THE RELATIONSHIP OF SPIRITUAL INTELLIGENCE TO ACHIEVEMENT OF SECONDARY STUDENTS

by

Merial J. Smartt

Liberty University

A Dissertation Presented in Partial Fulfillment Of the Requirements for the Degree Doctor of Education

Liberty University, Lynchburg, VA
THE RELATIONSHIP OF SPIRITUAL INTELLIGENCE TO ACHIEVEMENT OF SECONDARY STUDENTS

by Merial J. Smartt

A Dissertation Presented in Partial Fulfillment Of the Requirements for the Degree Doctor of Education

Liberty University, Lynchburg, VA

APPROVED BY:

KATHIE MORGAN, Ed.D, Committee Chair

JOSEPH FONTANELLA, Ed.D, Committee Member

AMY DOOLITTLE, Ph.D, Committee Member

SCOTT B. WATSON, Ph.D, Associate Dean, Advanced Programs
THE RELATIONSHIP OF SPIRITUAL INTELLIGENCE TO ACHIEVEMENT OF SECONDARY STUDENTS

ABSTRACT

The purpose of this non-experimental, correlational quantitative research study was to examine the relationship between student achievement and spiritual intelligence while controlling for age and gender in two public and two private schools in a southeastern city. The variable of interest and criterion variable of achievement was measured by the American College Test (ACT). The variable of spiritual intelligence was measured using a 24 question self-report assessment entitled The Spiritual Intelligence Self-Report Inventory (SISRI-24) by D. King (2008). The SISRI-24 included four subscales—critical existential thinking (CET), personal meaning production (PMP), transcendental awareness (TA), and conscious state expansion (CSE) that were analyzed as predictor variables. The control and predictor variables of age and gender were analyzed as well. Ninety students took the SISRI-24 survey with seventy-six completing the ACT. The results were analyzed using sequential (hierarchical) multiple regression statistics. Analysis showed the strength of the relationship between the predictor and control variables of spiritual intelligence, age, and gender, and the criterion variable of achievement (ACT). The results found a small inverse relationship between a student’s self-reported spiritual intelligence (SISRI-24) and the participants’ achievement (ACT) that was not statistically significant. The demographic variables of age and gender were predictors of achievement while the SISRI-24 was not.

Descriptors: academic achievement, spiritual intelligence, gender, age
DEDICATION

To David Smartt, my beloved husband, who encouraged and pushed and inspired me to be the best I could be. I love you more than I can say.

To my children, Jennifer and Anthony Minutolo, Chris and Bianet Smartt, and Tiffany and Matt Miller, thanks for being the best children anyone could wish for. May you keep working toward your dreams.

To my grandchildren, Hayley, Makenzie, Jonah, Cara, Matty, Caed, and Emma, thanks for being my greatest joy and hope for the future.

To my Mother, Jean Wiley Turner, who always told me I could do anything I wanted if I worked hard enough. Thanks for always believing in me. I miss you, Mama.

To my sister, Joan White, may you soon join me in this educational journey. You are one of the most loyal and remarkable people I know, and I am so proud of you.

To the Kuhlman’s, Charles and Kendra, your support and prayers were invaluable.

To my editors, Robin Penfold and Dr. Toni Flanagan, your editing was crucial, and I could not have completed this process without your insight.

To The Power 10, thanks for coming alongside and being there for me when I really needed it. Brenda, Karen, Sandy, Lisa, Audrey, Rebecca, Shelley, Claudia, and Judy, you are awesome ladies, and I highly value your friendship.

To all of my family and friends, those who assisted me in prayers and encouragement, you know who you are and your help was greatly appreciated.
ACKNOWLEDGEMENTS

To Dr. Kathie Morgan, thank you for getting me through this process and for never letting me forget that this dream was a “when and not an if.”

To Dr. Joseph Fontanella, thank you for encouraging me and helping me recognize and affirm that I had the skills to complete this process.

To Dr. Amy Doolittle, thank you for all the Panera runs and help with statistics. SPSS would have been impossible without your mentoring and resources.

To Dr. Amanda Szapkiw, thank you for making so many relevant recommendations on my prospectus and serving as my research consultant. You are the model of the professor I aspire to be.

To Dr. Scott Watson, thank you for recognizing the possibilities in this research plan and encouraging me to extend the parameters of my research to all students.

To Dr. Ashley Smith, a special thanks for your advice and infinite wisdom that were often the turning points in my research. Your help was more than you realized.

And lastly to Dr. Jill Jones, who died just two weeks after I was in her class. I will never forget her admonition that “She who works the hardest, learns the most.” May I learn to represent Christ with the passion you exemplified in your life.
# Table of Contents

DEDICATION ............................................................................................................... 4  
ACKNOWLEDGEMENTS ......................................................................................... 5  
LIST OF TABLES ..................................................................................................... 9  
LIST OF ABBREVIATIONS ..................................................................................... 10  
CHAPTER ONE: INTRODUCTION .......................................................................... 11  
  Background ........................................................................................................ 12  
  Problem Statement ............................................................................................ 15  
  Purpose Statement ............................................................................................. 17  
  Significance of the Study .................................................................................. 19  
  Research Questions .......................................................................................... 20  
  Hypotheses ........................................................................................................ 20  
  Identification of Variables .............................................................................. 21  
  Definitions ......................................................................................................... 24  
CHAPTER TWO: LITERATURE REVIEW ................................................................. 28  
  Conceptual or Theoretical Framework ............................................................ 30  
  Review of the Literature .................................................................................. 40  
  Age ................................................................................................................... 41  
  Gender ............................................................................................................... 58  
  Achievement .................................................................................................... 65  
  Spiritual Intelligence ......................................................................................... 80  
  Summary .......................................................................................................... 103  
CHAPTER THREE: METHODOLOGY ..................................................................... 107
CHAPTER FOUR: FINDINGS ........................................................................................................ 129
  Descriptive Data .................................................................................................................. 130
  Descriptive Statistics .......................................................................................................... 131
  Correlation of Predictor Variables and Achievement ....................................................... 131
  Assumption Testing ............................................................................................................ 133
  Results of Hierarchical Regression Model ....................................................................... 134
  Findings Summary .............................................................................................................. 137

CHAPTER FIVE: DISCUSSION .................................................................................................. 138
  Summary of Findings .......................................................................................................... 139
  Discussion of Findings and Implications Based on Literature ........................................ 140
  Limitations of the Study ..................................................................................................... 145
  Methodological and Practical Implications ....................................................................... 148
  Recommendations for Future Research ........................................................................... 160
  Conclusion .......................................................................................................................... 162

REFERENCES ......................................................................................................................... 166
LIST OF TABLES

Table 1: Content and Explanation of American College Test ............................................. 114
Table 2: Content and Explanation of Subscales Found in SISRI-24 ................................. 117
Table 3: Assumption Tests Conducted ................................................................................. 123
Table 4: Methodologies Surveyed and Considered .............................................................. 126
Table 5: Entry of Data Sources into Sequential Multiple Regression Analysis ............... 127
Table 6: Percentages of Student Participants by Gender and Age Groups ....................... 130
Table 7: Mean and Standard Deviation of Criterion and Predictor Variables .................. 131
Table 8: Correlation Matrix of Control and Predictor Variables ....................................... 132
Table 9: Regression Analysis Summary 1 ............................................................................ 135
Table 10: Regression Analysis Summary 2 ......................................................................... 136
Table 11: National and Southeast Region ACT Scores ...................................................... 158
LIST OF ABBREVIATIONS

American College Test (ACT)
Behavior Episodes Schemata (BES)
Emotional Intelligence (EI)
English as a Foreign Language (EFL)
Intelligence Quotient (IQ)
Motivational Systems Theory (MST)
No Child Left Behind (NCLB)
Organisation for Economic Cooperation and Development (OECD)
Programs in International Reading Literacy Study (PIRLS)
Program for International Student Assessment (PISA)
Spiritual Intelligence Self-Report Inventory-24 (SISRI-24)
SISRI-24 Subscales:
  - Critical Existential Thinking (CET)
  - Conscious State Expansion (CSE)
  - Personal Meaning Production (PMP)
  - Transcendental Awareness (TA)
Science, Technology, Engineering, and Mathematics (STEM)
Trends of International Mathematics and Science Study (TIMSS)
Zone of Proximal Development (ZPD)
CHAPTER ONE: INTRODUCTION

Underachievement has long been a chief concern among educators. Although many theories and strategies have been proposed, student scores in the United States continue to fall when compared internationally (Armario, 2010). Several issues such as educational expenditures, effective class size, favorable home support, and school related factors (Nokelainen, Tirri, Campbell, & Walberg, 2007) have been presented as solutions. However, there is growing evidence that values, motivation, work and study ethics of students have a greater impact on achievement (Ornstein, 2010) implying the answers may lie within the students themselves. The Motivational Systems Theory (MST) proposed by Martin Ford (1992) gives support to this premise. Theories advocated by Maslow (1971) about the importance of meeting self-actualization needs and the ideas that expand traditional views of intelligence proposed by Gardner (1983) and Goleman (1995) have enlarged parameters so that more nontraditional ways of improving academic success are being considered. Recent studies that advocate the importance of emotional intelligence on achievement (Alumran & Punamaki, 2008; Nasir & Masrur, 2010) have also led some educators to explore the inclusion of internal motivating factors. A relatively new concept called spiritual intelligence (SI) that encourages problem solving and critical existential thinking has recently come under serious consideration. Several studies that involve SI have occurred in other countries (Azizi & Zamanian, 2013; Gallagher, Rocco & Landorf, 2007; Hosseini, Elias, Krauss, & Aishah, 2010; Raftopoulos & Bates, 2011) and on the college level (Astin, Astin, & Lindholm, 2011; Bolghani-Abadi et al., 2012; Capeheart-Meningall, 2005; Cassidy, 2012; Green & Noble, 2010), but few with secondary students (Sisk, 2008; Tirri, Tallent-Runnels, & Nokelainen, 2005), and there are none that address the idea of its influence on academic achievement. Therefore, the researcher
invented the hypotheses that SI functions as an internal motivator that has a relationship as well as is a predictor of achievement when variables of age and gender are controlled. This research examined the self-reported spiritual intelligence of secondary students to analyze if there could be a possible relationship with achievement. This chapter briefly introduces the historical and theoretical studies that provide the foundation for this research. The problem, purpose, and significance are revealed as the research questions, hypotheses, variables and definitions salient to this study are presented.

Background

Achievement in American schools is the primary goal and concern for educators (Walberg, 2010) and parents (Westerlund, Gustafsson, Theorell, Janlert, & Hammarström, 2013). Traditionally, educators test for cognitive achievement using subjective measures such as grade point averages or objective scores from tests for verbal or mathematical domains (De la Fuenta & Cardelle-Elawar, 2009; Guay, Ratelle, Roy, & Litalien, 2010; Olson, 2008). In the past few years, some educators have challenged this cognitive restriction. Research indicates that to develop the whole child, educators must nurture more than just cognitive intelligence (Ford, 1992; Revell, 2008). In fact, some findings suggest that a student must be encouraged to develop in multiple constructs to include “social, physical, intellectual, career, psychological, cultural, and spiritual development” (Capeheart-Meningall, 2005, p. 31). In addition, cognitive development proponents such as Piaget (1983) and Kohlberg (1981) contend that adolescence is a particular time of confusion that may cause upheaval, implying that the teenage secondary school years are crucial for life development.

Most discussions of cognitive development include theories and definitions of intelligence. An important contributor to the discussions on encouraging the facets of
intellectual constructs is Howard Gardner. Although his concept of multiple intelligences is very popular in educational discourse, his theories have yet to be validated (Waterhouse, 2006). In his seminal work *Frames of Mind: the Theory of Multiple Intelligences* (1983), he identified seven areas of intelligence as linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, and intrapersonal. In the ensuing years, Gardner updated and expanded his original theory and considered several other learning modes such as naturalistic, spiritual, and existential intelligences. Of these last three, the only one he felt definitively fit his model of an intelligence was the naturalistic mode (Gardner, 1999). Robert Sternberg of Yale University stated that while Gardner contemplated the inclusion of the other two, he has not fully embraced them and in fact considers them “candidate intelligences” (1999, p. 296). However, in his discussions of what constitutes an intelligence, Gardner recognized that while both spiritual and existential concepts have elements that suggest consideration, he felt that neither totally corresponded to his definition of an intelligence.

Other professionals are not so hesitant. In their book *Spiritual Intelligence: Developing Higher Consciousness* (2001), Sisk and Torrance not only acknowledge the existence of spiritual intelligence, they suggest that this concept incorporates and enhances all of the other intelligences. Their research was based in part on the theories of Abraham Maslow (1971), a humanistic psychologist who studied why people do what they do. One of the main tenets of his theory was the “concept of self-actualization … which … describes the tendency of humans to fulfill their potential, to become what they can become” (Krapp, 2005). To help students fulfill their potential while recognizing their individual characteristics has become important to educators dedicated to reinforcing achievement. However, the continued failure of students to reach maximum academic capabilities or potential is a recurring dilemma for educators.
Research into the disquieting trend of student underachievement reveals several factors that contribute to failure, makes recommendations to rectify the issue, and yet provides few real answers or positive solutions for educators. Some researchers indicate that students are simply not interested in the learning, nor are motivated to achieve (Balduf, 2009; Baslanti & McCoach, 2006). Ford’s Motivational Systems Theory (MST) defines motivation through organized patterns that guide how a student is directed, energized, and regulated (1992). Other studies show that certain factors such as school or personal environments can have a positive influence on achievement (Hoover-Schultz, 2005). The inclusion of character or moral education (Winton, 2008), the insertion of social development (Viadero, 2003), and even the exploration of emotional intelligence (Goleman, 1995; Qualter, Whiteley, Morley, & Dudiak, 2009) have been indicated as influencing achievement. Recent interest in spirituality on wellness and resiliency in such diverse fields as medicine (Mueller, 2010; Smith & McSherry, 2004; Thoresen, 1999; Yang, 2006), psychology (Ruddock & Cameron, 2010), counseling (Jankowski, 2002; Suyemoto & MacDonald, 1996), adolescent psychiatry (Josephson & Dell, 2004), business leadership (Christ-Lakin, 2010; Gallagher, Rocco, & Landorf, 2007; Luckcock, 2008), and the military (QuickSeries, 2010; Wester, 2011) provide evidence that there are positive benefits to encouraging the spiritual development of their constituents. Therefore, some professionals believe that this spiritual component is indeed a form of intelligence and should be incorporated into educational curricula (Halford, 1999). Of particular concern for the current study is whether a student’s development in these diverse constructs, particularly in the spiritual realm, affects his or her academic performance. There is evidence that a student’s moral development (DeGaynor & Day, 2011; Winton, 2008) and values clarification (Mosconi & Emmett, 2003) may provide motivation to perform, yet to what extent these influence spiritual development have not been
Researchers have investigated the influence of spiritual elements on academic performance at the college level (Astin, Astin, & Lindholm, 2011; Bolghani-Abadi et al., 2012; Capeheart-Meningall, 2005; Cassidy, 2012; Green & Noble, 2010), yet there are few studies that deal with this concept at the secondary level (Revell, 2008; Sisk, 2008; Tirri et al., 2005), and none address the concept of achievement. In an effort to help educators and parents understand if including a spiritual component will aid in whole child development and ultimately motivate achievement, the current study examined if there was in fact a relationship between a student’s self-reported spiritual intelligence and his or her achievement.

**Problem Statement**

As a nation, the United States is failing to compete globally in academic achievement. The problem addressed in the current study is twofold, with both components dealing with student underachievement. The first concern is that students are failing to reach individual potential, and second that the United States is failing in global academic competition. The search for valid solutions to remediate underachievement has yielded non-traditional methods of internal motivation and resiliency with emotional and even spiritual implications.

According to an article by *GreatSchools*, “Students in the United States performed near the middle of the pack. On average 16 other industrialized countries scored above the United States in science, and 23 scored above us in math” (Wilde, 2009, para. 2). In 2011, students in the United States were found to be in the 32nd percentile in mathematics with a 23rd to 31st ranking among countries taking the Program for International Student Assessment or PISA (Peterson, Woessman, Hanushek, & Lastra-Anadón, 2011). This test is given by the Organization for Economic Cooperation and Development (OECD) to 15-year-old students in 65 countries worldwide. If this trend continues, the United States will be unable to compete with
other nations and will fall behind not only in technology but in other areas as well, reducing the country’s international competitive edge. In fact, in 2012 the United States fell to seventh in global economic competitiveness (Campbell, 2012). The World Economic Forum uses 12 indices to rate countries, with education being one of those measures. If the educational achievement does not improve, neither will the economic environment. It is imperative that the American academic community adapt changes to ensure that the country’s global competence continues.

Several studies make positive recommendations to educators for increasing achievement. The single most important factor studied is the effect of motivation on school performance (Brewster & Fager, 2000). Mosconi and Emmett (2003) suggest that increasing incentives to perform while exploring values may increase student engagement, even as evidence that students who participate in spiritual and religious activities show positive developmental results (Benson, 2004). A study of the relationship between measures of intelligence and characteristics of personality with transcendent belief systems indicated that these belief systems were associated with a higher proficiency in knowledge acquisition and exhibited abilities that enhanced performance such as processing speed, memory, critical judgment, persistence, and motivation—all of which are requirements for navigating novel situations (Lukey & Baruss, 2004). However, there has been no research conducted to examine the effect of spiritual values on motivation, nor its impact on achievement. There is some evidence that suggests that achievement is affected by multiple constructs (Nokelainen et al., 2007; Steinmayr, Ziegler, & Trauble, 2010) to include emotional (Nasir & Masrur, 2010) or affective (Kornilova, Kornilov, & Chumakova, 2009) components. In addition, current trends in education advocate development of the whole child (Capeheart- Meningall, 2005; Ford, 1992; Miller, 1999) to include the spiritual (Sisk &
Torrance, 2001). Consequently research needs to be conducted to verify if in fact a student’s spiritual intelligence acts as an internal motivator that encourages or predicts his or her achievement. Therefore, the problem the current study investigated was the effect of a secondary student’s spiritual intelligence on his or her achievement.

