taube, 2007; Tanner, 2001), no gender differences on high-stakes reading outcomes were found in this study. This study presents new information that the psychological variables of Hope and Mindset add to the demographic variables in the prediction of high-stakes reading outcomes, in both Reading Score and Reading Achievement Category.

The hypothesis that Well-being would be significantly associated with a Reading Score in fourth, fifth, and sixth grade students was not supported. The relationship between poverty and well-being is negative and well documented (Blad, 2016; Jensen, 2013). Since the results from this survey administered at a Title I school showed a high level of well-being, these results differ from previous research. Even though there is substantial evidence throughout the literature that there is a significant relationship between well-being and achievement (Becker, Brandt, Stephan,

Chorpita, 2014; Gilman & Huebner, 2003; Quinn & Duckworth, 2004; Suldo & Shaffer, 2008; Volk et al., 2016) and well-being and test scores (APA, 1997; Basch, 2011; Becker, Brandt, Stephan, & Chorpita, 2014; Fredericks et al., 2004; Gallup, 2014; Suldo & Shaffer, 2008), a significant relationship between Well-being and Reading Scores was not supported by this study.

Well-being did not significantly predict Reading Score nor Reading Achievement Category as hypothesized. Results from this study did not support the strong relationship found in the literature between well-being and achievement categories. It is possible that the school-wide leadership program, TLIM, cultivated a supportive atmosphere where children flourished. TLIM fosters skills important to individual well-being and feelings of school engagement that are linked to achievement in the literature (Akey, 2006; Wang & Holcombe, 2010). Students who feel more connected and supported at school are more likely to achieve higher grades and have higher test scores (Farrington, Roderick, Allensworth, Nagaoka, Keyes, Johnson, & Beechum, 2012). TLIM sustains relationships, cultivates positive thinking, and develops healthy learning attitudes (Covey, 2016). The program cultivates student leadership, collaboration, and twenty-first century success skills that have been shown to make a positive impact on achievement (Boatright, 2016; Boody, Laswell, Robinson, Reade, 2014). Hypothesis 1 is rejected.

Survey results were also analyzed examining the components of Well-being in this study: Hope and Engagement. Results of this study found a significant relationship between Hope and Reading Score. This research also found that Hope significantly predicted a Reading Score. Previous research has shown that hope is related to achievement (Curry, Snyder, Cook, Ruby, & Rhym, 1997; Day, Hanson, Maltby, Proctor, Wood, 2010; Snyder, Ilardi, Cheavens, Michael, Yamhure, & Sympson, 2000; Snyder, Hoza, Pelham, Rapoff, Ware, Rubenstien, & Stahl, 1997;

Feldman and Kubota, 2015; Ciarrochi, Heaven, & Davies, 2007) and hope is related to test scores (Gallup, 2014; Snyder, Hoza, Pelham, Rapoff, Ware, Rubenstien & Stahl, 1997). These results provide new evidence that a measure of Hope helps explain the variance in high-stakes reading, and Hope is a significant predictor for Reading Achievement Category. This study confirms this significant relationship, and adds to this information in showing that Hope significantly predicts Reading Scores for upper elementary students. As shown by Abramson, Metalsky and Alloy (1989), the current study also shows a significant relationship between Hope and Attribution.

There is evidence that student engagement is correlated with achievement (Kirsch, de Jong, Lafontaine, McQueen, Mendelovits, & Monseur, 2002; Willms, 2003; Wang & Peck, 2013; Chase, Hilliard, Geldhof, Warren, & Lerner, 2014) and student engagement is significantly related to high-stakes test scores (Allensworth, Nagaoka, Keyes, Johson, & Beechum, 2012; Blad, 2016; Center for Evaluation and Education Policy, 2016; Farrington & Roderick, 2012; Gallup, 2014; Grover, Limber, & Boberiene, 2015; National Research Council, 2000; Grover, Limber, & Boberiene, 2015), but results from this study differ. A significant relationship between Engagement and Reading Scores was not found, and Engagement did not predict Reading Achievement Category. Leadership programs create climates conducive to student engagement (Jones, 2008), but student engagement at this school was not associated with Reading Achievement Category. If TLIM had an impact on school engagement, this study supports the growing body of evidence that school climate predicts test outcomes (Cohen, McCabe, Michelli and Pickeral, 2009; May & Sanderson, 2013). Additionally, the significant relationship between Engagement and Attribution was supported by this study not found in other studies.