**Purpose Statement**

The purpose of this non-experimental, correlational quantitative research study was to test the MST (Ford, 1992) that relates spiritual intelligence to achievement while controlling for age and gender in two public and two private secondary schools in the southeast. The criterion variable of achievement was defined and measured by the American College Test (ACT) that is often used by states (including the one used in the current study) to measure end of year achievement (ACT, 2013a). The predictor variable of spiritual intelligence used a 24-question assessment entitled The Spiritual Intelligence Self-Report Inventory (SISRI-24), developed by D. King (2008) that measured a student’s own perceived spiritual insights. The SISRI-24 has been used in a similar study (Azizi & Zamaniyan, 2013) that found SI was significantly correlated with vocabulary learning strategies. The predictor variables of age and gender were statistically controlled in this current research. Both of these variables have been shown, in other studies, to have predictive influence on the participants’ achievement (Cokley, McClain, Jones & Johnson, 2011; Sheard, 2009). In addition, the predictive value of the individual SISIR-24 subscales of critical existential thinking (CET), personal meaning production (PMP), transcendental awareness (TA), and conscious state expansion (CSE) were analyzed in the current study.

The motivational systems theory (MST) indicates that motivation is the key to overcoming or solving many of society’s problems and is an influence on personality and behavioral development. Research indicates that the MST is a strong predictor of performance.
in college students and females particularly (Campbell, 2007) suggesting its influence may support this study. That higher levels of SI correspond with higher levels of motivation, and that within these motivational concepts it is possible to discover spiritual resources or connections that may be useful in enhancing or supporting their activation in educational achievement.

Two sequential (hierarchical) regression analyses were chosen for this study because they allowed the researcher to choose the order of entry of variables into the analysis based upon logical or theoretical premises. As previously stated, age and gender have been shown in other studies to have predictive value on achievement and thus needed to be controlled or eliminated from the equation. Both analyses entered age and gender into Block 1 of the regression model. To avoid strong inner correlations that prevent relevant interpretations or the confounding of variables between the Total SISRI-24 and its subscales, separate regression analyses were conducted as recommended by Meyers, Garnst & Guarino (2012). Therefore, Total SISRI-24 was entered into Block 2 in the first analysis and the SISRI-24 subscales—CET, PMP, TA, and CSE were entered into Block 2 in the second analysis.

These statistical tests were identified as the best analyses to measure the strength of the relationship between the variables of interest, to identify if any of the predictor variables had predictive value on the criterion variable, and to control by order of entry into the regression blocks variables that might obscure true relationships between variables. Therefore, the relationship between the criterion and independent variables, either positive or negative, identified the cognitive impact they had on the participants and which had more or less influence, the demographic or subscale variables.
Significance of the Study

In the current political and educational climate, the underachievement of students is a major concern facing educators. In 2001, No Child Left Behind (NCLB) initiated legislation that required schools to meet certain minimal standards and had as its core premise the idea that all children should receive the best instruction possible and not be forsaken or overlooked. Although there was much conflict surrounding the legislation, few educators objected to its major premise. With budget restraints and the possible punitive factors surrounding NCLB, teachers searched for answers to improve the academic outcomes of underperforming students. In 2010, 45 states approved the Common Core State Standards Initiative in an effort to establish a single set of clearly defined educational standards for students from kindergarten to 12th grade (National Governors Association, 2010). One of the primary goals of the Common Core curriculum was to present students and teachers with a consistent curricular path that would provide students with sufficient English language and mathematical skills to be ready for college success, thus hoping to overcome obstacles incurred in NCLB. Both of these initiatives were developed in an attempt to overcome individual failure of American students as well as to compete in a global economy. There has been some evidence that allowing students to focus on and articulate their values may help meet these politically sanctioned achievement goals.

Mosconi and Emmett (2003) cite a study by Brown and Crace (1996) that contends a student who is:

- able to identify his or her own values is able to attribute worth to situations and objects and, therefore, make personally satisfying choices. Conversely, a lack of clarity in values … and choices leads to a lack of motivation, poor decision making, and dissatisfaction.

(para. 13)
This suggests that allowing students to explore their own values may have positive influences on behaviors and engagement, thus influencing achievement. Consequently, the current research study attempted to determine whether the inclusion or exploration of values, particularly in the spiritual realm, would help focus learning and engagement, leading to the success of secondary students in public or private schools.

**Research Questions**

The research questions for this study are

**RQ1:** Is there a statistically significant relationship between spiritual intelligence as measured by the total score on The Spiritual Intelligence Self Report Inventory-24 (SISIR-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled?

**RQ2:** Do the demographic variables of age and gender contribute to the model that predicts achievement on the American College Test (ACT)?

**RQ3:** Does spiritual intelligence as measured by the four spiritual subscales on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT)?

**Hypotheses**

The research hypotheses for this study are

1. There is a statistically significant relationship between spiritual intelligence as measured by the total score on the Spiritual Intelligence Self-Report Inventory-24 (SISRI-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled.
2. The demographic variables of age and gender do contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

3. The four subscales of spiritual intelligence as measured on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) do contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

Null Hypotheses

The Null Hypotheses are

1. There is no statistically significant relationship between spiritual intelligence as measured by the total score on the Spiritual Intelligence Self-Report Inventory-24 (SISRI-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled.

2. The demographic variables of age and gender do not contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

3. The four subscales of spiritual intelligence as measured on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) do not contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

Identification of Variables

The intent of this non-experimental correlational quantitative study was to identify if a student’s spiritual intelligence would serve as a motivator that would positively correlate with the student’s achievement while controlling for the variables of age and gender. In order to
clarify the parameters of this research, each of the variables—age, gender, academic achievement, and spiritual intelligence—are explained and defined in the following section.

Academic achievement as a variable is difficult to assess. Some studies simply measure this achievement using grades from class work (De la Fuenta & Cardelle-Elawar, 2009) or composite grade point averages (Guay, Ratelle, Roy, & Litalien, 2010; Olson, 2008); however, these are very subjective and may not be considered a valid indicator of success. A more valid definition identifies or correlates school achievement with intelligence (Kuncel, Hezlett, & Ones, 2004), and is usually identified with performance on intelligence tests. Consequently, for the sake of this research study, achievement was defined using a standardized achievement test, The American College Test (ACT), that measured “mastery and proficiency in different areas of knowledge by presenting subjects with a standard set of questions involving completion of cognitive tasks” (Ary, Jacobs, Razavieh, & Sorensen, 2006, p. 218).

Spiritual intelligence as a variable of interest is even more difficult to define. Howard Gardner, in his work on intelligences, recognized multiple realms of knowing (1999) and one kind of intelligence that he mentioned, although did not endorse, included a spiritual construct. Each proponent of spiritual intelligence includes his or her own definition of the concept. However, all seem to include, but are not limited to, common concepts such as use of spiritual inclinations for problem solving, exploration of existence, transcendence, and heightened consciousness or awareness (Emmons, 2000; King 2008; Sisk, 2008). One study defines spiritual intelligence “as the capacity to use a multisensory approach – including intuition, meditation, and visualization–to access one’s inner knowledge in order to solve problems” (Sisk, 2008, p. 24). For the current study, the researcher chose to use the definition presented by King (2010b), the author of the Spiritual Intelligence Inventory used in this research:
In an attempt to accurately reconceptualize the construct, spiritual intelligence is currently defined as a set of adaptive mental capacities which contribute to the awareness, integration, and adaptive application of the nonmaterial and transcendent aspects of one’s existence, leading to such outcomes as deep existential reflection, enhancement of meaning, recognition of a transcendent self, and mastery of spiritual states. Four core components are proposed: critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion. (para. 2)

Although lengthy, this definition emphasizes the mental capacities used to release the spiritual abilities that allow people to reach their inner knowledge or self. This realization is then used for reasoning or problem solving and underscores how spiritual intelligence enhances meaning in tasks or goals of the student. King used the four proposed components to expand and further delineate exactly what spiritual intelligence includes.

Gender is a label used to identify the sex of a student as either male or female. It is a dichotomous visible characteristic or biological attribute of each child (Slavin, 2003). As a variable in academic research it has had some contradictory findings. The decline in achievement among males has been a troubling concern for the last decade (Clark, Flower, Walton & Oakley, 2008; Gibb, Ferguson, & Horwood, 2008). In contrast to this argument, evidence purports no appreciable difference between males and females in relation to achievement or cosmologies (Bryce & Blown, 2007). Small differences have been found in relation to females scoring slightly higher on standardized tests whereas males have been shown to exhibit more behavior problems (Gibb et al., 2008). While achievement has been measured, few studies have dealt with the subject area of gender and spirituality. One study cited was administered by Tamminen (1996), who conducted several quantitative and qualitative studies on
the religious differences between males and females between 1974 and 1980. He found that “On the average girls of our study were more interested in religious education as well as in school in general, which is also reflected in their better school success \( p < .001 \) in all grades” (p. 172). One caveat has been found in a study by Nasir and Masrur (2010) that correlated emotional intelligence (EI) with gender. Although noting several studies with conflicting results, the researchers found there were no mean correlational differences between male and female subjects overall, but males did score higher on the EI stress management scale.

The last variable included in this research study was age, which is defined as “the age of an individual in years” (Slavin, 2003, p. 524). The concept of chronological age or maturation usually has been included in discussions of development. The main theories of development include discourse on the cognitive, social, psychological, and moral maturation of students. Perhaps the most influential for this research has been the work of Jean Piaget (1896-1980), whose stages of cognitive development define when a child is prepared to grow and learn (Piaget & Inhelder, 2000). Expanding the cognitive growth theories to include moral and social development were such theorists as Erik Erikson (1902-1994), Lawrence Kohlberg (1927-1987), and John Rawls (1921-2002). While age has been examined often in studies that explore emotional intelligence and achievement (Alumran & Punamaki, 2008; Nasir & Masrur, 2010; Shipley, Jackson, & Segrest, 2010), the concept in relation to spiritual intelligence and achievement has been unexplored. The current research in spiritual intelligence was conducted to observe whether any differences might have occurred as the participants matured.

**Definitions**

_Achievement:_ A measurement used to identify academic success of students. Some factors used to indicate success may be grade point averages (Guay et al., 2010) or dropout rates
(Clark et al., 2008). For the current study, achievement was measured through scores earned on the American College Test (ACT).

**ACT:** The abbreviation for The American College Test which is a standardized, multiple choice test that measures English, mathematics, reading, and science content knowledge (ACT, 2013a). For the current study it was used as the measure of a student’s achievement.

**Age:** In relation to achievement and school performance it describes the traditionally accepted chronological period in a child’s life at which a benchmark, level, or goal is reached (Reber, Allen, & Reber, 2009). For the current research study the participants' age range was 12 to 19 years.

**CET:** Critical Existential Thinking is the first subscale of the SISRI-24. It is the contemplation of one’s purpose or existence and connection to the universe as well as such topics as life and death, reality, truth, or justice (King, 2010a).

**CSE:** Conscious State Expansion is the fourth subscale of the SISRI-24. It describes the power to control and move into higher spiritual planes through deep meditation, prayer, or contemplation (King, 2010a).

**Gender:** The biological sex of the student identified as male or female. This is a permanent attribute and in all cultures the two are treated differently and influence behavior (Slavin, 2003).

**Motivational Systems Theory:** An achievement motivation concept developed by Martin Ford (1992) that explains how humans function through direction, energization, and regulation. His formula for Motivation = Goals x Emotions x Personal Agency Beliefs. The rationale for his motivation theory is anchored in holistic human development that is central to overcoming most
of societies’ epidemic problems while providing a psychological basis for proficiency
development in students’ lives.

_Multiple Intelligence Theory:_ A system of defining intelligence into eight distinct
classifications or abilities, introduced by Howard Gardner. These abilities are described as
linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal,
and naturalistic (Gardner, 1983).

_OECD:_ Organisation for Economic Cooperation and Development is a Paris based
organization that develops and administers the PISA exam (Armario, 2010). The mission of this
government forum is to encourage the development of policies to improve social well-being and
economic growth for world populations (Organisation, 2012).

_PISA:_ The Program for International Student Assessment is an international evaluation
that quantifies 15-year-old students’ literacy in reading, mathematics, and science. The test is
administered by OECD and was first conducted in 2000 and is administered every three years
(U.S. Department of Education, 2012,). It is one of several assessments that compare levels of
educational achievement across national boundaries and is considered by some to be the most
comprehensive (Armario, 2010).

_PMP:_ Personal Meaning Production is the second subscale of the SISRI-24. It is the
ability to create meaning and purpose in one’s life and to discern this purpose from both mental
and physical experiences, even in failure (King, 2010a).

_Self-Actualization Theory:_ A key premise of Abraham Maslow, a founding father of
humanistic psychology. To gain self-actualization is an on-going growth process where a person
must be honestly self-intuitive and aware. He or she faces and recognizes peak experiences that
occur because they take personal responsibility for their own lives. This wise decision making
ultimately allows for a renouncement of defenses (Maslow, 1971). In other words, self-
actualization describes a person’s ability to reach his or her own potential (Slavin, 2003).

*SISRI-24:* The instrument used in this current study to measure the variable of spiritual
intelligence. It is a 24-question, self-report inventory that uses a Likert scale to measure spiritual
intelligence. It was created and validated by David B. King in partial fulfillment of a Master’s
thesis at Trent University located in Peterborough, Oshawa, Ontario, Canada. It has been
published and critiqued by other researchers in academic publications (King, 2008).

*SI:* Spiritual Intelligence is a controversial concept that attempts to bridge the rational to
the divine. It is defined as the innate ability to access spiritual resources to solve problems and
improve one’s daily life (Amram, 2007, p. 1).

*TA:* Transcendental Awareness is the third subscale of the SISRI-24. It is the capacity to
perceive the *big picture* or dimension of life that is not material and goes beyond normal
experiences. This awareness of spiritual dimensions of existence can be personally observed, as
well as recognized in others (King, 2010a).

*Underachievement:* A student’s failure to meet or reach academic goals over time and is
usually defined as a discrepancy between his or her ability and measures of success, such as IQ
(Delisle & Berger, 1990), report cards, or achievement test scores (Staudt, & Neubauer, 2006).

*ZPD:* The Zone of Proximal Development is a theory proposed by Lev Vygotsky, a
Soviet psychologist, that learning is more a social, cultural construct that exists one stage of
development beyond the student's current learning level (Slavin, 2003). Vygotsky hypothesized
that learning occurred more through a support system than as a reflection of natural intelligence.
This supportive process he termed a “scaffold” (Morris, 2008).
CHAPTER TWO: LITERATURE REVIEW

Student achievement is considered to be one of the most central goals of educational stakeholders in the United States. Often it is valued above other worthy outcomes such as self-esteem, commitment to being a lifelong learner, and even service to the community (Grant, 1995). Consequently, most of the prevailing literature concentrates on how to best prepare students for academic success. Conventional discussions about achievement usually focus on which factors are most influential, the gaps that may exist, and how to alleviate underachievement. While most agree on the importance of intelligence to achievement, consensus on definitions of intelligence are not as absolute. In fact, in recent years other ideas of intelligence have emerged through the theories of multiple intelligence by Gardner (1983); philosophies about emotional intelligence purported by Goleman (1995); and perhaps the most elusive and controversial—the concept of spiritual intelligence championed by Zohar and Marshall (2001), and Sisk and Torrance (2001), among others. Current researchers have studied the impact of intelligence, age, and gender on achievement in multiple studies and scenarios, such as intelligence and educational achievement (Deary, Strand, Smith, & Fernandes, 2006); leadership capacity of gifted African American males (Bonner, Jennings, Marbley, & Brown, 2008); gender effects in child development (Bryce & Blown, 2007); middle school boys’ underachievement (Clark et al., 2008); age-related differences in achievement goals (Bong, 2009); reading results among junior and senior high school boys and girls (Conrad-Curry, 2011); differences in spirituality, mystical experiences, and wisdom (Le, 2008); an analysis of spirituality on a child’s development (Smith & McSherry, 2004), and gender differences in achievement to age 25 (Gibb et al., 2008). As the concept of spiritual intelligence becomes more prevalent and accepted, more support for the topic is being found. Recent studies have explored
the relationship between SI and vocabulary learning strategies in English as a Foreign Language (EFL) learners (Azizi & Zanamiyan, 2013), its role in predicting quality of life (Bolghan-Abadi, Ghofrani, & Abde-Knodaie, 2012), and the relationship of SI to adolescence (Hosseini, Elias, Krauss, & Aishah, 2010). While research studies on spiritual intelligence are becoming more prominent, none have been conducted on the motivational relationship to achievement.