Second, it was hypothesized that Attribution is significantly associated with and predicted Reading Scores in fourth, fifth, and sixth grade students. The relationship between attribution and achievement is highly established in the literature (Curry, Snyder, Cook, Ruby, & Rehm, 1997; Ehrlich, Kurtz-Costes, & Loridant, 1993; Fincham, Hokoda, & Sanders, 1989; Johnson, 1981; Nolen-Hoeksema, Seligman, & Girgus, 1986; Schoenhals, 1991; Schunk & Swartz, 1993; Van Overwalle & DeMetsenaere, 1990; Walden & Ramey, 1983; Wilson & Linville, 1985). In this study, a significant relationship between Attribution and Reading Scores was not found, and Attribution did not contribute to the prediction of a Reading Achievement Category. Hypothesis 2 is rejected. An explanation for these differing results might include school climate, strong leadership, and low teacher turnover. Climate, leadership, and teacher turnover have been shown to contribute to climates that create pathways for building relationships and improving achievement (Sweeney, 2015).

It was next hypothesized that there is a significant relationship between Mindset and Reading Scores and that Mindset significantly predicts Reading Scores and Reading Achievement Category in fourth, fifth, and sixths grade students. Results from this study align with previous research on mindset and achievement (Blackwell, Trzesniewski, & Dweck, 2007; McCutchen, Jones, Carbonneau, and Mueller, 2015) and mindset and test scores (Weissberg & Cascarino, 2013). Hypothesis 3 is accepted. Also, results not found anywhere in the literature show that Mindset significantly contributed to the prediction of high-stakes Reading Scores. Results from this study also provide new evidence to establish a significant relationship between Mindset and Hope not found in the literature. Research shows that overall levels of mindset are lower in SES populations (Blad, 2016). While it is unclear what the SES population this sample

was, the SES population of the whole school is 64% free and reduced lunch. The mean score of Mindset from this survey was negatively skewed.

Fourth, it was hypothesized that there are significant differences on measures of Well-Being, Hope, Engagement, Attribution, Mindset, and high-stakes reading for fourth, fifth, and sixth graders. There is evidence in the literature that the development of hope and attribution are sequential and begin early in life. No supporting evidence was found to confirm Hypothesis 4 that there are significant differences on psychological measures between fourth, fifth, and sixth graders, but results showed a significant difference on the scaled score between grades.

It was next hypothesized that there are significant gender, race, and achievement level differences on measures of Well-Being, Hope, Engagement, Attribution, Mindset, and Reading Scores. Yazzie-Mintz (2010) reported that there are gender and race differences on measures of engagement. No differences were found for Engagement, Attribution, and Mindset between genders, race, and Reading Achievement Category. The only significant group difference between low and high achievers was on the Hope scale. Shell, Colvin, and Bruning (1995) found that low and high achievers have significantly different psychological beliefs. Hypothesis 5 is rejected. This analysis of Hope and Engagement revealed new information to the field.

The current study showed that Hope was correlated with Reading Scores and Hope significantly predicted Reading Scores for two groups: race and the Reading Achievement Category. Analysis of group differences provided evidence that Hope contributes to the predictability of a Reading Achievement Category for certain student groups. For the non-Caucasian group, Hope predicted passing or failing. This result supports Hypothesis 5 that there are group differences by race on psychological variables. While Snow (2002) documented racial differences in achievement, no study was found showing racial differences on measures of Hope.

The current study provides this evidence. While previous research showed an association between hope and achievement, this research showed that on a measure of Hope, there is a significant group difference in mean score when comparing those that pass a high-stakes test and those that fail a high-stakes test.