American educators are dismayed that achievement in the nation’s schools has failed to reach acceptable levels (Wilde, 2009) and students are still failing to reach their optimum potential. In an effort to understand the problems and implications of this situation and to find recommendations to rectify, the researcher evaluated the existing research that might yield insights. Conceptual frameworks that undergird the current study require an examination of Ford’s Motivational Systems Theory (MST), Maslow’s hierarchy of needs and self-actualization philosophies, Vygotsky’s social learning and Zone of Proximal Development (ZPD) concepts, and Gardner’s theory of multiple intelligences. Particular focus was then placed on the four main variables used in this study: age, gender, achievement, and spiritual intelligence.

A thorough appraisal of the literature helped ground this study by revealing the findings of existing research on the variables utilized. Reports on age included the seminal developmental theories of Piaget, Erickson, Kohlberg, Rawls and Fowler; the existing reports and results of investigations on age and achievement; and a look at the major faith groups of Buddhism, Christianity, Hinduism, Islam, and Judaism revealed when age becomes a factor for spiritual development and educational attainment. A look into the variable of gender provided evidence to support biological and gender theories that revealed surprising changes in achievement between males and females in the United States. Studies on achievement, the criterion variable, included research on achievement that highlighted the positive factors that
contribute to success, the gaps that detract, the impact of motivation and values on individual achievement, as well as the causes and ramifications of underachievement. Research studies on the last variable, spiritual intelligence, revealed findings on intelligence and historical intelligence testing, while delineating intelligence theories, and exploring the connection between spirituality and intelligence. Obtaining a definition of spiritual intelligence provided evidence that students may well benefit from exploring their personal spiritual constructs. Lastly, a look at spiritual values as they influence students’ achievement, spiritual development, and the limitations of the concept of spiritual intelligence provide discourse in support of the major premise of this investigation--that spiritual intelligence might indeed be a motivator that affects achievement in secondary students when the variables of age and gender are controlled.

**Conceptual or Theoretical Framework**

Although the concepts of Spiritual Intelligence are fairly new, the foundational psychological theories on which it is based are not. The current research is established on four major theories: the cognitive motivational theory called Motivational Systems Theory developed by Ford, the role of hierarchy of needs and self-actualization of learners developed by Maslow (1908-1970), the social embedded learning and Zone of Proximal Development (ZPD) that scaffolds learning advocated by Vygotsky (1896-1934), and the theory of multiple intelligences purported by Gardner (1943- ).

The first theory discusses one of the most important concepts linked to student achievement--motivation. Siegle and McCoach (2005) contend that teaching students to value the learning–either the task or the outcome–is crucial in motivating students. When looking to improve achievement, there are many motivational theories available. For the current study, the researcher chose one that purports to improve cognitive functioning through motivation and
achievement. Martin Ford (1992), during his tenure as an administrator and professor at Stanford University, synthesized many of the existing theories and concepts for motivation into one construct. He developed a unified support scheme called Motivational Systems Theory (MST).

The rationale for his motivation theory is anchored in holistic human development that is central to overcoming most of societies’ epidemic problems while providing a psychological basis for proficiency development in students’ lives. MST incorporates three main concerns of the patterns of behavior involved in human motivation. It describes human psychological functioning that assists to direct, energize, and regulate student behaviors. In other words it describes where people are going, how they get interested or excited about the process, and how they behave and persevere once they arrive.

MST evolved from an earlier parent work called Living Systems Framework (LSF) developed with his father (Ford, 1987). LSF is a “comprehensive theory of human functioning and development that is designed to represent all of the component processes of the person and how they are organized in complex patterns of unitary functioning in variable environments” (Ford, 1992, p. 12). By embedding his motivational theory into a living systems framework, he is able to show how humans utilize motivational processes effectively or ineffectively to interact within their larger environment.

Ford’s MST presents two formulas with particular relevance for the current study. The first is his heuristic formula defining achievement that delineates his view of the necessary components to achieve: Achievement/Competence = Motivation x Skill/Biology x Responsive Environment. In other words before a person can achieve they must be someone who wishes to succeed, has the capacities to complete the task, and who is in a supportive environment. The
second formula defines motivation and includes three required components. They are described by this phrase: Motivation = Goals x Emotions x Personal Agency Beliefs. Personal goals describe inner desires or wishes, whether used to achieve or avoid a situation. Emotions are components that help evaluate and interact with the environment through “affective, physiological, and transactional components” (1992, p. 252). Personal Agency Beliefs involve self-efficacy and self-competencies about one’s ability to achieve the goal.

The concepts in both of these formulas are interdependent and non-linear. Ford believes that in each formula, all components must be present for achievement or motivation to occur. If any of the three are missing, then the person’s optimal achievement may be diverted, may never occur at all, or may never be motivated to perform.

Undergirding Ford’s theory is the belief that education must consider the needs from a holistic framework. He termed this concept The Principle of Unitary Functioning. It is one that understands that humans always bring personality and history with them to any situation. This concept of whole child development is supported by Tisdell’s (2004) arguments that spiritual and religious orientations accompany students in classroom settings and should be considered.

Educators and Psychologists, interested in human motivation, must remember the bigger picture. They must not forget the holistic dimensions involved that suggest that before achievement can be gained, more than just intellectual needs must be addressed.

Another important aspect about MST is that people function unitarily within their environments. This functioning is called a behavior episode. They continue to strive to achieve a goal until they meet their goal, another goal supersedes importance of first goal, or they judge themselves unable to accomplish goal. These behavior episodes are explained as an: Instrumental episode – actively engaged in activity (output); Observational episode – seeking
information (input); or Thinking episode – enjoying the experience or creating a plan for the future. These functions become known as behavior episodes schemata or BES. This BES becomes what guides behavior for new experiences. Ford states, “BES provides guidance about what one should pay attention to and how one should think, feel, and act in a specific behavior episode” (p. 246). When building cognitive components that transfer BES to relevant behaviors, people develop constructs and rules for their lives that, when embedded, become meaningful for use in new situations.

Ford’s MST has been used successfully in several research studies. It was used in a research study that indicated the theory was a valid predictor of academic performance of college students (Campbell, 2007). In a study that utilized MST techniques for improving achievement in adult education classes, there was a marked improvement in the treatment class on motivation compared to the control group (Hutto, 2013). When utilized in distance learning or Asynchronous Web-based distance education (AWBDE) situation, MST was found to predict student completion of course work. It was noted that the MST instrument could be used as a predictor of success, as a diagnostic tool to monitor those needing additional supports, and could identify demotivating factors that impeded success (Jamison, 2003).

According to Ford, motivation provides the foundation for human functioning and development. Not only does it provide influence to assist in personality and behavior development, it can provide insight into demotivating aspects of a person’s social environments. One of the primary rationales for studying the impact of motivation is that in essence, it is at the heart of all of the most persistent problems faced by society. By learning to incorporate motivational incentives, humans can develop and achieve in their daily lives. This researcher
believed that MST provides a spiritual incentive to a student and thus functions to improve achievement.

The next theoretical framework to ground the current research was the work of Abraham Maslow (1908-1970), best known for his work in behavioral psychology and motivation. Two main tenets of his work have particular significance for individual growth, education, and the spiritual; thus making his concepts particularly salient to this research. His hierarchy of needs theory and concept of self-actualization have direct implications for not only achievement, but parallel and strongly support the major premises of spiritual intelligence as well.

One of the most well-known of Maslow’s theories is based on a hierarchy of needs pyramid. As he studied neuroses in his patients, he noticed a marked difference between patients who were sick and those who were well. Patients who were sick tended to be deficient or deprived of certain qualities or characteristics exhibited by those who were well. He felt that those identified with a neurosis suffered from “ungratified wishes for safety, for belongingness, and identification” (Maslow, 1968, p. 21). Simply stated, he observed that basic physiological needs he termed as *homeostasis*, or the body’s ability to maintain constancy, and appetite or hunger needs had to be met before any higher order needs could be considered. Once a person’s essential survival requirements were met, then he or she could move on to obtain higher order needs or desires. To provide clarity, Maslow (1943) described these needs in a ladder or pyramid of progression that contained the five main sets of goals: physiological, safety, love, esteem, and self-actualization, with the basic physiological needs being at the foundation and moving up to the highest self-actualization needs. Physiological needs are referred to as deficiency needs delineated as the need for safety, love, respect and information (Maslow, 1968). These are opposed to growth needs, which include “need to know and understand, aesthetic, and
self-actualization needs” (Slavin, 2003, p. 332). Although presented in this hierarchy, Maslow recognized there were no fixed restrictions in this order and felt some individuals needed to be fluid in the personal organization of their needs. For example, some individuals might have a greater need for esteem before love or safety. Implications for the current study center on the motivational necessity of fulfilling students’ basic physiological needs before achievement requirements can occur.

Self-actualization is the second major philosophy of Maslow that has important implications for the current research. The term was first used by the neurologist Kurt Goldstein in his work with brain-injured soldiers to explain the processes they utilized to rearrange their capabilities during recovery (Maslow, 1968). The ongoing process of self-actualization within individuals was expanded and defined by Maslow as an “actualization of potentials, capacities and talents, as fulfillment of mission (of call, fate, destiny, or vocation), as a fuller knowledge of, and acceptance of, the person’s own intrinsic nature, as an unceasing trend toward unity, integration or synergy within” (Maslow, 1968, p. 25). To be self-actualized is an ongoing process with the fundamental goal to develop all of one’s talents and to reach ultimate fulfillment. He felt that the primary goal of education was to help all to reach their ultimate capacities or to become self-actualized (Maslow, 1971).

Maslow described eight ways that a person can become self-actualized. To gain self-actualization, a person: (a) exhibits total absorptive self-awareness; (b) participates in an ongoing growth procedure; (c) listens to his or her inner voice; (d) allows personal intuition to guide his or her life; (e) honestly takes responsibility for his or her own actions; (f) makes wise choices for personal satisfaction; (g) encounters and recognizes when he or she has faced a peak
experience; and lastly (h) analyzes, identifies, and renounces personally erected defenses (Maslow, 1971).

The implications for educators are that students who are deficient in basic needs cannot fulfill their potential to learn, or become self-actualized. An article by Speirs, Neumeister, and Hébert (2003) identified several characteristics of students who failed to achieve self-actualization. They include “failure to complete school assignments, lack of school attendance, and an overall resistance to the societal expectations of the school culture” (p. 222). This nonconformity is often a precursor of failure.

Sisk (2002), in an article about her research with Torrance (1915-2003), stated Maslow’s work on self identity as foundational to their work with SI. Maslow discussed important aspects in self identity that are significant to understanding spiritual intelligence and its concepts. He felt that unfortunately, external educational experiences could sometimes squelch the internal, inherent natures of self. He encouraged a type of meditational separateness that allowed for the quietness necessary to search for one’s individuality or self. He said that “if you are successful…you can forget about the outside world and its noise and begin to hear these small, delicate impulse voices from within…from your own uniqueness” (Maslow, 1971, p. 179). This parallels Sisk’s (2002) beliefs that “Spiritual intelligence can be described as a deep self-awareness in which one becomes more and more aware of the dimensions of self, not simply as a body, but as a mind-body and Spirit” (p. 209). This reinforces Emmons (2000) view that “the intelligent use of spiritual intelligence can contribute to positive life outcomes such as emotional well-being, positive functioning, and an enhanced overall quality of life” (p. 20). Searching for self awareness and understanding inner identity are benefits of accessing spiritual intelligence. The self-awareness and search for one’s inner identity that can be accessed through utilizing
personal spiritual intelligence are perhaps the most crucial for learners to function and perform in the classroom and ultimately achieve. Le (2008) reinforced that point when he stated “religious or spiritual cultivation is a facilitating factor of the higher stages of human development” (p. 384). Further research would help support or reject Maslow’s self-actualization theory and its influence on learning and achievement especially in the realm of spiritual intelligence.

The research of Lev Vygotsky (1896-1934), a Soviet psychologist, presents another major theory that explains achievement and learning with implications for spiritual intelligence. He felt that a student’s learning was often a social construct and that “the intellectual ways of knowing the world that a student displayed were not primarily determined by … inherited intelligence or mental abilities” (Morris, 2008, para.3). Vygotsky was concerned with how learning affected a person’s development. Morris stated, “Most simply defined for here, Vygotsky referred to the distance between the abilities displayed independently and with social support as the ZPD [Zone of Proximal Development]; his thesis being that this ‘zone’ was created by learning” (para. 4). The basic premise is that children have a zone or an area in which they develop and learn, but beyond this zone and without assistance, the student cannot master the concepts. In terms of achievement, the zone theory may explain why students fail to learn in unsupported environments.

In addition to the ZPD, Vygotsky is best known for his theories on socially and culturally embedded learning. In his book on the social historical view of psychology, Carl Ratner (1991) writes that Vygotsky proposed the theory that intellectual development occurred via two distinct ways - through social contacts that are evidenced and then shaped by cultural artifacts belonging to each particular community system. In essence, Vygotsky believed that intellectual development originates only through the historical, cultural, and social relationships and
interactions experienced by individuals. In addition, the specific artifacts or symbolic signs of
the culture also serve to shape development. For example, the writing systems, language
patterns, signs and symbols produced in a society form how its constituents react to these items.
Whether a person eats with a fork or with their hands is learned within the societal customs in
which they are reared (Rieber & Salzinger, 1998). These two concepts, social contacts and
cultural artifacts, are of particular importance when discussing disparities of achievement in
American schools. According to Vygotsky, because learning takes place within both social and
cultural environments, then to a certain extent, what is learned reflects these two entities
implying that discrepancies may be reflective of cultural restrictions.

In essence, Vygotsky advocated selections that came from “a sociohistorical point of
view, of reaching beyond, of advancing the processes of human knowledge, in a way, helping to
form a new person” (Rosa, & Montero, 1990, p. 81). This formation of a “new person”
complements the spiritual intelligence principles of existentialism and personal meaning
production advocated by King (2008). Although Vygotsky did not mention the spiritual
specifically, there are implications that learning may be enhanced by incorporating the culture of
the student’s family. Ratner (1991) observed that “just as language, religion, and customs are not
the accidental discovery of an individual, so all higher psychological functions are creations of
the social community” (p. 15) reinforcing that religion and spirituality are social constructs. If
that social culture is steeped in the spiritual, then perhaps Vygotsky’s socio-cultural embedded
theory could support the premise that spiritual influences impact learning.

The last and most important contributor to the conceptual framework of the current
research is the Theory of Multiple Intelligences developed by Howard Gardner. In his book
*Frames of Mind: The Theory of Multiple Intelligences* (1983), Gardner set forth to challenge
existing thinking about intelligence as having only one dimension measured by an intelligence test. In other words, he was attempting to expand thinking about human potential. His definition of a human intelligence is “the ability to solve problems, or to create products, that are valued within one or more cultural settings” (1983, p. x). In addition, in order to be termed an intelligence, the skills must be important, useful, and include a majority of these eight criteria:

a) Potential isolation by brain damage.

b) The existence of idiots savants, prodigies, and other exceptional individuals.

c) An identifiable core operation or set of operations.

d) A distinctive developmental history, along with a definable set of expert ‘end-state’ performances.

e) An evolutionary history and evolutionary plausibility.

f) Support from experimental psychological tasks.

g) Support from psychometric findings.

h) Susceptibility to encoding in a symbol system. (Gardner, 1983, pp. 63-67)

Using these criteria, Gardner (2000) originally identified seven types of intelligence. “In addition to the linguistic and logical-mathematical form of intelligence . . . I proposed five additional intelligences . . . musical (composer, performer), spatial (sailor, architect), bodily-kinesthetic (athlete, dancer, surgeon), interpersonal (therapist, salesperson), and intrapersonal (individual with keen introspective skills)” (p. 28). Since his original publication, Gardner (2000) has added a naturalistic intelligence to his list, and in addition, has also considered spirituality as an intelligence. His main objection to adding spirituality to his list of intelligences is based primarily on the lack of brain research to support its inclusion. Although not fully
embracing the idea of spirituality as an intelligence, Gardner admits that several arguments for spiritual intelligence require further analysis and empirical scrutiny.

Gardner’s contributions to the intelligence debate and to the current research in particular are crucial. His empirically based research including not only the gifted and savants, but normal children and adults as well as brain damaged individuals, led him to the conclusion that intelligence cannot be reduced to a number on a single test. Because of his expanded definitions of other varieties of intelligence, he has opened the door to a consideration of the spiritual as an intelligence.

For the current study, the theories provided by Ford, Maslow, Vygotsky, and Gardner lay a solid foundation for the consideration of spirituality as an intelligence and its possible influence on achievement. While each contributed different perspectives, together they create a strong argument. The motivational systems theory developed by Ford, the hierarchy of needs and self-actualization process proposed by Maslow, in conjunction with Vygotsky’s culturally embedded and supported learning; give way to Gardner’s ideas of a multiple concept of intelligence. All four of these ideas are critical to the idea of spiritual intelligence empowering a student to achieve.

**Review of the Literature**

Educators are trying to rectify underachievement by finding methods and practices that identify the failures in the educational systems, and changing these failures to academic successes. This section presents the findings of current literature that center on the variables age, gender, achievement, and spiritual intelligence. The literature review of the first variable of age revealed psychological theories surrounding age, the impact of maturational age and theories of cognitive, moral, and faith development on academic outcomes, and the implications of age on
specific faith groups. The literature on gender discussed traditional gender roles and characteristics, gender theories, the school factors that impact gender, and also explored important considerations for this study on student achievement and SI. The third section of the review of literature examines important factors that contribute to the variable of achievement, the impact values place on achievement, and the inverse negative influences and causes of underachievement. Finally, the controversial fourth variable of spiritual intelligence includes a discussion of traditional intelligence as well as spirituality in order to further clarify a definition of spiritual intelligence.