Lastly, it was hypothesized that the combination of Hope, Engagement, Attribution, and Mindset, would add to race, grade, and gender in predicting Reading Score and Reading Achievement Category on the high-stakes test in reading. For the variables race, Hope, and grade, results showed that collectively, they contributed to predictability of whether student's Reading Achievement Category with 75% accuracy. Johnson (1981) reported that psychological variables contributed to the prediction of achievement, but no specific variables were identified in that study. This study provides supportive evidence found in the literature of significant relationships between Attribution and Mindset (Lackey, 2014) and between Well-being and Attribution (Butterworth, Olesen, & Leach, 2012; Chen, Belkin, McNamee, & Kurtzberg, 2013). Research from 60 high-poverty schools showed that the primary factor in student attribution and achievement is not the student's home environment, but rather, it is their school and characteristics of the teacher that foster attribution and mindset (Burton, Lydon, D'Alessandro, & Koestner, 2006; Irvin, Meece, Byun, Farmer, & Hutchins, 2011). Hypothesis 6 is accepted. Previous research has shown that psychological variables contributed to the prediction of test outcomes (Johnson, 1981). In this study, psychological variables of Well-being, Hope, Engagement, Attribution, Mindset and gender did not significantly predict Reading Scores. However Hope, race, and grade were variables that were variables that significantly predicted Reading Achievement Category.

Although previous research has examined the role hope plays in achievement (Gallup; 2014; Snyder, 1997) and the role that mindset plays in achievement (Aronson et al., 2001; Blackwell et al., 2007; Claro et al., 2016; Dweck, 2006; McCutchen et al., 2015; Yeager et al., 2014; Yeager et al., 2016), limited research has shown a significant relationship between Hope and Mindset. Results of this study do provide support for a significant relationship between Hope and Mindset. Research has shown that hope and achievement are related and a student's mindset predicts achievement (Blackwell, Trzesniewski, & Dweck, 2007). The results of this study support a significant relationship between Hope and Reading Scores and Mindset and Reading Scores.

Overall limitations

There are a number of limitations that may pertain to findings of this study. The first is that the sample was a sample of convenience. It is possible that parents who consented to participate in the study were not representative of all parents invited to participate. Second, there was a possibility that the students that agreed to take the survey had more positive attitudes and had higher well-being than students that did not agree to participate in the study. Next, the survey was administered the day after the high-stakes tests were administered as required by the school system's institutional review board. In this regard, the literature indicates that well-being, attribution, and mindset have significant relationships with testing. Schools that complete high-stakes testing often allow classes to engage in fun activities such as movies or games. It was informally observed that some students completed the survey in a very short amount of time. The survey may have been viewed as another task to complete quickly so they could return to class for fun. Another limitation pertains to face validity. The questions on the survey may represent select measures of Well-being, Attribution, and Mindset. Finally, the length and

complexity of the Children's Attribution Style Questionnaire may have influenced children's responses and could have contributed to attribution not emerging as a significant predictor of reading achievement. The attribution questions fell in the second block of the survey after the Well-being block. Students had to imagine a situation and determine the cause of the situation. Although this instrument is well respected and utilized in the field of positive psychology, it may have challenged the developmental limitations of the students in this study.

Directions for future research

With reference to factors that have been shown to improve test scores, the existing literature is focused on academic variables, the strengthening of instruction, and the targeted improvement of academic skill deficits. While these are critical components to reading success, the role that psychological variables play is relatively unexamined. This study begins the conversation of examining the relationship between psychological variables and high-stakes reading. Future research could compare schools implementing a leadership program with schools that do not implement such a program to provide further support for school-wide leadership programs or not. Researchers could also consider surveying all students and staff in the whole school, including interviewing the principal, and collecting data before high-stakes testing early in the year with follow up interviews after testing to investigate response patterns. Since it has been shown that high-stakes tests misrepresent performance of some populations (Johnson, 2006), a research design that incorporates SES into the model as a predictor variable could support this evidence.

Measuring other psychological variables such as motivation, depression, anxiety and self-efficacy could contribute to the explanation of low well-being, increased mental health disorders, and stagnant reading results. Such research could provide important information for school

improvement teams in considering the contribution that psychological variables make to Reading Scores. If future studies replicate the results of the current study, researchers could begin to design evidence-based prevention programs that target psychological variables shown to be significantly related to reading outcomes and with predictive power. This could enhance a student's sense of well-being, affect school improvement policies, and foster a climate conducive to maximized student achievement. If other variables are stronger predictors with reading, they could be incorporated into an academic resilience model.