Age

One significant variable that may impact achievement is a student’s age. Grade placement in schools is usually determined by only one factor—the chronological age of the student, even though there are controversies about optimum age for school entrance (Grissom, 2004). When discussing the development of children, there are age appropriate identifiers that characterize what a child should know by a certain time in their lives, which is delineated in the development theories of Piaget, Erikson, Kohlberg, Rawls, and Fowler, discussed later in this chapter. However, a child’s actual age in years gives little insight into their psychological growth. One study indicated that age at school entry and relative to one’s peers is a reason for variations between mean childhood intelligence by season of birth, which is defined as the quarter of the year in which the student is born (Lawlor, Clark, Ronalds, & Leon 2006). These findings were also indicated in a Flemish study that examined the effects of season of birth and achievement in primary students. Although there was a marked difference between student performance based on age at school entry, differences were found to dissipate over the next two years (Verachtert, De Fraine, Onghena, Ghesquière, 2010).
Chronological age is defined as “the number of years that have elapsed since birth” (Santrock, 2008) and are recorded ordinally. For most students, there are set ages in which they will encounter academic milestones, such as beginning school, transitioning to middle or high school, and culminating in graduation. Student achievement describes the traditionally accepted chronological period in a child’s life at which a specified benchmark, level, or goal is reached (Reber et al., 2009). However, equal chronological years do not equate to equal abilities or aptitudes. Therefore, in addition to birth considerations, there are several other concepts surrounding age with implications for academic and spiritual intelligence studies. Hoyer and Roodin (2003) identified biological, psychological, and social categories that are important to understanding what the term “age” means during a person’s life-span. Biological age refers to the health of one’s body and organs that may impact longevity of life. The ability of people to adapt to life circumstances in relation to their peers is termed psychological age while social age includes those activities and experiences that one expects to encounter during one’s lifetime. Santrock (2008) also adds a fourth classification called functional age which describes the activities a person is capable of completing that has implications for aging. The ability of student’s to understand their purpose in life and the reason for their existence, thus their spiritual intelligence, may be influenced by their age and have important implications for this research study.

The research studies conducted on age, and particularly its impact on achievement, have been varied and have produced different results. Many studies have coupled the research on age with achievement, gender and another variable such as attention processes (Trautmann & Zepf, 2012), achievement goal differentiation (Bong, 2009), depression (Yousefi, Mansor, Juhari, Redzuan, & Talib, 2010), or emotional intelligence (Nasir & Masrur, 2010) the latter of which
has particular applicability for the current research study. In terms of achievement, typical measures for achievement may use intelligence quotient (IQ) scores, which were originally computed as the ratio of a person’s mental age (the average test score received by students) with their chronological age (age in years) multiplied by 100 (Slavin, 2003).

The term *normal age* usually refers to the age at which a particular task is probable or expected to be reached or mastered; however this is only pertinent if age norms for the tasks have been defined (Reber et al., 2009). For many parents, the question of optimum age for students to begin school is crucial. In a comprehensive study addressing the question of appropriate age for school entrance in California, Grissom (2004) found evidence of a positive linear relationship between age and achievement for age normal peers. However, this relationship disappeared by tenth grade. He also found that a negative relationship between age and achievement was sustained over time. In his opinion, decisions to delay school entry, modify entrance requirements, or retain students to amplify performance were not in the best interest of the students. These policies had an inverse impact on older students’ achievement.

A study conducted on the relationship between a student’s age and achievement and their attention processes and performance showed positive outcomes. Cognitive speed, distractibilities and attention lapses were found to decrease with age in healthy students with a resulting lower cognitive speed (Trautmann & Zepf, 2012). In another study on the relationship of age, academic achievement and depression, age and academic achievement were significantly correlated as were depression and academic achievement (Yousefi et al., 2010).

While there have been no studies on the relationship between spiritual intelligence and achievement and age, there have been several studies on those relationships and emotional intelligence (EI). The results were not all consistent. In one university study, there was no
relationship between EI and cognitive intelligence, yet EI was positively associated with academic achievement. In addition, it was found that the variables of age, gender, and social/cultural family levels contributed to significant differences in EI (Al-Ahmadi 2007).

Another study conducted with university students showed similar results to Al-Ahmadi’s (2007) study. Nasir and Masrur (2010) found no relationship between EI and age, but did find that EI was a significant predictor of academic achievement. These researchers felt that “academic success does not only depend on cognitive aspects of intelligence rather it is affected by emotional abilities” (p. 45).

A study conducted with adolescents about the relationship between EI and gender, age, achievement, and coping skills showed different results. EI was significantly associated with gender and coping skills but was not significantly associated with age. Variances in unproductive coping skills were attributed to gender variances while achievement variances influenced social coping skills (Alumran & Punamäki, 2008). The varied results in these studies may have occurred because of differences in populations, as well as achievement and EI measures. What does become clear is that while EI has been shown to have significant associations with achievement, the age of the participants did not.

To thoroughly understand the influence that age has on achievement, one needs to understand the implications of how a child grows and develops. There is evidence that both achievement and spiritual intelligence increases as a child matures, therefore an investigation into the historical theories of cognitive, moral, and faith development and their possible connections to achievement and spiritual intelligence must occur.

**Age and theories of development.** Student maturation and development are germane to any discussion of age and researchers have explored several theories in an attempt to understand
the factors needed to enhance student performance. Investigations into these cognitive, moral and faith development models are crucial for the current research study. Cognitive issues discuss how a child’s brain grows and learns, moral growth is concerned with reasoning that forms the basis for ethical behaviors, and the process of spiritual maturity is known as faith development. All of these processes affect achievement, and some researchers advocate including discussions on moral or religious topics in order to provide proper guidance to gifted students (Tirri et al., 2005).

In the discussion of developmental issues, Jean Piaget (1896-1980) is recognized as one of the foremost psychological theorists in cognitive development. In his studies of children and their maturation process he advocated an incremental development. He enumerated four inflexible, distinct, and absolute stages of cognitive development. These stages are sensori-motor–from birth to 2 years of age; pre-operational–that included children aged 2 to 7; concrete operational–that applied to 7 to 11 year old children; and formal operational–that encompassed 11 years old to adulthood (Piaget, 1983). Piaget strongly believed that a child’s cognitive development preceded any learning which was the opposite of Vygotsky’s social embedded learning beliefs. From this basic premise several of Piaget’s theories have had an important influence on constructivist educational practices and thus achievement. Through his beliefs that children learn in distinct stages, age appropriate educational experiences have been adapted in most schools. Teachers have also learned that they must understand the mental processes children experience, and not just rate their learning through the products they generate. Piagetian theory also focused on discovery based learning more than presentation in curricula. He was particularly against any attempts to accelerate learning throughout the stages, and felt children needed to be children and not adults. The last main assertion of his theories with implications for
achievement involved the rate that student’s progressed through the developmental stages. Although he emphatically believed that all children experienced every stage of development, he believed that they did not do so synchronously. Therefore to ensure optimum achievement, teachers are encouraged to individualize the learning experiences in order to accommodate each child at their particular age and stage of development (Slavin, 2003).

Although many agree with the basic premise of his developmental ideas, there is some dissention among professionals about the limitations of his concepts. “Piaget’s theories have been challenged…for being too rigid, making assumptions that failure to achieve a task indicates lack of cognitive understanding, and paying too little attention to social and cultural influences” (Smith & McSherry, 2004, p. 310). Thus a more acceptable concept of development, especially one that considered these social and cultural influences emerged.

One psychologist who created a developmental cycle of particular significance was Erik Erikson (1902-1994). His theory divided development into eight areas of personal and social growth. He felt that as children were expanding their cognitive concepts, they were also developing methods of interacting with people and the world. These concepts are derivatives of Sigmund Freud’s developmental theories yet with less sexual emphasis (Smith & McSherry, 2004) and are called a psychosocial theory because it considers psychological and social development together (Slavin, 2003). Part of Erikson’s theory is based on the idea that people grow as they pass through, face, and meet psychosocial crises or critical issues. His stages include: a) Trust versus mistrust (birth to eighteen months); b) Autonomy versus doubt (eighteen months to three years of age); c) Initiative versus guilt (three to six years); d) Industry versus inferiority (six to twelve years); e) Identity versus role confusion (twelve to eighteen years); f) Intimacy versus isolation (young adulthood); g) Generativity versus self-absorption (middle
adulthood); and h) Integrity versus despair (late adulthood) (Erikson, 1950). Of particular importance for the current research is stage five, identity versus role confusion, where youths are questioning the purpose of their existence and are in the process of changing from children to adulthood. These existential questions are a core component of the instrument used to measure spiritual intelligence (King, 2008) in the current research study. Erikson’s theories are not linked directly to spirituality, yet Smith and McSherry (2004) noted that he did connect the parental support given to infants with an “ability to foster spiritual well-being in the first year of life” (p. 311). Erikson’s theories garner some criticism because he failed to explain how people progress through these stages and because there is no empirical data to support his philosophies (Slavin, 2003).

Lawrence Kohlberg (1927-1987), using Piaget’s stages of cognitive development, he advanced his theory of moral development. Kohlberg described six stages of moral development, including “obedience and punishment orientation; individualism and exchange; conventional morality; maintaining the social order; social contract and individual rights; and universal principles” (Crain, 1985, pp. 120-124). For Kohlberg, moral development occurred in stages and was related to age but did not necessarily progress due to student maturation (Kohlberg, 1981). His differed from Piaget’s theory in that he was more concerned with how a student reasoned or judged a situation from a moral standpoint rather than a cognitive one. Kohlberg felt that socialization alone did not promote moral development, but that the stimulation of mental processes brought about through social activities increased moral comprehension (Santrock, 2008). For the teacher there are several important reasons to incorporate moral education into the classroom. The inclusion of character education allows character building with input from educators (Kohlberg, 1981). It also encourages curiosity
through hypothetical problem solving while providing interventions to mediate violence in the lives of students (Slavin, 2003). Allowing children time to reflect and think about situations, to decide the reasons behind moral decisions, and to develop morally are all important contributions of Kohlberg’s theories as they relate to the age of students.

The philosophies of John Rawls (1921-2002) should be included in any discussion about moral development and its relation to age of students and education (Brennan & Noggle, 1998). Rawls was a political and moral philosopher who felt that moral development occurred in three stages: “morality to authority . . . morality of association . . . and morality to comply with principles of justice” (Rawls, 1999). These three stages represent the progression of development from the simplicity of a child who blindly follows parental authority, to learning their place in society through associations with peers, to the ultimate understanding of what is just without dependence on others. This philosophy implies that as a child grows through various social associations, he or she will gain a sense of justice that will benefit society. The implication for the current study is that the development of these moral principles may be influenced by one’s personal spirituality and may encourage spiritual development.

Moral development has several implications for spiritual intelligence. The moral decisions making process often revolves around themes of justice, caring, and responsibility—themes that coincide with spiritual aspects. In fact, one study that addressed the understanding of both public and private religious school teachers suggested that spiritual development was linked closely to moral development. The researcher concluded that the inclusion of character education helped educate the whole child, contributed to a sense of community, promoted core values, and countered negative societal influences such as materialism, alienation, and loss of...
community (Revell, 2008). Moral developmental theories imply that as a student matures, his or her moral growth will reach greater heights.

Piaget, Erikson, Kohlberg, and Rawls have added to the discussion on cognitive and moral development that a child traverses on the road to maturity. Their contributions to the variable of age and achievement are essential to the current research. The theories of moral development lead to the faith development concepts engendered by Fowler.

Much of the literature on faith development utilize the stages of James W. Fowler’s (1940–) Model of Faith Development theory (1981) as the basis for the discussions of spiritual development. Like Piaget and Kohlberg, Fowler used a stage format to distinguish growth. For Fowler, faith development is relational and begins in infancy (Raab, 1999). He stressed that growth also led to spiritual maturation (Lovecky, 1998). Fowler’s stages begin with simple concepts and advance to complex components to describe one’s faith similar to the concepts of Piaget and Erikson. Fowler delineated his theories into eight stages (Fowler & Dell, 2004). Faith begins at birth through interactions with the mother and religious symbology that starts the child on a journey to the transcendent. The first stage of faith development is Primal faith from infancy to two years of age. This forms before language and develops as relationships with caregivers and awareness with others increases, and also diminishes separation anxieties. The second stage, Intuitive projective faith usually occurs in toddlers and early childhood. As the child imaginatively joins feelings and perceptions about self and the world he is able to create long lasting protective or threatening emotional powers that surround him. However these are usually not controlled by logical thinking. The third stage is called Mythic literal faith and is usually apparent during middle childhood and beyond. It is in this stage where logical thinking processes help the child to order his world in terms of space and time, while realizing the
perspectives of others. This stage is revealed as a child captures this realization through stories. Synthetic-conventional faith is the fourth stage that advances as the child progresses into adolescence. As cognitive abilities mature, the child is able to integrate diverse self-images and synthesize a system of beliefs and support that solidifies emotionally with others. The fifth stage, Individuative-reflective faith, occurs during young adulthood. In this phase, a person is able to critically reflect on the values and belief systems that shape personal life style choices while coexisting within a social system. The young adult is able to assume responsibility for his or her choices and make committed decisions about future relationships and careers.

Conjunctive faith, which becomes apparent in early midlife, embraces the paradoxes of truth $R^2$ change $R^2$ change best explained and understood through symbols, stories, metaphors, and myths. For people in this stage, reality begins to have several interpretations that may polarize their thinking. The last period of faith development is called Universalizing faith, which is found in midlife and beyond. When experiencing this phase, a person grows beyond the paradox and polarity stages described in the previous stage and is able to form a grounding with a higher power. People in this stage are often committed to theories of love and justice in an attempt to overcome violence, division, and oppression. Fowler was aware of the intricacies of human development and recognized that other factors such as gender or race might increase the complexity of faith development. In addition, because the movement from one phase to another is not automatic or assured, the possibility exists that some people may develop chronologically or biologically without reaching full faith development. Spirituality must be nurtured and practiced through study and discipline in order to fully develop through all the stages of faith. Although structured similarly to moral development constructs, Fowler felt the various stages did not limit or describe the content of one’s faith. In addition, unlike moral development stages, his
stages are not separate, but intertwined. The stages in which a child’s faith is developing may impact her ability to understand her place in the world and focus on the cognitive demands in school. Likewise, the failure to synthesize a personal faith development could hamper growth and an ability to achieve, both personally and academically.

A child matures through multiple ways, to include physical, personal, social, cognitive, moral, faith, and spiritual growth. The stages that a child passes through may be influenced by genetic and social factors. Studies on the implication of age to development have been not only influenced, but defined and shaped by the cognitive theories of Piaget. His delineation of stages of development led to the psychosocial development concepts established by Erikson. In addition, Piaget’s work also influenced the theories of moral development proposed by Kohlberg and Rawls. These in turn inspired Fowler’s premise of how faith develops. All of these theories have important implications for how students traverse through different ages and help prepare them for coping with life situations faced in school and ultimately their own personal achievement.

**Age and achievement.** The Penguin Dictionary of Psychology defines age with relationship to academic outcomes as “a measure of achievement given as the average or ‘normal’ age at which a particular level of performance is reached” (Reber et al., 2009). However, they note the word *age* is often used in terms of what is a “normal” age that a particular task is probable or expected to be reached or mastered. This concept is important to educational arenas because some feel that any attempt to assign meaning to standards or mastery can be arbitrary (Grissom, 2004). In addition, the term educational age may also be used when assessing performance or outcomes in school.
Much research has been conducted on the impact or relationship of age to achievement, particularly for children with learning disabilities or gifted tendencies. In a study conducted by Trautmann and Zepf (2012), academic achievement was found to be positively correlated with attention processes (cognitive speed, distractibilities and attention lapses) and there was significant correlation between these attention processes and age. In essence this study showed that as a healthy student matured, problems with attention decreased enabling more focus on academic matters. Another study also showed that early attention span persistence was a significant predictor for later achievement as well as college completion (McClelland et al., 2013).

While age is often a variable in many research studies about achievement, it is often not the predominant focus of the study giving the impression that while age may be significant, it is not necessarily the target of the research. However, several studies indicate that age may be a more important factor than first indicated. In a study to identify the effect of inherent and family characteristics on achievement, age was the only significant predictor of academic achievement in integrated science (Ogunkola & Olatoye, 2010). In another study conducted among African American students in the Southwest, the demographic and psychological factors and their effects on academic disidentification were examined. Findings indicated that academic self-concept was the strongest predictor of GPA while age and racial identity were negative predictors (Cokley, McClain, Jones, & Johnson, 2011). One study where age was a significant focus of the study considered the factors of age, gender, and hardiness as predictors of final GPA. The researcher found that the students who were more mature in age had higher final GPAs when compared to younger undergraduates (Sheard, 2009). These studies indicate that considering the age as a
target rather than an incidental variable may be important to understanding the significance of age to achievement.

One of the major areas of research on achievement and age includes family characteristics that impact learning. Research shows that developmental outcomes especially the neurocognitive skills of young children are influenced by such factors as maternal education, number of siblings, and surprisingly paternal age. Although initial results indicated a negative relationship between developmental outcomes and paternal age, further analysis revealed that more advanced maternal education levels mitigated these negative effects (Edwards & Roff, 2010). Studies into causes of underachievement found that achievement, depression, and hyperactivity decreased as students aged, while delinquency and socioeconomic status (SES) increased (Defoe, Farrington, & Loeber, 2013).