Schools currently focus on teacher improvement and school management (Adelman & Taylor, 2016), but with the evidence of decreasing student well-being, increasing mental health disorders, and stagnant Reading Scores, intervention programs should identify the psychological variables found to contribute to the prediction of Reading Scores and Reading Achievement Categories. If intervention programs are designed and implemented with fidelity, not only might there be the potential to maximize test outcomes, but there is also the potential to improve child well-being known to have an established relationship with high-stakes outcomes. Future studies could identify specific academic risk or resilience profiles that are associated with high-stakes test scores in reading. Researchers could also examine the contribution that test scores make in the prediction of well-being. Other studies could examine how school climate contributes to student well-being and high-stakes reading performance. School climate refers to unique components of a school and how they contribute to measured engagement, teacher relationships, and high-stakes reading. Literature has shown that a positive school climate can promote a safe and supportive learning environment, one which encourages well-being, growth, and achievement (Cohen, McCabe, Michelli, Nicholas & Pickeral, 2009). School climate has been known to have a positive relationship with student attendance, behavior, and a negative

relationship with student retention and drop-out (Thapa, Cohon, Guffey, & Higgins-D'Alessandro, 2013). School climate may play a role on student engagement, teacher relationships, and high-stakes reading.

Implications of this study

School improvement initiatives are being launched in relation to psychological variables and how they contribute to testing outcomes. This study provides information that the psychological variables of Hope, Engagement, Attribution, and Mindset are related to high-stakes testing and prediction of reading outcomes. Research is beginning to document that psychological variables play a critical role in reading performance and high-stakes reading. If fostering both academic and psychological skills significantly related to high-stakes reading, then students with less developed academic and psychological skills could benefit from tiered intervention through a universal screening process. This process would focus on not only academic skills necessary for reading success but also on psychological skills for reading success. Researchers need to continue to examine psychological habits, strengths, and weaknesses of students and their association with high-stakes reading to create skill-specific, research-informed interventions. School psychologists can play a pivotal role in utilizing results of this study to augment school improvement policies. School psychologists could consider the measurement of school success on academic and psychological variables. As psychological variables are emerging as critical indicators of reading outcomes, it would be useful to include them in measurement of educational outcomes. School psychologists are in a key position to utilize this information in several ways to deliver direct service with students and focus on the psychological variables that predict reading. First, they can advocate for the implementation of interventions that foster student hope. Second, they can facilitate staff development on the

language of fixed and growth mindset. If all staff in a school extinguish thinking related to fixed mindsets, they are helping children see through the lens of a growth mindset. These two initiatives are important since hope and mindset emerged as significant predictors to reading achievement.

A school that engenders a supportive climate, promotes safety, and minimizes academic risk may enhance child well-being and add to factors contributing to improved educational outcomes. The five big ideas identified by the National Reading Panel (U. S. Department of Health and Human Services, 2001) are pivotal to reducing group differences in reading success and high-stakes outcomes. Schools could also minimize group differences in reading and high-stakes outcomes if critical psychological variables were also identified and cultivated. Research shows that relationships, safe atmospheres, and strong leadership can enhance psychological skills to predict positive educational outcomes (Louis, Leithwood, Wahlstrom & Anderson, 2010).

The findings of this study offer a preliminary examination of psychological predictors of reading that future researchers can build upon. Drawing on the outcomes from this study, school improvement teams can create and implement initiatives that foster the development of psychological variables and researchers can develop evidence-informed universal interventions. If further research can establish psychological risk indicators, prevention programming can facilitate favorable high-stakes outcomes. School improvement teams can strategize to address healthy habits toward reading and cultivate resilient attitudes of students toward learning. Reducing the psychological barriers found to predict high-stakes reading failure could provide evidence for policy improvement and embed initiatives in enhanced student support. Approaches to enhance learning and the social-emotional development of students are gaining

momentum. Success should be accessible to all students and celebrated every day. This research offers further information to facilitate moving forward with success strategies in building psychological and demographic variables that contribute to maximized learning climates.

The technical skills required for reading success are an example of critical components necessary for improved performance, but they do not narrate the whole story. School improvement initiatives should examine the evidence that psychological variables contribute to achievement. Prevention programs targeting psychological variables may bridge a significant, positive relationship between well-being and high-stakes reading. Well-being, attribution and mindset training can play an integral role in this initiative. If well-being is defined by hope and school engagement, explicitly teaching to these characteristics could be implemented to address mental health problems, decrease in student hope and school engagement, and stagnant reading scores. Specifically, initiatives to foster hope, a growth mindset, and mastery attribution style in students should contribute to better high-stakes outcomes. This study contributes to this conversation. If further intervention research on psychological variables adds to the body of evidence on high-stakes reading outcomes, perhaps the United States may be able to compete more successfully in the "Race to the Top".