Although there are no available studies on spiritual intelligence and its relationship to age and achievement, there have been several studies that examined the relationship between emotional intelligence and academic performance. While most of these studies suggested that emotional intelligence was a significant predictor of achievement, there was no significant correlation with age (Alumran & Punamaki, 2008; Nasir & Masrur, 2010). One of the purposes of the current study was to investigate if there was any relationship between achievement, SI, and age.

**Age and faith groups.** Germaine to the current research study are the affects of spiritual faith groups and age. Most of the religions of the world have specific ages in which children are involved in spiritual practices and are educated to become a participating member of the faith community. The terms used to describe these age requirements differ but all highlight when children may participate in religious practices or are accountable for understanding their specific
faith obligations. Each of the predominant world religions—Buddhism, Christianity, Hinduism, Islam, and Judaism—has specific requirements and philosophies that directly impact the spiritual development of children.

Buddhism is perhaps the first true world religion originating from the beliefs of the great healer Siddhartha Gautama, or the Buddha in India and then spreading to Tibet, Mongolia, China, Korea, and Japan. Buddhism is more accurately defined as a philosophy than a theology. It is a way of life that seeks to not only understand but alleviate suffering. A practitioner sets forth on his path to enlightenment by taking refuge in the Three Jewels that consist of Buddha as the guide, the Dharma or teachings of Buddha as the path, and the sangha or community of monks as the companions. Originally a monastic experience, there was no need to accommodate the family. However, as the faith practices expanded, the traditions of the country of origin shaped their rituals, and consequently, there are different practices in relation to children and rites of passage. For example, young boys of eight who follow the Pure Land traditions in China often experience the ritual of head shaving to denounce worldly values. Likewise, boys in Thailand and Burma become novices when they turn eight years old. Also in Thailand, older adolescents may experience a strict monastic year before they assume the mantle of adulthood and its responsibilities (Dasa, 2007).

The Christian faith is comprised of two main groups—Catholics and Protestants, who have different requirements for their youth. Proponents of a Catholic worldview place faith in God as the center of child development. The family unit is essential for training a child to know the joy to be found in holiness. For a child to grow and mature in their faith they must understand and know the value of truth, train their wills to recognize what is important to sustain faith, and make moral decisions based on their knowledge of truth as ascertained through their conscience. Core
beliefs include creation of mankind by God the Father; The Bible as authority and guide for life, particularly the rules found in the Ten Commandments; the study of past Catholic saints as examples of how to live; an emphasis on family, as exemplified by Mary, the Mother of Jesus; freedom to choose a relationship with God; the leadership and authority of the priesthood; the sacrament of penance which includes confession and absolution from sin; and the sacraments of baptism and confirmation (Murrell, 2004). Because of the emphasis on education, children receive training in Catholicism at an early age. In relation to the participation in the sacraments, there are some discrepancies. Generally, baptism is encouraged within weeks of birth. Most American dioceses recommend that confirmation occur during late grade school or high school. However, by canonical law, it must occur after the age of discretion, which occurs when the child reaches seven years of age (Peters, 1996).

The term Protestant encompasses a broad group of denominations who trace their existence from the 16th century European reformation movement. “Particularly in its North American context, the term Protestant is a broad category inclusive of a wide diversity of religious expressions, cultures, beliefs, and church denominations.” (Mercer, 2004, p. 164). Although there are many denominations, most hold with four faith tenets. They believe in a sovereign God who created and is involved in the human world; that humans are created in God’s image but are flawed by sin; God’s son Jesus provides salvation to sinful humans through His life, death and resurrection; and faith provides direct access to God with no need for mediators, churches, or sacraments (Mercer, 2004 p. 164). Because of biblical teachings about children, the members include children in the sacraments of baptism and Holy Communion. Baptism is a ceremony that involves either sprinkling or immersion into water, which signifies being adopted into the life with God and dying to a sinful life. Although each denomination has
its own requirements, most have a rite of passage before children can participate in these sacraments. While some baptize near birth, others require children to be old enough to confirm their faith during adolescence. Before participation in Holy Communion, a commemoration of Christ’s final supper with his disciples that includes the partaking of wine and bread, some denominations have a ceremony called confirmation, while others state that children must reach an age of accountability before they can participate, which usually occurs near the child’s 12th birthday.

In the Islamic communities, submission to Allah is the main requirement. In addition, there are five core beliefs and practices. These include a faith declaration about Allah and the Prophet Mohammad, praying five times a day, giving of required and voluntary alms, fasting during Ramadan, and undertaking a pilgrimage to Mecca. After the age of seven, boys are required to participate in the prayer rituals, and when they turn 12, they are also expected to fast during the month of Ramadan from dawn until dusk (Al-Mateen & Afzal, 2004).

For members of Judaism, the central focus of their religious practices involve living a holy life, developing a relationship with God, and following the principles set forth in the commandments (Rube & Kibel, 2004). Historically, there have been changes in the rules that delineate when a Jewish child could participate in ceremonies. During the 16th century, a 13-year-old boy was called bar mitzvah. This terminology has since come to be known as the ceremony that marks the coming of age for Jewish children. A Bar Mitzvah is the name of the ceremony for boys and Bat Mitzvah the ceremony for girls. This ceremony usually includes a party or feast that commemorates their ability to participate in religious services (Schauss, n.d.). After the age of 13, children are required to pray three times a day.
Hinduism is derived from *hindu*, a Persian word meaning river that was taken from the Indian inhabitants of the Indus River Valley. It is the predominant religion of India, yet about 30 million Hindus live in western countries, including the United States. As opposed to the other world religions discussed, Hinduism has no chronicled founder or original written text used as a foundation for its beliefs. Rather it is derived from the oral traditions of the Indus valley peoples and the Vedic religion brought to India by the Aryan invaders. These oral traditions consist of the now recorded *Shruti*, *the Kali Yuga*, and the *Shmriti*. Hindus core beliefs evolve around the four paths to God gained through four disciplines of yoga—*Jnana Yoga*, for philosophic reflection; *Bkakti Yoga* an expression of emotional devotion to God; *Karma Yoga* for those who serve God through daily living and work; and *Raja Yoga* which encourages meditation and self examination. Hindu children are encouraged to participate in devotional areas at their home and create personal areas when they move out on their own. Deities are chosen that represent the family and the child may make the choice of deity for the family. The children are encouraged to remain as part of the family unit until marriage which is often strongly influenced by the family (Black, 2004). The term for rite of passage in Hindu is *samskara* which means refining or making perfect. Traditionally, Hindus exercise eight rites for their children, but some followers may complete 12 to 20. Many of the rituals are performed before the child is cognizant of their importance, such as the pre-birth baby shower given during the fourth, sixth, or eighth month of pregnancy; the name giving that occurs when the child is 11 days old; the first solid food ritual performed at about six months; and the first hair cut, which occurs at about 14 months. For education purposes, the next two rituals are most important. The family celebrates when a child starts formal education at about four or five years of age, and the most important is the Thread Ceremony which occurs in adolescence. This ceremony endows the child with a mantra that
contains a sacred thread used during prayers. This ritual marks a boy’s passage into adulthood and his assuming the responsibilities of manhood (Dasa, 2007).

Each of the major world religions have distinct age requirements that may influence a student’s knowledge of spiritual matters. Generally speaking, most children are expected to be cognizant of their faith perspectives and actively participate by adolescence.

Understanding the implications and ramifications of the variable of age for this research is essential. The term age involves not only the chronological aspects but the biological, psychological, and social aspects of aging as well. Many growth milestones are measured in years and how a child learns and grows is often outlined in cognitive, psychosocial, moral, and faith developmental theories. In addition, the importance of age in diverse faith groups reveals how ready a student is to assume responsibility and pass from childhood into adulthood. All of these factors explain the need to understand age and its implications for achievement. Another common demographic variable with important implications for the current study is gender.

**Gender**

Gender as a predictor variable and its possible ramifications on achievement are important concepts for this research. The literature on gender reaches beyond the simple identification of sexual attributes. One international concern is the trend in education where females are outperforming males at all levels, as well as in post secondary school attendance (Clark et al., 2008). Many studies have been conducted that present different reasons that may explain this issue.

The predominant factor in psychological, social or cultural developmental is a person’s gender (Santrock, 2008). While each individual is clearly identifiable as male or female at birth, most cultures have different standards for males and females, implying that most of the gender
roles are learned and may vary by the region of the world where the child lives or the culture in which they are raised (Slavin, 2003). Much of the focus in gender research targets the differences between males and females and the issues that arise. Most of the arguments center around the theories of biological factors, gender theory, and school factors (Gibb et al., 2008, p. 63).

**Biological factors.** When discussing gender, there is disagreement in the research on whether the term gender or sex is more accurate. The word *sex* is generally used to indicate biological differences such as hormones, chromosomes, or body elements while the label *gender* references distinctions caused by social or environmental interactions (Halpern et al., 2007). Some researchers feel it is important to distinguish the characteristics that are caused by nature from those derived through nurturing. Yet some feel that there is no longer a need to differentiate these two concepts because biological issues cannot be separated from the social constructs and influences that shape their development (Severin & Wyer, 2000).

In terms of distinguishing biological differences in cognitive development or processing there have been interesting findings. Studies in early childhood cognitive growth have shown that males and females develop equally well in the areas of quantitative thinking and knowledge of subjects and objects (Spelke, 2005), yet differences are apparent between verbal and visuospatial abilities. Verbal skills include all components necessary for communication such as reading, spelling, writing, language usage, reading comprehension, and analogies. Visuospatial refers to those skills that process, maintain, and retrieve pictorial images and decipher how the visual would change when manipulated (Halpern et al., 2007). In a U.S. Department of Education report on the progress of women in academic areas it was shown that girls outperformed males in the fourth-, eighth-, and eleventh-grade writing assessments between
1988 and 1996. In fact, some eighth-grade girls scored higher than some eleventh-grade boys (Bae, Choy, Geddes, Sable, & Snyder, 2000). In terms of visuospatial skills, preschool testing showed that boys could more accurately grasp spatial transformations and manipulate through mazes on the Wechsler Preschool and Primary Scale of Intelligence (Levine, Huttenlocher, Taylor, & Langrock, 1999). Implications of these findings are that verbal assessments that include writing, heavily favor females, while tests that require spatial manipulation favor males.

Researchers disagree about the relationship of biological differences and the impact on achievement. Dunn (1993) conducted a study on the learning style preferences of diverse groups. She found that males preferred more mobility during the learning process than females, who were more inclined toward auditory instruction. Preckel, Goetz, Pekrun, and Kleine (2008) found little difference in grades, but noted a greater interest in mathematics among males. Another study by Huijun, Pfeiffer, Petscher, Kumtepe, and Guofang (2008) showed that teachers tended to rate girls higher than boys on performance scales, possibly because the girls were more inclined to be cooperative. An implication for educators concerned about underachievement is that expectations may shape the students’ self-concepts and ultimately affect classroom performance. For instance, often males can be underidentified as achievers because they tend to be more interested in visual-spatial learning, while a teacher tends to reward the sequential tasks (performed by females) more readily (Colangelo & Davis, 2003, p. 446).

Although boys and girls may have equitable cognitive abilities, girls often outperform boys in school. One study showed that controlling for intelligence revealed that grades of girls were significantly higher than boys. The researchers concluded that while there were no gender specific relationships between the predictive variables and grades, there were associations between personality and motivation that could explain the differences in achievement (Steinmayr
& Spinath, 2008). In a longitudinal study of males and females from birth to age 25, similar results were found. Females tended to score better on standardized tests than boys, even with similar intelligence scores. It was noted that the males in the study tended to have more aggressive, antisocial and oppositional behaviors than females, and consequently received lower teacher ratings than females. When the researchers controlled for these behavior differences, the gender differences were also reduced. The researchers suggested that one way to equalize the achievement would be to mitigate the disparities in behavior (Gibb et al., 2008). The early interest in science expressed by children was analyzed to evaluate what role this might play in later science achievement. Results showed that while early science interest revealed overall higher levels for boys than girls, it acted as a predictor of later achievement for girls but not boys (Liebham, Alexander, & Johnson, 2013). In a previously mentioned study about factors that influence African American student achievement in the Southwest, academic self-concept and GPA significantly increased among females, but decreased for males (Cokley et al., 2011). All of these studies reiterate the point that even when cognitive and behavioral factors are controlled, females tend to have higher GPAs than males. There is evidence that the biological differences between males and females, while not the only factors studied, do exist and that the discrepancies between the two are apparent in much of the existing research.

**Gender theories.** When assessing the influence gender places on a child’s achievement it is crucial to consider the role of gender theories as they relate to development. The major stimulus to gender development seems to be Social Role Theory, which states “gender differences result from the contrasting roles of men and women” (Santrock, 2008). Research across nationalities and cultures indicates that how to behave as a male or female is one of the earliest behaviors acquired. In fact it is apparent that although the role may vary by cultures, the
behaviors are nonetheless learned. It is also thought that regardless of biological differences, most observed disparities between the genders are a direct result of early social interactions (Slavin, 2003).

Another concept with achievement implications is Gender Schema Theory. Johnson (2009) discussed the theory first proposed by Lipsitz Bem in 1981, and explained that it is a cognitive concept that explains the role gender plays in the formation and organization of meaning for self and others. Bem proposed that a student constructs meaning and assigns values through a process called sex-typing which is the assigning of certain characteristics as either male or female – such as specific clothing or preferred colors. The child then constructs ideas about new information based on these sex-linked connections, such as body type or voice registry. He or she uses this information to make decisions based on his or her own self-concept gained through the gender schema that dictates what to wear or say in certain situations. This schema becomes associative and triggers gender meanings by automatically assigning gender specific traits based on cues given such as assuming certain clothing defines masculine or feminine traits. And finally, the schema acts as a way to judge what is natural, right, or valued. An example would be a male performing a non-traditional job usually held by females could be considered weak, while a female in a traditionally male dominated job could be considered strong. The method that students learn and process what is appropriate for their particular gender may very well color the choices they make, and these choices may influence their academic accomplishments.

**Gender and school factors.** In the United States, there is a definite gender gap in achievement, with boys tending to have more difficulties matching girls’ achievement on standardized tests, in grade point averages, and in school retention (Clark et al., 2008).
However, in STEM (Science, Technology, Engineering, and Mathematics) boys tend to score higher than girls, and a higher percentage of males than females have career aspirations and major in these fields. Yet, internationally that is not necessarily true. In many global comparison scores, girls and boys were fairly equitable, while in some cases girls outpaced their counterparts (WRobelen, 2012). Some of the rationale for these differences has been linked to school factors such as impact of the teacher, schools that favor females, and even the types of measures used to assess achievement (Gibb et al., 2008).

One variable found in many research studies is the impact of the teacher on the gender achievement discrepancy. The role of teachers cannot be underscored in the importance they play in a child’s achievement and development. A report by Bryce and Blown (2007) noted the declining percentages of male teachers in primary schools in several countries. In the United States in 1995-1996 there were only 16% male primary teachers, in New Zealand there were 18%, and in 2003 only 7% of Scottish primary teachers were male. Most alarming is that for primary teachers “the average across 23 OECD countries for which data were available was 23%” (Livingstone, 2004, p. 2). One study examined achievement scores of over 3000 students to gauge the impact of multiple factors on academic achievement, suggested that most of the inconsistency in scores was a result of teacher gender and not student gender (Klein, 2004). If students are looking at teachers as role-models, males are at a definite disadvantage because globally, there is a gender imbalance in the teaching profession (Sokal, & Katz, 2008).

Another reason presented for the continued discrepancies between male and female achievement is that schools maybe encouraging female achievement, while inadvertently discouraging males through equal opportunity initiatives. In other words, schools may promote female assertiveness and confidence that threaten males, which consequently deters male
compliance. However, these strategies, though meant to assist female self-assurance, have not been as successful with girls because many still lack confidence in their abilities (Skelton, 2003).

Skelton (2010) also noted the influence of feminism on gender inequities. Although much of the more recent literature indicates a curtailing of the achievement gap between genders, she feels this is misleading. Original assumptions to explain the differences included teacher stereotyping, lack of confidence among girls, and the tendency of boys to dominate classroom time. She discusses the impact of liberal feminism common in the 1970s and 1980s on changing educational practices and expectations for girls. This movement stressed individual autonomy and the rights of students to self-determine their futures. In other words, this impetus stressed the idea “if all individuals are provided with the same incentives and opportunities then equality will be achieved” (p. 132-133). Yet despite changes in scores, Skelton feels that the new focus on feminine achievement has only resulted in greater anxiety among girls, lower achievement scores for boys, and unchallenged gender subjectivities among teachers.

A final school-related factor with implications for understanding the gender gap in achievement is the assessments themselves. Elwood (2005) noted discrepancies in subjective grading and types of written exams where teacher bias favored the kinds of writing preferred by females. Further elaboration revealed that teachers encouraged descriptive and narrative writing esteemed by girls over analytical or factual writing most frequently chosen by boys. Not only did teachers tend to rate these writing samples higher, the implications were that certain genres were more valuable than others (Murphy & Ivinson, 2004). Martin Storks-Dieck, the National Research Council’s Board of Science Education director, hypothesized that not only do the kinds of questions and tests given affect performance, but that perhaps greater rationale for disparities
may be found within self-confidence levels, expectation goals, and preparation programs, rather than with innate gender differences (WRobelen, 2012).

Whether the term gender or sex, girl or boy, or female or male is used, the impact and discrepancies on a child’s education is apparent. Although there are discrepancies in achievement levels by gender, many of these are explained through innate biological factors, gender theories, and related school factors. In order to gain a complete picture of the impact on achievement, the gender of the student must be examined.

Achievement

A child’s success in life is often formed during his or her early educational career. In fact, the skills needed to become a productive citizen are paramount to a student’s success. Hugh B. Price, former President of the National Urban League, in his book Achievement Matters states, “Academic failure simply isn’t an option in the Information Age economy of the twenty-first century. It’s essential to economic self-sufficiency and effective citizenship in the twenty-first century” (2002, p. 30). This sentiment is echoed by Arne Duncan, U.S. Education Secretary, when he commented in an interview on the declining scores by American students on the Programme for International Student Assessment (PISA) results.

We live in a globally competitive knowledge based economy, and our children today are at a competitive disadvantage with children from other countries. This is absolutely unfair to our children and that puts our country’s long term economic prosperity absolutely at risk.” (Armario, 2010, para. 10)

From 1995 to 2008 the U.S. dropped from second to thirteenth in college graduation rates with only eight other countries in the Organization for Economic Co-operation and Development (OECD) falling lower than American students’ graduation rates. Consequently, achievement
becomes an economic necessity for a successful life, rather than simply a preference that children perform well in school and on standardized tests.

Achievement is a difficult concept to define because of the wide differences in measures. Many research studies simply use a student’s grade point average as an indicator of achievement (Guay et al., 2010; Schwinger, Steinmayr, & Spinath, 2009), while others use factors such as test scores or dropout rates (Clark et al., 2008). The fact that achievement of students in the United States has been falling in relation to that of students in other countries (Price, 2002; Walberg, 2010; Wilde, 2009) causes concern for parents and educators.

To understand a more complete definition of achievement, a look at the seminal work of Henry Murray, who studied basic human needs in *Explorations in Personality* (1938) is necessary. He defined achievement as the ability

To accomplish something difficult. To master, manipulate or organize physical objects, human beings, or ideas. To do this as rapidly and as independently as possible. To overcome obstacles and attain a high standard. To excel one’s self. To rival and surpass others. To increase self-regard by the successful exercise of talent. (p. 164)

For Murray, achievement was a personal goal rather than just an outward measure imposed by others. However, in modern schools, achievement has acquired a different status.

In *Key Concepts in Education* by Ingles and Aers (2008), a definition of achievement provides more clarity. Instead of ambiguous or vague descriptions, this article states that achievement is measured against predicted outcomes and expectations. A student’s achievement is said to be based on prior attainment. If the student previously scored Cs, then earning a B would be considered achievement. However, the reverse of prior B status earning a C would be defined as underachievement. Personal achievement should not be confused with standards
which are national norms because a student’s achievement is influenced by factors that may be very different from the national norms. To summarize these diverse definitions of achievement, it should be noted that whether grade point averages or standardized assessments are used to measure progress, achievement should include reaching both personal and expected outcomes, but these goals may vary for each student.

Research into achievement and the counterpart underachievement reveals several factors that educators may need to embrace to affect positive change in academic advancement for all students. Some of these factors are higher motivation levels, conducive home environments, close parental supervision, improvement in gender equity, and higher levels of computer literacy (Nokelainen et al., 2007). Of particular concern is that on international achievement measures such as TIMSS (Trends of International Mathematics and Science Study) and PIRLS (Progress in International Reading Literacy Study), students in the United States have progressed in fourth-grade reading and mathematics, but they have not sustained the momentum in the eighth grade “where mathematics and science achievement failed to measurably improve between 2007 and 2011” (Duncan, 2012, para. 3). With the advent of No Child Left Behind in 2001 and Common Core Curriculum 2010, the goals were to increase achievement, not maintain the same levels. It is significant that achievement in several countries has increased, while in the United States it has not (Armario, 2010). More research is necessary to identify reasons for the discrepancies.

**Achievement factors.** The importance of academic achievement is crucial to student development. In fact, Price (2002) contends that “A child’s basic sense of worth depends heavily on the ability to achieve in school” (p. 11). In most of the literature about achievement, there appear to be three main categories of concern when addressing student success. Hoover-Schultz (2005) indicated “the causes of underachievement can be separated into environmental
(school) factors and personal/family factors” (p. 47). The factors in schools that affect achievement are teachers’ abilities, teaching strategies, as well as school climates (Bosworth, Ford, & Hernandaz, 2011), and learning and school environments (Rainey & Murova, 2004). Personal issues mentioned are more varied, but include cognitive ability, academic self-efficacy beliefs (Brooks-Gunn, Linver & Fauth, 2005), health, motivation, self-regulation, and time management (Turusheva, 2009), or even peer groups (Ornstein, 2010). The home factors comprise parental support (Nokelainen et al., 2007), socioeconomic status (McCoach et al., 2010), and cultural heritage (Dekker & Fischer, 2008).

**School factors.** Research reveals several school related factors that seem to influence achievement. One of the most influential schools factors on student achievement is the teacher. A longitudinal study showed that the impact of a teacher’s over or under estimation of students’ basic math, reading, and language skills in first grade had a stronger influence on students from lower income families, suggesting the existence and implications of self-fulfilling prophecies on disadvantaged students were deleterious (Sorghagen, 2013).

The way a teacher plans and presents the lesson has also been noted as influential on student achievement. Modes of instruction were used to test which instructional approach was more effective in ninth-grade biology classes. Students in the hands-on learning group who built three dimensional cell models achieved much higher on cognitive questions than students who received teacher demonstrations using three dimensional models or traditional expository textbook driven instruction using two dimensional models and pictures. This study showed that teachers’ choices of engagement strategies may have a significant impact on student outcomes (Lazarowitz, & Naim, 2013). Achievement patterns for gifted and advanced elementary students indicated a preference for the student control found in student-constructed assignments over
teacher-constructed ones (Thompson & McDonald, 2007). Allen et al., (2013) noted that high quality, sensitive teacher-student interactions, which included positive emotional environments with various engagement strategies that targeted higher order thinking and problem solving skills, had a positive influence on higher levels of student achievement gains.

In one study, the factors of class size and school climate were shown to be positively correlated with mathematic instruction in some European countries, the same also noting that certain preferred teaching strategies such as reteaching, clarification, or pair work made no positive contribution to leaning (Akyüz & Berberoğlu, 2010). In another study, students in some Arizona schools tended to report school physical safety, while teachers added school climate, staff actions, and relationships as factors that made an environment safe. Schools with more effective school climates had lower levels of violence and substance use. This study implies that perceptions of school safety may transcend neighborhood locations, and a successful school climate may provide a safe learning atmosphere for students where achievement can occur (Bosworth et al., 2011). High expectations of students paired with high work effort (Liu, Cheng, Chen, & Wu, 2009) also related to positive outcomes in student achievement.

Research performed by Johnson, Kraft, and Papay (2012) indicated that working conditions and teacher preparation are also important for student achievement. Positive social working conditions in which the teacher felt supported by the leadership, his or her colleagues, and the overall school climate had an influence on teacher longevity and consequently student achievement especially in schools with low-income and minority students. This study suggests that teacher turnover could be deterred with more effective supports in place for teachers. School climate was also a factor in another study that focused on the addition of professional learning communities and teacher cooperation and collaboration. These factors were found to
promote elementary mathematics achievement and reduce achievement gaps by socioeconomic status and race (Moller, Mickelson, Stearns, Banerjee, & Bottia, 2013).

Research into the effects of teacher training has suggested that this factor is an important influence on student outcomes. The quality of a statistics teacher’s formal training in mathematics or mathematics education was a significant factor in student achievement gains, as noted on the U.S. eighth-grade Data and Chance domain of the TIMSS, (Mills, & Holloway, 2013).

One school element with surprising impact on student success was the socioeconomic status of the school. A study of the effects of school socioeconomic status and instructional leadership on teacher efficacy and achievement showed that the greatest predictor of student outcomes was the SES of the school (Fancera & Bliss, 2011).

Studies also verified other common factors relate to achievement, such as private tutoring (Sohn, Lee, Jang, & Kim, 2010) and teacher licensure and credentials (Clotfelter, Ladd, & Vigdor, 2010). In fact, Price (2002) cited a belief by Stephanie Bell-Rose, former president of Goldman Sachs Foundation, that “what teachers teach and how well they teach it is perhaps the most important variable affecting how youngsters perform” (p. 16).

**Student factors.** Recognizing that teachers alone are not responsible for student outcomes, researchers recognize the role that students perform in their own learning. In many cases, characteristics that affect a student’s personal dynamics are also important indicators of achievement. In particular, motivation has specific implications for research on this topic (Meyer, McClure, Walkey, Weir, & McKenzie, 2009). The Meyer’s et al., (2009) New Zealand study showed that a student’s success could be enhanced by their goal aspirations, achievement standards, and motivation proficiencies. Some educators feel that a student’s internal motivation
is essential and must be maintained over time. Bartholomew (2008) states “motivating learners is not about dramatically passing on a torch, it’s about tending a long-term flame” (p. 101), implying a need to strengthen a student’s performance through his or her own inclinations to do so. There is also evidence to support the need for self-regulation, and time and self-management skills (Turusheva, 2009) among learners, as well as the ability to sustain their attention (Steinmayr et al., 2010) as important components in achievement. Another study on gifted learners showed a relationship between cortical activation and academic success (Staudt & Neubauer, 2006). Research has also revealed negative correlations when such factors as peer victimization (Iyer, Kochenderfer-Ladd, Eisenberg, & Thompson, 2010), sleep deprivation (Bergin & Bergin, 2010.), and drug use (Henry, 2010) were present.

The impact of a student’s personal learning style on achievement has been investigated. Dunn (1993), in her study on learning style preferences, drew several conclusions about the differences in learning between students from diverse cultural backgrounds. While she was careful to avoid making broad generalizations, there were enough culturally similar responses to be noteworthy. For instance, Asian American students often preferred to learn independently in a quiet environment, while African American students often preferred group collaboration with loud music playing. In fact, Dunn suggested that if these two groups of students were working together, their preferred learning styles would be in opposition. Often a student’s preferred learning style is an important component in how they perform and to what extent this motivates them to be successful. Another study conducted with urban adolescents showed results that agreed with Dunn’s findings that “African American students tend to evidence a learning style that stresses a visual/global rather than a verbal/analytical approach as well as a preference for reasoning by inference rather than formal logic” (Long, Monoi, Harper, Knoblauch, & Murphy,
In 2007, the National Academies report on differences in achievement scores stated, “measurements of mathematics- and science-related skills are strongly affected by cultural factors” (WRobelen, 2012, p. 9). Perhaps the culture in which a student is reared may influence achievement more than has been previously noted, implying that cultural influences may account in part for the greater increases in achievement in some countries.

A student’s ability to learn has implications for school success as well. In a study conducted among urban minority students, Basch (2011) found these students were more likely to be affected by attention deficit/hyperactivity disorder (ADHD) and less likely to receive appropriate treatments, which greatly affects cognitive and sensory perceptions. This in turn impacts attendance, school connections, retention rates and ultimately academic success. This research recommends addressing existing disparities should be a priority for educators committed to turning underachievement around.

One other student factor with important implications for achievement is **stereotype threat**. This concept hypothesizes that students in certain populations, such as females, or ethnic and racial minorities, may experience anxiety when they feel they are being prejudged to be incompetent or inferior. This perceived stereotype may negatively impact performance especially on standardized tests (WRobelen, 2012).

**Parental factors.** One of the most influential factors on student achievement seems to be parental involvement or support, as well as aspects of the student’s home environment. A study by Nokelainen et al., (2007) was modeled after the longitudinal Terman (1877-1956) study that Terman began in 1921 on gifted success. Nokelainen et al., (2007) concluded that the most important factors for achievement were home groups conducive to learning, better computer literacy skills, and higher levels of motivation. Another study advocated an import factor which
cannot be overstated, which is student-parent interactions (Yen & Ong, 2010). “For most children, the long-term success of their learning and development depends to a great extent on what happens to them during these formative years of promise” (Price, 2002, p. 11).

In addition, several social and family factors were found to have a definite link to academic achievement in young children. Receiving social assistance, the mother’s age when the child was born; the child’s gender; the mobility of the family residency; behavioral disorders such as ADHD; and any family structure issues (removal of the child into protective custody, for example); were all found to have a direct relationship to achievement. Other factors such as gestational age, birth weight or APGAR scores were statistically significant but did not predict or explain how the results related or influenced achievement (Roos et al., 2013).

Socioeconomic status is a variable found to impact achievement in several studies. Westerlund, Gustafsson, Theorell, Janlert, and Hammarström (2013) conducted a study that showed parental involvement was a predictor of academic achievement and a good candidate for influencing socioeconomic situations. They contended parental involvement decreased risk factors that caused low achievement, lower socioeconomic status, and consequently allostatic load or stress. Price (2002) delineates ethnic and socioeconomic gaps that exist in his book*Achievement Matters*. He discusses the disparity in global competitiveness, ethnic inequalities, and minority inconsistencies. Perhaps the greatest gap, as noted by Price, exists between the educational offerings provided and the needs demanded from the work force in order for students to become self-sufficient, independent contributing citizens. Many of these inconsistencies are created by poverty. One study by Tucker-Drob (2013) noted that while globally SES did make a contribution to cognitive development; it had a more gradual influence on academic
achievement. Additionally, the researcher felt that parents who were more highly educated had children who managed greater gains in both cognitive abilities and academic achievement.

Herbert J. Walberg in *Advancing Student Achievement* (2010) reiterates the socioeconomic influence on student achievement. Of the deleterious factors mentioned, Walberg categorizes these into six groups. These hindrances to achievement are “prenatal and perinatal factors, family status, divorce and frequent parental consequences, frequent moving, child rearing, and resulting child problems” (p. 34). According to Walberg, it is apparent that the foremost influential factor on achievement is the student’s home environment.

**Achievement and values.** While it is helpful to understand the contributing factors to student success and the detrimental underachievement factors, these do not fully explain why some students are not achieving. Some of the literature suggests the inclusion of spiritual values may help focus students toward positive achievement. Suyemoto and MacDonald (1996) addressed the role of religion in understanding humans and their development and cited that many participants found empowerment and positive reinforcement from their religious beliefs. In fact, the authors found that many of the participants who explored and affirmed their beliefs and values responded in a more mature and healthy manner than those who had not defined their belief systems. Another very different view on the importance of values education can be found in an article entitled “Motivation is First-Then They Can Do Anything” (Piirto, 2002). The author visited a school in India that encouraged a three-way view toward education, “intellectual development, spiritual development, and social activism” (p. 182). The author felt that in American schools, the focus was on materialistic goals and capitalism rather than on contributions to society. Piirto found the Indian educational system’s purpose of education was to provide freedom for the students and their ultimate community. Piirto’s conclusion implied
that perhaps what is missing in the education of most of the students in the United States is a lack of purpose, which can be gained through discovering values while participating in the triad of intellectual, spiritual, and social involvement found in India.

One study led by Miron Zuckerman, a psychologist at University of Rochester, analyzed 63 studies conducted from 1928-2012 that provided a contrary view of religion and its influence on intelligence. The researchers found that in 53 of the studies there were significant negative correlations between IQ and religious beliefs, finding that on average, non-believers scored higher on IQ tests than believers who held religious values. The authors admitted to a limited range of research that included narrow definitions of intelligence and religion that did not include other factors such as the role society or culture played in religious beliefs. In discussing their results, they offered three rationales to explain their findings. Intelligent people are less conforming, thus are more likely to reject religious doctrine. They embrace a more analytical, less intuitive, cognitive processing method, which tends to undermine religious dogma. And finally, intelligent people are more aware that intelligence grants many of the positive attributes formerly conferred by religion such as control, self-regulation, self-enhancement and secure attachment (Zuckerman, Silberman, & Hall, 2013). This meta-analysis generated much discussion about the relationship of religion to scientific beliefs and researcher bias. Monge (2013) suggests that the way they framed their research revealed their own implicit bias about scholarly thinking about religion. In other words they framed the research to prove what they already believed. He stated, “Intelligent people don’t simply reject religion because it’s wrong; they reject it because their social environments lead them to think it’s wrong.” (para. 7). Monge further observed that the results tended to fit a stereotypical cultural narrative believed by many.
Research provides information on the many factors that can impact achievement such as school, personal, and parental areas, while indicating that adding values may supply impetus for student academic achievement. Students need these resources to bridge the gaps in their education and academic achievement, and educators need to understand what causes underachievement.

**Underachievement.** The alarming trend of American student underachievement is not a new phenomenon. In 1966, James S. Coleman led a two-year study that examined over 4,000 schools and their teachers and students. He published his findings in *Equality of Educational Opportunity*, which has now become known simply as The Coleman Report (Coleman, 1966). After studying multiple factors such as teacher/student ethnicity, school facilities, time spent in school, teacher salaries and degree levels, and early childhood educational opportunities experienced by pupils, he found that none of these school factors positively impacted student achievement. The single most consistent characteristic that influenced achievement was the social class of the students and their peers. Students from middle and upper social classes performed better than those from lower social classes, implying that nothing schools, teachers or even communities could do would influence achievement except to try to improve the social economic status of the family and those with whom the student interacted. This report engendered much debate and controversy. So much so that several others, such as J.M. Stephens in 1967, Christopher Jencks in 1972, and Daniel P. Moynihan and Frederick Mosteller in 1972 tried to replicate Coleman’s study and achieved similar findings that resulted in validating Coleman’s original findings (Towers, 1992). Regardless of how discouraging these results were, the realization is that conditions beyond the scope of the schools’ influence seem to be the main predictors of academic success.
Underachievement has many characteristics and varies with each child. A firm definition held by all educators does not exist. Many use an inconsistency between what IQ scores indicate they should receive and their actual standardized test scores. Rimm (1997), in a discussion about an underachievement epidemic, believes a better definition of underachievement is “a discrepancy between a child’s school performance and some index of the child’s ability. If children are not working to their ability in school, they are underachieving” (p. 18). In The Unmotivated Child, Rathvon (1996) further refines the term as “a discrepancy between ability and performance that persists over time” (p. 22). Rathvon delineated four distinctive behavioral styles exhibited by underachievers: a) the passive-avoidant underachiever who withdraws and waits for assistance, b) the active-avoidant underachiever who overreacts or interrupts to avoid engagement, c) the dependent underachiever who demands constant attention, and d) the performance-oriented underachiever who only finds validation through approval (pp. 92-96). For many of these underperforming students, their poor self-image hampers thorough engagement and consistent performance on challenging tasks.