In conclusion, student characteristics found to be significant predictors of high-stakes reading outcomes in this study were race, Hope, and Mindset. Since psychological variables were identified as predictors of high-stakes reading outcomes, new reform initiatives should support social-emotional learning. Schools can nurture psychological skill development through research-informed evidence in order to improve and sustain reading outcomes. If a psychological profile placing students at risk could be identified early, schools could consider

screening for these indicators and intervene with them to innovate reading skills. Overall, evidence is beginning to show that school improvement depends not only on academic proficiency but also on psychological health. Schools that incorporate a student's capacity for well-being, attribution, and mindset in concert with school climate and strong leadership, will promote evidence-informed access to learning and maximized reading success. These are the schools our children deserve.

APPENDIX A

Well-being Questions

Gallup Student Well-being poll, 2014

1. Please imagine a scale numbered from 0 to 100. The 100 represents the best possible life for you and the 0 represents the worst possible life for you. Which number represents how you feel now?
2. Which number represents how you think you will feel in 5 years from now? Please choose yes or no to the following sentences.
3. I know I will graduate from high school
4. There is an adult in my life who cares about my future
5. I can think of many ways to get good grades
6. I energetically pursue my goals
7. I can find lots of ways around any problem
8. I know I will find a good job after I graduate
9. I have a best friend at school
10. I feel safe in this school
11. My teachers make me feel my schoolwork is important
12. At this school, I have the opportunity to do what I do best every day
13. In the last seven days, I have received recognition or praise for doing good schoolwork
14. My school is committed to building the strengths of each student
15. I have at least one teacher who makes me excited about the future

Attribution Questions

CASQ, Martin Seligman, 1984

Please imagine the following events happening to you and choose which of the two explanations best describes why this event would happen to you.

1. You get an "A" on a test.

   A. I am smart.

   B. I am good in the subject that the test was in.

2. You play a game with some friend and you win.

   A. The people that played with do not play the game well.

   B. I play that game well.

3. You spend the night at a friend's house and you have a good time.

   A. My friend was in a friendly mood that night.

   B. Everyone in my friend's family was in a friendly mood that night.

4. You go on a vacation with a group of people and you have fun.

   A. I was in a good mood.

   B. The people I was with were in good moods.

5. All of your friends catch a cold except you.

   A. I have been healthy lately.

   B. I am a healthy person.

6. Your pet gets run over by a car.

   A. I don't take good care of my pets.

   B. Drivers are not cautious enough.

7. Some kids that you know say that they do not like you.

A. Once in a while people are mean to me.

B. Once in a while I am mean to other people.

8. You get very good grades.

A. School work is simple.

B. I am a hard worker.

9. You meet a friend and your friend tells you that you look nice.

A. My friend felt like praising the way people looked that day.

B. Usually my friend praises the way people look.

10. A good friend tells you that he/she hates you

A. My friend was in a bad mood that day.

B. I wasn't' nice to my friend that day.

11. You tell a joke and no one laughs.

A. I do not tell jokes well.

B. The joke is so well known that it is no longer funny.

12. Your teacher gives a lesson and you do not understand it.

A. I didn't pay attention to anything that day.

B. I didn't pay attention when my teacher was talking.

13. You fail a test.

A. My teacher makes hard tests.

B. The past few weeks my teacher has made hard tests.

14. You gain a lot of weight and start to look fat.

A. The fool that I have to eat is fattening.

B. I like fattening foods.

15. A person steals money from you.

    A. That person is dishonest.

    B. People are dishonest.

16. Your parents praise something that you make.

    A. I am good at making some things.

    B. My parents like some things that I make.

17. You play a game and you win money.

    A. I am a lucky person.

    B. I am a lucky person when I play games.

18. You almost drown when swimming in a river.

    A. I am not a very cautious person.

    B. Some days, I am not a cautious person.

19. You are invited to a lot of parties.

    A. A lot of people have been acting friendly toward me lately.

    B. I have been acting friendly toward a lot of people lately.

20. A grownup yells at you.

    A. That person yelled at the first person he saw.

    B. That person yelled at a lot of people he saw that day.

21. You do a project with a group of kids and it turns out badly.

    A. I don't work well with the people in in the group.

    B. I never work well with a group.

22. You make a new friend.

    A. I am a nice person.

B. The people that I meet are nice.

23. You have been getting along well with your family.

A. I am easy to get along with when I am with my family.

B. Once in a while I am easy to get along with when I am with my family.

24. You try to sell candy, but no one will buy any.

A. Lately a lot of children are selling things, so people don't want to buy things from children.

B. People don't like to buy things from children.

25. You play a game and you win.

A. Sometimes I try as hard as I can at games.

B. Sometimes I try hard as I can.

26. You get a bad grade in school.

A. I am stupid.

B. Teachers are unfair graders.

27. You walk into a door and you get a bloody nose.

A. I wasn't looking where I was going.

B. I have been careless lately.

28. You miss the ball and your team loses the game.

A. I didn't try hard while playing ball that day.

B. I usually do not try hard when I am playing ball.

29. You twist your ankle in gym class.

A. That past few weeks the sports we played in gym class have been dangerous.

B. The past few weeks I have been clumsy in gym class.

30. Your parents take you to the beach and you have a good time.

    A. Everything at the beach was nice that day.

    B. The weather at the beach was nice that day.

31. You take a train which arrives so late that you miss a movie.

    A. The past few days there have been problems with the train being on time.

    B. The trains are almost never on time.

32. Your mother makes you your favorite dinner.

    A. There are a few things that my mother will do to please me.

    B. My mother likes to please me.

33. A team that you are on loses a game.

    A. The team members do not play well together.

    B. That day the team member didn't play well together.

34. You finish your homework quickly.

    A. Lately, I have been doing everything quickly.

    B. Lately, I have been doing school work quickly.

35. Your teacher asks you a question and you give the wrong answer.

    A. I get nervous when I have to answer questions.

    B. That day I got nervous when I had to answer questions.

36. You get on the wrong bus and you get lost.

    A. That day I wasn't' paying attention to what was going on.

    B. I usually don't pay attention to what's going on.

37. You go to an amusement park and you have a good time.

    A. I usually enjoy myself at amusement parks.

B. I usually enjoy myself.

38. An older kid slaps you in the face.

A. I tease his younger brother.

B. His younger brother told him I had teased him.

39. You get all the toys you want on your birthday.

A. People always guess what toys to buy me for my birthday.

B. This birthday people guessed right as to what toys I wanted.

40. You take a vacation in the country and you have a wonderful time.

A. The country is a beautiful place to be.

B. The time of the year that we went was beautiful.

41. Your neighbors ask you over for dinner.

A. Sometimes people are in kind moods.

B. People are kind.

42. You have a substitute teacher and she likes you.

A. I was well behaved during class that day.

B. I am almost always well behaved during class.

43. You make your friends happy.

A. I am a fun person to be with.

B. Sometimes I am a fun person to be with.

44. You get a free ice-cream cone.

A. I was friendly to the ice-cream man that day.

B. The ice-cream man was feeling friendly that day.

45. At your friend's party, the magician asks you to help him out.

A. It was just luck that I got picked

B. I looked really interest in what was going on.

46. You try to convince a kid to go to the movies with you, but he or she won't go.

A. That day he did not feel like doing anything.

B. That day he did not feel like going to the movies.

47. Your parents get a divorce.

A. It is hard for people to get along well when they are married.

B. It is hard for my parents to get along well when they are married.

48. You have been trying to get into a club and you don't get in

A. I don't get along well with other people.

B. I can't get along well with the people in the club.

Mindset Questions: Carol Dweck:

5 point Likert-Strongly Agree to Strongly Disagree

Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements by selecting the number that corresponds to your opinion in the space next to each statement.