Another theory about underachievement moves responsibility from students to the adults concerned with their education. Some researchers suggest that the perceptions of educators contribute to student failure. Colangelo and Davis (2003), authors of a handbook for gifted children, contend that “underachievement is learned” (p. 514), placing much of the blame on parents and educators who allow students to underperform. An examination of the research indicates several other contributing factors to underachievement in students such as resiliency issues, personality roles, behavioral characteristics, family dysfunction, and school factors.

Resiliency, the ability to overcome obstacles, is an important concept that may influence the achievement ability of students. Austin, Bates, and Duerr (2013) in conjunction with The
California Department of Education, conducted a survey to improve healthy school climates conducive for learning and advance resiliency of students. In the published guidelines, they identified three characteristics of resiliency which are empathy, problem solving, and goals and aspirations. Empathy is the ability to understand others’ feelings and is considered essential to healthy moral development. The ability to plan, think critically, and reflectively examine various viewpoints are attributes of problem solving. Dreaming and having high expectations for the future likewise provide an intrinsic motivation and connectedness that protects students against negative developmental influences such as physical and emotional distress. In addition, students with more external assets, such as support from home, community, school, peers, high expectations, and greater opportunities for social connectedness had higher resilience tendencies (Wasonga, 2002). For culturally diverse students, the ability to overcome underachievement may very well depend on their resiliency. Several studies show the impact of resiliency on the culturally diverse child’s achievement. In a predominantly Hispanic elementary school, one study noted that there were significant differences between classroom environments and behaviors between resilient and nonresilient students. The findings suggested that the teacher-student relationships and student engagement positively impacted resilience, and ultimately achievement (Waxman, Padron, Jee-Young, & Rivera, 2008). Another study on gender perceptions showed that while girls often scored higher on resiliency measures, this did not give them an academic edge over boys. The author hypothesized that conformity to expectations and complacency among girls, and lower external resources for boys with behavior problems contributed to achievement gaps (Wasonga, 2002). A study that incorporated Invitational Theory and Practice showed that incorporating the core values of trust, care, intentionality, optimism, and respect helped with resiliency development in at-risk youths (Lee, 2012). In
Bonner, et al., conducted a study with gifted African American males. They observed that often the gifted identification process only used cognitive intelligence scales to measure giftedness. The researchers recommended including cultural intelligence measures to meet the learning needs and increase resiliency of these students. In a similar study, Kitano and Lewis (2005) identified differences in the racial coping strategies of diverse students. They noted that biculturalism, a factor that often interferes with a student’s ability to succeed, has been associated with greater self-image and achievement in students from Latino backgrounds. Many of these studies recommended supportive strategies such as family assistance and teacher training as effective tactics in helping culturally diverse students develop resiliency skills and overcome underachievement. Using differentiated strategies and allowing students a choice in what they study and produce may overcome this underachievement dynamic.

Research indicates several factors that may play a role in underachievement. In an article about reversing underachievement, Renzulli, Baum, Thomas, & McCluskey (1999) identified four contributing factors. The first contributor is emotional concerns that include family dysfunction, perfectionist tendencies, attention needs, and depression. The second is behavioral and social issues such as lack of locus control, unsuitable peer associations, and problems with authority. Another cause for underachievement may be poor curriculum choices that do not motivate or challenge and that do not correspond to a student’s learning style. The last is the presence of learning disabilities or lack of self-regulation that includes lack of organizational skills, forgetfulness, and time management deficits.

There have been many recommendations to reverse this downward spiral of underachievement, but not all have been successful. One that claims to be effective within six months to one year is the Trifocal Model proposed by Rimm (1997). This six-step program...
includes assessing the problem, communicating with the parent and child, identifying role models, modifying expectations of both the parents and teachers, correcting deficiencies, and including strategies to modify issues at home and at school that are dependent on the type of underachiever.

Even before the 1966 Coleman Report to the present time, educators have been concerned when students do not achieve. There has been a plethora of research studies to examine the situation. Findings differ, but most include suggestions to improve behavioral styles of students, teacher expectations, student engagement, resiliency development, and the inclusion of several programs such as Invitational Theory and the Trifocal Model. Although the research has been thorough, underachievement inequities still persist.

**Spiritual Intelligence**

Concepts of spirituality, religiosity, and their connection to intelligence and academic performance are pivotal for the current research study. Not only must the term spiritual intelligence be thoroughly defined and examined, but implications for its inclusion in educational settings must be clarified. The very elusiveness and ambiguity of the term confounds any discussion and prevents some educators from seeking to include this skill as a support system for student achievement. As Gallagher, Rocco, and Landorf (2007) stated “even though spirituality can influence learning, little is known about this relationship” (p. 458). While many educators and theorists agree that spirituality can be quantified as an intelligence (Amram, 2007; Emmons, 2000; King, 2010b; Sisk & Torrance, 2001; Zohar & Marshall, 2001) there are many who disagree, or are at least skeptical until more investigation occurs (Gardner, 2000; Mayer, 2000; Zwilecki, 2000). This portion of the literature review concentrates not only on defining spiritual
intelligence, but also expands to include definitions of traditional intelligence and explain the relationship to spirituality.

**Intelligence.** Traditional discussions of intelligence deal mainly in the cognitive domain. Yet despite decades of research, there is little consensus on a universal definition of intelligence. One report for the Board of Scientific Affairs (BSA) of the American Psychological Association (APA) contends that “Although considerable clarity has been achieved in some areas, no such conceptualization has yet answered all the important questions [about intelligence] and none commands universal assent” (Neisser, et al., 1996, p. 77). Sternberg and Detterman (1986) noted in a survey of 24 experts, that descriptions on what constituted intelligence differed greatly. However, a look at several existing definitions yields common concepts applicable for the current research.

Many of the designations of intelligence differ in scope and measurement processes, yet most include a learning or problem solving component. In his book on brain functioning, David Sousa (2001) stated, “Intelligence is a multifaceted aptitude that varies even within the same individual. It can be defined simply as the rate of learning something” (p. 105). This definition that stresses learning is supported by the educational psychologist, Slavin (2003), who asserted, “At one level, intelligence can be defined as a general aptitude for learning or an ability to acquire and use knowledge or skills” (p. 125). The acquisition and utilization portion of this definition is further expanded to include analytical or investigative components. Chiu, Hong, and Dweck (1994) described intelligence as “the level of skills and knowledge currently available for problem-solving” (p. 106). Perhaps the most significant definition for the current study is provided by Walters and Gardner (1996) who defined intelligence as “a set of abilities that permits an individual to solve problems or fashion products that are of consequence in a
particular cultural setting” (p. 164). The main concept of these discussions seems to indicate the ability to learn through problem solving. In addition to a definition, there are great divisions on what constitutes intelligence, how many intelligences exist, and how best to measure the constructs.

In American schools, a psychometric methodology is most often used to measure intelligence. One of the most common tests used to identify intelligence is known as the student’s intelligence quotient or IQ. Originally, intelligence was quantified when the mental age of the student was divided by the chronological age (Neisser, et al., 1996, p. 78). Although additional factors are now used to acquire the IQ score, this quotient is still important for those concerned with a student’s success. “It is a widely acknowledged fact that general intelligence is one of the best predictors of school performance” (Steinmayr et al., 2010, p. 14). Therefore, in an attempt to adequately evaluate students and their achievement, educators have developed new theories and definitions of what denotes intelligence and how to measure this trait. Yet with all the new theories, there remain great discrepancies in what defines intelligence. Specifically for this research, traditional and contemporary intelligence theories that expand the definition of intelligence to include multiple intelligences, emotional intelligence, and particularly, spiritual intelligence and its characteristics, have definite implications for engagement and performance for American secondary students.

**Intelligence measures.** Historical ideas about measuring intelligence have changed significantly from the early attempts to decipher a person’s intelligence. Some of the ideas included such diverse means as gauging height, size of brain shapes and lumps, or even rate of knee jerks (Buzon, 2002, introduction). Gardner (1993) discussed still others methods of measuring intelligence such as those advocated by Jensen and Eysenck. Arthur Jensen (1923-
2012) encouraged observing a student’s reaction time, and Hans Eysenck (1916-1997) suggested looking directly at brain waves to measure intelligence. Yet it was not until the early part of the 20th century that anyone developed a measure to adequately assess intelligence. The test originated in Paris in 1905 through the efforts of Alfred Binet (1857-1911) and Theodore Simon (1872-1961), who were charged to develop a way to identify students who might be successful in school, especially in respect to those with learning disabilities (Deary, 2001). They called this test an “intelligence quotient” or IQ that divided the mental age by the chronological age and multiplied that score by 100 (Gardner, 1993, p. 3). Even today, these types of verbal and mathematical assessments are used to measure a student’s intelligence. The 100 number has become the mean, with a standard deviation of 15. “In theory, about 68 percent of all individuals will have IQs within one standard deviation of the mean: that is from 85 . . . to 115” (Slavin, 2003, p. 524).

In American schools, there are generally two kinds of intelligence tests given: individual tests or group tests. The group tests are usually given to measure intellectual aptitude while individual tests are given more for placement in special educational venues such as gifted or special education classes. Examples of group tests are the California Test of Mental Maturity, the Otis-Lennon Mental Ability Tests, or the Lorge-Throndike Intelligence Tests. These are predominantly used in public schools because the individual tests, while more accurate, usually require trained psychologists, which are limited in most systems. The Stanford-Binet or the Weschler Intelligence Test for Children-Revised are two of the most common individual tests used (Slavin, 2003).

**Theories of intelligence.** Discussions on intelligence have occurred since before the ancient Greeks (Slavin, 2003), but more current discourse begins with the idea that intelligence is
a singular concept acquired from the work of Binet and Simon (1905). In 1927, Charles Spearman (1863-1945) further developed this singular idea about intellect and advocated the idea that there was a general or “g” factor of intelligence. He was the first to offer a psychometrically acceptable definition of intelligence and has thus been called the father of classical test theory (Jensen, 1994). He developed a factor analysis system that helped to statistically show positive correlations between mental test scores (Plucker, 2007). Although not all agree with his “g” factor theory, the fact that most abilities are correlated lends credence to this theory. In other words, students “good at learning one thing are likely, on the average, to be good at learning other things” (Slavin, 2003, p. 126). Consequently, Spearman’s contributions to the field of psychology and to the understanding of intelligence in particular are profound.

An early dissenting idea against the singular intelligence theory was proposed by L.L. Thurstone (1887-1955). An American psychometrician who once assisted Thomas Edison. Thurstone advocated a group of mental abilities rather than the unitary idea proposed by Spearman. In fact, he suggested there were a small number of primary mental faculties that operate separately from each other and are measured independently on intelligence assessments. He “nominated seven such factors—verbal comprehension, word fluency, numerical fluency, spatial visualization, associative memory, perceptual speed, and reasoning” (Gardner, 1983, p. 17). Thurstone felt that Spearman’s single factor theory was too limiting to explain the vast intellectual processes of the brain. Although both Spearman and Thurstone used a factor analysis system, their conclusions were very different. While Spearman’s arguments were supported by correlational factors, Thurstone (1934), in a speech to the University of Chicago in 1933, made his case rest on the intercorrelations of a set of tests.
Another psychologist who opposed a singular factor system was J.P. Guilford (1897-1987). Working with children allowed him to notice the lack of similarities among individual students and to develop a multifactorial approach to intelligence. During World War II, he was able to study his theories and test them while working with the U.S. Army Air Corps. This work enabled him to identify 25 mental abilities factors. Guilford then used this research to create a Structure of Intellect model (Plucker, 2009). His model suggests that there are “180 types of intelligence: 6 types of mental operations (e.g., thinking, memory, and creativity) times 5 types of content (e.g., visual, auditory, and verbal content) times 6 types of products (e.g., relations and implications)” (Slavin, 2003, p. 26). Through the extensive work of Guilford, the idea of intelligence as a complex entity found support.

A more contemporary theorist whose work has implications for this research is Robert Sternberg (1949- ) who proposed the Triarchic Theory of Intelligence. For Sternberg, intelligence could only be measured adequately when the analytical was balanced by both creative and practical constraints. Crucial to this research is the idea that one component of practical intelligence is an inherent knowledge or “tacit knowledge.” This term is defined as “action-oriented knowledge, acquired without direct help from others that allows individuals to achieve goals they personally value” (Sternberg, Wagner, Williams, & Horvath, 1995, p. 916). This innate knowing is central to discussions of spiritual intelligence, and the idea of identifying and articulating personal value is an important concept for the inclusion of spiritual intelligence in the current study.

Perhaps one of the most influential theorists on intelligence for the current research is Howard Gardner, who is best known for his theory of multiple intelligences or MI. He began to realize that typical IQ tests only measured verbal or mathematical skills while ignoring other
abilities. While conducting his research on intelligence, he began studying brain research, gifted and exceptional student research, test data on transfer and generalizations, as well as cultural differences in cognition. His conclusions supposed that an intelligence must be operationally identifiable and prompted by knowledge, while being able to be encoded in a symbolic system that communicates data or facts (Gardner, 1993, pp. 7-8). He identified seven original intelligences. These were musical, bodily-kinesthetic, logical-mathematical, linguistic, spatial, interpersonal, and intrapersonal (pp.8-16). In later manuscripts (1999 and 2000), Gardner identified three additional categories: the naturalist, the spiritual, and the existential for consideration as intelligences. The naturalist is the ability to identify items in nature and would be evident in evolutionists. Another was spiritual, which he did not acknowledge as a legitimate intelligence. Gardner did not think it should be confused with phenomenology or knowledge of one’s consciousness or the visceral reactions or intuitions. He also felt that spirituality is only associable within a religious context, and thus, he was uncomfortable and unable to define it using the criteria for other intelligences. Existential is the last concept. It is essentially “the intelligence of the big question” (Gardner, 1993, p. 20), the aspect of the spiritual that ponders one’s existence and purpose in life, as well as issues that have to be acknowledged outside of normal sensory perceptions. Although this fits many of his intelligence criteria, Gardner is still hesitant to fully embrace it. Of the three, the naturalist became the eighth category he acknowledged as an intelligence. It is important to note that while his concept of multiple intelligence is often advocated as a viable concept in educational discourse, his theory has not been validated (Waterhouse, 2006).

Recent research has supported Gardner’s assertions that more than cognition should be included in any debate on intelligence. Daniel Goleman (1995) proposed a five main domain
concept of emotional intelligence or EI. These researchers suggested that people with high levels of EI were acutely aware of their emotions and those of others. They could use them to understand emotional situations, enhance thinking, and use emotions to attain their goals. Goleman (1995) expanded these concepts to include 20 competencies. He included knowing one’s emotion (self-awareness); managing emotions (self-management); motivating oneself (marshaling emotions); recognizing emotions in others (empathy); and handling relationships (social awareness) as the five domains of emotional intelligence. Some recent research that tests the relationship between EI and achievement (Al-Ahmadi, 2007; Alumran & Punamaki, 2008; Samples, 2011; Shipley et al., 2010) suggest that a relationship between SI and achievement may also exist. To understand affiliation, a look at spirituality and its implications for intelligence are necessary.

**Spirituality.** Aspects of the spirit and soul, because of the abstractness of the concept, create a wide range of definitions and understandings, even among experts. Educators agree on the importance of intelligence to achievement. Many experts also recognize the importance of encouraging wellness or resiliency by accessing personal spiritual values. However whether or not aspects of this concept is an intelligence is much debated. A look at the characteristics of spirituality is central to any discussion of spiritual intelligence. Definitions of spirituality, use of spirituality in areas beyond the academic, as well as the insights of spiritual leaders provide support to scaffold the concept of spirituality to that of spiritual intelligence.

Finding one acceptable definition of spirituality is difficult, primarily because of the very elusive nature of the topic. In fact, William Kay (1996) admitted, “the meaning of ‘spirituality’ in any given context will be dependent upon the philosophical and theological framework of the writer” (p. 18), much like beauty being in the eye of the beholder. This is very evident when
examining definitions of spirituality in diverse cultures. To the Native American Indians, their concept of spirituality “evolves from exploring and coming to know and experience the nature of living energy moving in each of us, through us, and around us (Cajete, 1994, p. 42). A similar viewpoint can be found in some African cultures as well. “According to African spirituality, being is the perpetual flow of energy among animate and inanimate things and between all of these and the gods” (Wangoola, 2000, p. 265). Both of these cultural views of spirituality unite a person with nature and energy, which corresponds well with another common factor found in spiritual definitions - the linking of elements together. In fact, Burman (2002) stated “spirituality is about connection and making those connections” (p. 1). The intertwining of man to nature or to the divine leads to similarities that transcend any one religion or cultural experience.