____ 1. You have a certain amount of intelligence, and you can't really do much to change it.

____ 2. Your intelligence is something about you that can't change very much.

____ 3. No matter who you are, you can significantly change your intelligence level.

____ 4. To be honest, you can't really change how intelligent you are.

____ 5. You can always substantially change how intelligent you are.

____ 6. You can learn new things, but you can't really change your basic intelligence.

____ 7. No matter how much intelligence you have, you can always change it.

____ 8. You can change even your basic intelligence level considerably.

____ 9. No matter how hard I try in this class, I won't be able to improve my intelligence.

____ 10. If I do all of my work for this class, my intelligence will improve.

____ 11. If the material is too hard for me, I won't be smart enough to read it, even if I work hard.

____ 12. When I try hard in reading, it makes me smarter in reading.

APPENDIX B

Parent consent letter

University of North Carolina at Chapel Hill

Dear Parent:

I am Julie Anderson and am conducting a study on children's school well-being. I would like to ask if you would please give consent for your child to participate in a survey to be administered at the school. I previously worked in the schools and am conducting the study for my doctoral dissertation that I am completing in School Psychology at the University of North Carolina at Chapel Hill. The study has been reviewed and approved by the University of North Carolina and Catawba County Schools and will be under the direction of Rune J. Simeonsson, Ph.D., professor in the School Psychology program.

If you give consent, your child will complete a survey in the school computer lab taking approximately 15 minutes. There may be up to 300 students from the fourth, fifth, and sixth grades at Oxford Elementary School. No personally identifying information will be entered. All forms will be de-identified with a code and saved on a password protected flash-drive or locked cabinet so confidentiality and privacy is ensured. There are no foreseeable risks nor direct benefit to your child associated with participation in the study, but the potential benefit for the field of education is informing further research regarding student well-being. Your child's participation in this research study is voluntary and will not cost anything. You may withdraw

your permission at any time or your child may refuse to participate or stop at any time without penalty. Even if you give permission, your child can choose not to participate.

You may keep this letter and return the signed form to your child's teacher if you give your permission. If you or your child has any questions, please contact the researcher listed below. The general purpose of this study is to explore aspects of well-being that contribute to the prediction of scores on the End of Grade reading test. Your child is being asked to be in the study because fourth, fifth, and sixth graders take the End of Grade tests every year and there is no additional follow-up once they complete the survey.

If there are questions or concerns about your child's rights as a research participant, or if you would like to obtain general information, you may contact the UNC Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Thank you so much,

Julie Anderson

Principal Investigator: Julie Anderson

Principal Investigator Phone number: (828) 612-4655

Principal Investigator Email Address: juliannk@live.unc.edu

Faculty Advisor: Rune J. Simeonsson

Faculty Advisor Contact Information: (919) 962-2512

Faculty Advisor Email Address: rjsimeon@email.unc.edu

Please return this page to your child's teacher by: June 2, 2016

Parent's Agreement:

I have read the information provided above. I voluntarily give permission to allow my child to participate in this research study.

_____

Printed Name of Child

_____ _____

Signature of Parent Date

_____

Printed Name of Parent

_____

Signature of Research Team Member Obtaining Permission

_____

Date

_____

Printed Name of Research Team Member Obtaining Permission

APPENDIX C

Student assent letter

University of North Carolina at Chapel Hill-Assent to Participate in a Research Study

My name is Julie Anderson, and I used to work in this school system. I now go to the University of North Carolina and want to do a research study to help kids. Your parent has given permission for you to be in this study and take a survey on the computer. You do not have to take the survey if you do not want to, and you may stop being in the study at any time. If you decide to stop, no one will be angry or upset with you.

We are doing this research study to examine things related to well-being and testing in reading. You are being asked to be in this study to help us understand about student well-being and testing in reading. If you decide to be in this study, you will be one of about *300* people in this research study. For this study, you will be asked to answer some questions on the computer. It should take about 15 minutes and there is no follow-up after that.

Only Julie Anderson and her faculty advisor Dr. Simeonsson will have access to the information collected, your name will not be on any of the information, and your parents and teachers can have access to the overall results. Research is designed to benefit society by gaining new knowledge. You will not benefit personally from being in this research study, and there are no known risks from taking this survey. If you have questions you should ask the people listed on the first page of this form. If you have other questions, complaints or concerns

about your rights while you are in this research study you may contact the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Title of Study: An examination of psychological variables as they predict performance on an EOG test in reading.

Person in charge of study: Julie Anderson

Where they work at UNC-Chapel Hill: School of Education Deans Office

Other people working on this study: Rune J. Simeonsson

If you sign your name below, it means that you agree to take part in this research study

_____ _____

Sign your name here if you want to be in the study Date

_____

Print your name here if you want to be in the study

_____ _____

Signature of Principle Investigator Obtaining Assent Date

_____

Printed Name of Research Team Member Obtaining Assent

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