In educational settings, attention to the spiritual is often missing. Too often, any discussion of spirituality has been misinterpreted as a discourse on religion. Consequently, there has been a purposeful delineation between the two concepts. One article that reviewed the recent psychological literature on religion stated “the recent emphasis on spirituality represents an expanding conception of religion rather than a postmodern replacement of it” (Emmons & Paloutzian 2003, p. 382). It becomes important to acknowledge that although religion and spiritual matters are separate, they are not unrelated nor should they be ignored.

Wesley (1999) feels that teachers should encourage students’ spirituality because “This [spiritual] ascendency is a journey from being nobody to becoming somebody unique and special” (p. 42). Through encouragement, a student is empowered to fulfill his or her potential and become a successful adult. For Wesley, the role of an educator is to not only be a curator of high academic standards, but to be an arbiter of spiritual wellness as well.
Several of the proponents of spiritual intelligence recommend its inclusion in education based on the benefits gained from holistic learning. John Miller (1999) feels that making connections becomes a part of a holistic learning experience. This connectedness is reiterated by Kessler (1999), who feels that a common link between spirituality and schools should include connections to the self, to others, to nature, or to a higher power. She strongly affirms that in order to develop successful, contributing members to this society, the spiritual must be included. “If we are educating for wholeness, citizenship, and leadership in a democracy, spiritual development belongs in schools” (p. 52). This holistic component was also found in a phenomenological study of adult professionals at work that showed “spirituality informed, guided, and changed cognition, behavior, and emotion,” in the study participants (Gallagher et al., 2007, p. 478). In essence this study recommended that an individual’s learning should be from a holistic perspective where their gains were reached through spiritual motivation “rather than a fragmented one-dimensional understanding of learning” (Gallagher et al., 2007, p. 478).

In the United States elements of the spiritual and religious are controversial and are usually directed toward parents or private establishments for development. Therefore, to gain a more balanced perception of spirituality in education, studying other countries where spirituality is included in the curriculum is beneficial. Hay and Nye (1996) likened spirituality to a scale with artistic sensitivity on one end and mystical elements on the other. Although this range provides for a depth or breadth of meanings to the word spirituality it is also this wide chasm to the components of spirituality that cause the greatest concern for educators. Hay and Nye (1996) stated that despite the fact there is a great discrepancy between the two extremes; commonalities exist “for both refer to heightened awareness or attentiveness. We conjecture that spirituality in general is concerned with an awareness of and reflection upon the self and an holistic awareness
of all that is not the self” (p. 7). This common ground is in fact what Hay and Nye contend make spirituality acceptable for inclusion in public schools in England and Wales. However, this dualistic view of spirituality presents an obstacle for some. Mike Radford (2006), the Programme Director for the Canterbury Christ Church University Doctorate in Education, feels that this attempt to define spirituality in terms of the internal self that reacts with the outward external world is problematic. Instead of focusing on the egocentric ideas of spirituality, he feels “we might adopt a sociocentric perspective in which the supremacy of the ego is dissolved in favour of an understanding in which we see ourselves as part of the social and natural outer world in which we exist” (p. 385). Spirituality for Radford must exist not only within, but in an appreciation and response to the outward world.

Often spirituality is confused with religion, and therefore, many studies propose a definition of spirituality that attempts to distance itself from religion. One example of this type of definition is used by nurses:

A quality [that] goes beyond religious affiliation, that strives for inspiration, reverence, awe, meaning and purpose, even in those who do not believe in any god. The spiritual dimension tries to be in harmony with the universe, strives for answers about the infinite, and comes into focus when a person faces emotional stress, physical illness or death.

(Murray & Zentner, 1989, p. 259)

Although the medical field has embraced the concept of spirituality, there is still much debate about the benefits to patients, especially children (Smith & McSherry, 2004).

Elements of the spirit are abstract; therefore, some researchers feel that spirituality is not so much defined, as characterized. One article written from a humanistic viewpoint claimed that “Authentic spirituality involves an emotional response—what I will call the spiritual response—
that can include feelings of significance, unity, awe, joy, acceptance, and consolation” (Clark, 2002, p. 30). Clark also added two other components to spirituality—a cognitive context as well as a spiritual practice. This cognitive element is perhaps most important in relation to achievement. For Clark, certain spiritual reactions in the emotional realm such as “feelings of connection, significance, serenity, [and] acceptance” (p. 30) are apparent in all spirituality experiences, yet some of the foundational beliefs of each particular faith or religious group are quite diverse. A study to help adolescents overcome risk factors further explored the basic characteristics of spirituality. Wright (2006) identified awareness, which includes properties that are both internal physically and supernaturally, as well as wholeness, which understands the concept of self by integrating disparate parts with meaning and purpose. The author believes these are critical components of spirituality that allowed students to navigate and find safe passage in their world. These perceptions of awareness and wholeness are terms that recur in many of the descriptions of spirituality and become acceptable concepts that acknowledge the importance for inclusion in education, as well in other areas such as nursing and psychology.

Studies on the place of spirituality and academia present interesting dilemmas for educators. Bradley and Kauanui (2003) conducted a comparative study on three California college campuses—public state, private non-secular, and private secular—and posited an important point on the influence of spirituality in academic settings. Although there have been many research studies on the importance of spirituality in the workplace, few have been conducted on college campuses which produce the leaders for tomorrow. These researchers contend that one reason spirituality is not evident on college campuses is the stance with which schools present the concept to students. “Soul and spirituality are absent because students in business schools are taught that if it cannot be measured, it has no meaning” (p. 450). Their research showed that
the environments of these three kinds of campuses varied greatly and that the attitudes of the instructors mirrored those of the school. For many educators, one of the problems faced by schools in deciding whether to include spiritual elements is the lack of objectivity in being able to measure concepts of spirituality, thus many schools refuse to include spiritual components in educational programs.

The premise of their study about the importance of the teacher’s role was supported by the work of Parker J. Palmer (1998), Senior Associate of the American Association of Higher Education and Senior Advisor to the Fetzer Institute, who wrote that “good teaching cannot be reduced to technique; [but] comes from the identity and integrity of the teacher” (p. 10). Palmer, an acknowledged Quaker and one whose ancestors suffered from being a minority in a religious world, does not feel that schools should fear including spiritual components, but should recognize that “Spirituality—the human quest for connectedness—is not something that needs to be ‘brought into’ or ‘added into’ the curriculum. It is at the heart of every subject we teach, where it waits to be brought forth” (p. 8). In fact, he contends that until students can connect the larger issues of the subjects to their lives, they do not truly learn. Spirituality helps make that connection. To Palmer, “Teaching and learning, done well, are done not by disembodied intellects but by whole persons whose minds cannot be disconnected from feeling and spirit, from heart and soul” (p. 10). The importance of wholeness to achievement is again emphasized.

Radford (2006) feels that spiritual growth is not dissimilar to other forms of development and can be universally applied. Incorporating spiritual development may be viewed as “a process of identification of those underlying features of the human condition which for some finds articulation in religious teaching, but which are important to all of us in terms of our ability to understand the nature of our own existence and to flourish in our lives” (p. 396). Rather than
regarding spiritual elements as reflectively discovered inner experiences, Radford contends that they are simply aspects of common experiences shared by all.

Although there is much support for the inclusion of spirituality in educational venues, there are some who advocate caution when discussing these concepts. In a literature review of 44 articles on spirituality found in the *International Journal of Children’s Spirituality*, Watson (2003) found relevant insight about spirituality for educators. She noted that even though much of the literature advocated the positive influence of spirituality on moral development and personal growth, there were negative, even subversive overtones to some of the articles. She concluded that “spirituality in schools is about allowing freedom for children’s personal growth…However, schooling, because it is influenced by western socio-economic values, inhibits this growth, thus inhibits moral development, and in turn threatens society” (p. 19). However, Hay (1997) stated that “spiritual education must be *subversive*” (p. 6) in order to combat the decomposition created through society’s tendency to emphasize the individual while refusing to listen to the spiritual. Hay and Nye (1996) also add caution about the destructive influence of current socio-economic propensities and believe that “Spirituality cannot be taught. It can be and is very often crushed out of awareness during education” (p. 14). This idea that education might be destructive to spirituality is supported by Maslow (1971). He contends; “the present school system is an extremely effective instrument for crushing peak experiences and forbidding their possibility” (p. 181). Much of the literature debates whether or not educators should include controversial aspects of the spiritual, and some feel it should be added cautiously, being aware of the consequences of doing so.

Just as the definitions of spirituality are varied, the literature presents equally diverse positions on the subject. Many of the articles advocate not only the importance of spirituality for
awareness and reflection, but insist that “The value of developing spiritual awareness lies, partly, in the vantage point it gives children from which they can interpret their own experiences and those of others” (Pike, 2002, p. 19). Incorporating characteristics of spirituality to enhance education receives support from many sources (Palmer, 1996) especially in countries where spirituality is not only encouraged, but mandated, in schools such as in the United Kingdom (Hay & Nye, 1996; Ruddock & Cameron, 2010, Wright, 2006). The aspects of spirituality that have the most relevance to education are the ones that encourage self-knowledge, creativity, and development of ethical and moral attributes that allow students to answer their own existential questions about who they are and what their place is in the world. However, questions remain about whether these benefits can be translated into an intelligence and a look at the literature on spiritual intelligence is thus necessary.

**Spiritual intelligence defined.** Most recently, another concept of intelligence has gained prominence. However, just as intellectual intelligence is difficult to define and measure, the same is doubly true of spiritual intelligence. While intelligence quotients, multiple intelligence, and emotional intelligence are all important theories in the search to explain thinking and learning, they do not adequately explain all of the multifaceted aspects of human intelligence. These theories seem to eliminate the soul, the essence, or the spirit of students. According to one psychologist, “SI (spiritual intelligence) is defined as the ability to apply and embody spiritual resources and qualities to enhance daily functioning and wellbeing” (Amram, 2007, p. 1). Amram’s study suggests that if students can embrace these spiritual resources, perhaps they will be more functional and whole which is also a premise of a holistic approach to learning and achievement (Miller, 1999).
While Gardner (1993) considered the possibility of spiritual intelligence, he did not sanction the inclusion of SI as one of the multiple intelligences that fit his criteria. Several other researchers have not been so reticent. Sisk and Torrance (2001) expressly advocated for the inclusion of the spiritual as a necessary concept that augments all of the other intelligences and helps theses intelligences to function more proficiently. Sisk (2002) stated her research indicated searches for meaning and identity, which are vital elements to a student’s achievement. Her concept of SI is one that broadens rather than hampers performance. She defined spiritual intelligence as “the capacity to use a multisensory approach—including intuition, mediation, and visualization—to assess one’s inner knowledge in order to solve problems of a global nature (2008, p. 24). For Sisk (2002), spiritual intelligence provides students with four benefits, a) the ability to develop an inner knowing, b) the capacity to connect to the “Universal Mind or Big Mind” through deep intuition, c) the cultivation of oneness with the universe or nature, and d) the acquisition of problem solving capabilities that benefit others (p. 210). While acknowledging what spiritual intelligence is, Sisk insisted that it is not a form of organized religion. A good summary of Sisk’s idea of spiritual intelligence can be found in this quote, “An awareness of ultimate values and their meaning, peak experiences, a feeling of transcendence and heightened awareness are all part of spiritual intelligence experiences in action” (Sisk & Torrance, 2001, p. 153). One of the prominent recurring themes in the philosophies of Sisk and Torrance is that spiritual intelligence is an essential component in a child’s education.

David. B. King (2008), a Ph.D. student and teaching assistant at the University of British Columbia in Vancouver, Canada, as part of his master’s thesis, developed the Spiritual Intelligence Self-Report Inventory (SISRI-24) that measures spiritual intelligence and the instrument that was used in the current research as the predictor SI measure. He contends there
are four common aspects to a person’s spirituality: a) critical existential thinking, b) personal meaning production, c) transcendental awareness, and d) conscious state expansion. The first element of critical existential thinking, “simply defined as ‘having to do with existence’” (King, 2010a, p.7), is perhaps the most important for achievement. According to King, not only the questioning of one’s existence, but the contemplation of concepts such as the universe, truth, or justice indicate the level of spiritual intelligence experienced through critical existential intelligence. The second ability, personal meaning production, is most connected to a goal motivation theory. Personal meaning production “is defined as the ability to construct personal meaning and purpose in all physical and mental experiences, including the capacity to create and master a life purpose” (p. 11). The last two characteristics of spiritual intelligence, as delineated by King, are perhaps the most misunderstood and controversial. Transcendental awareness “is defined as the capacity to identify transcendent dimensions of the self (a transpersonal or transcendent self), of others, and of the physical world (non-materialism, holism) during the normal, waking state of consciousness, accompanied by the capacity to identify their relationship to one’s self and to the physical” (p. 15). This concept is related to mental abilities that are beyond normal human experiences. They perceive the big picture or dimension of life that is not material, and this awareness of spiritual dimensions of existence can be personally observed as well as recognized in others and helps in making connections. The last characteristic, conscious state expansion, is “the ability to enter and exit higher or ‘spiritual’ states of consciousness (such as pure consciousness, cosmic consciousness, unity, oneness) at one’s own discretion (as in deep contemplation, meditation, prayer, etc.)” (p. 19). A person who masters this ability is able to control how he or she enters a cosmic unity leading to peaceful or spiritual states of mind. Both
of these last concepts cause the most difficulty for those whose spiritual orientations do not align with these premises.

Another proponent for accepting spirituality as an intelligence is Robert A. Emmons, a psychologist at the University of California. While Sisk and Torrance (2001) and King (2008) indicated four core beliefs about Spiritual Intelligence, Emmons (2000) advocated five. His core components of Spiritual Intelligence are:

a) The capacity to transcend the physical and material
b) The ability to experience heightened states of consciousness
c) The ability to sanctify everyday experience
d) The ability to utilize spiritual resources to solve problems
e) The capacity to be virtuous (p. 10)

In order to lay a foundation for SI to be considered within the framework of intelligence, Emmons (2000) attempted to discuss the concept in scientific terms. He also wanted to show how spiritual intelligence met most of Gardner’s (1993) criteria to be classified as an intelligence. Spiritual intelligence appears to be formed developmentally, which is one of Gardner’s criteria of what constitutes an intelligence. The evidence provided through an examination of faith or moral development theories that suggest that each stage of development becomes more sophisticated than the last, and that most children pass within all stages in the same order (Slavin, 2003, p. 56) also support Emmons’s arguments.

The historic use of symbols by all major religions coincides with Gardner’s (1983) criteria and in fact states that these symbols “capture and convey crucial aspects of personal intelligence” (p. 242). The fact that the skills of spirituality are highly developed in many individuals is supported in studies of predominant leaders. Emmons used Sufi Master Ibn ‘Arabi
(as cited in Nasr, 1964) as his example. Sisk (2008), in a summer course for gifted students, “Engaging the Spiritual Intelligence of Gifted Students to Build Global Awareness in the Classroom” also used the study of spiritual leaders such as Martin Luther King and Gandhi to enhance the program and further support this element of Gardner’s criteria. After consideration of Gardner’s requirements to be labeled an intelligence, Emmons (2000) felt that Gardner may have prematurely dismissed spirituality as an intelligence because he used an incomplete or limited definition.

In discussing definition concerns salient for the current research, Emmons (2000) contends that a main component to a definition of spiritual intelligence is “adaptive problem-solving behavior, where problem solving is defined with respect to practical goal attainment and some sort of positive developmental outcome” (pp. 5-6). Beyond the problem-solving component of Spiritual Intelligence, Emmons asserted that the ability of people to display and hone virtues is important in Spiritual Intelligence discussions. “Virtues connect to both motivation . . . and to effective action. Conceiving of these inner qualities as virtues, implies that these are sources of human strength that enable people to function effectively in the world” (p. 13). Allowing students to acquire and practice these virtues may provide direct wisdom to aid in problem solving and an enhancement to their personal achievement. Emmons’s inclusion of virtuous behavior may be his attempt to acknowledge the role of values in the moral development of individuals.

In a review of literature about spiritual intelligence, one set of authors also noted that although SI made many positive contributions to adolescent formation, that there were also some negative aspects that must be considered. They cautioned that too much focus on spiritual
elements may lead to psychological or emotional malfunctioning that prevents the individual to order their SI into a noble course (Hosseini et al., 2010).

In 2000, *The International Journal for the Psychology of Religion* edited by Paloutzian, devoted its entire issue to the topic of spiritual intelligence. In the journal were several articles that debated the merits of spirituality being considered as an intelligence. Emmons explored the possibility and gave credible arguments to support his supposition that spirituality was indeed an intelligence and used Gardner’s theory to frame his defense. Emmons (2000) presented “neurological, developmental, evolutionary, and psychological evidence” that spirituality did indeed fit the criteria proposed by Gardner. There was also a rebuttal by Gardner who argued against this concept. Although Gardner admitted that several arguments were intriguing and worthy of further research, he felt distinctions must be made between intelligence and domains. To him, spirituality could be helpful and assist the user in life, but any intelligence must be centered in the “realm of cognition” (Gardner, 2000, p. 33). While he felt spiritual concerns fit well within the domains of a culture, they were not successfully linked to the intelligence of the same. For Gardner, intelligence represents the biological and analytical capabilities while regulations and constructs particularly pertaining to religion tend to fall in the definition of a domain. Another psychologist who agreed with Gardner and opposed the idea of spirituality being an intelligence was John Mayer (2000). He felt that spirituality was more a heightened consciousness than an intelligence, which is defined through the primary focus of abstract reasoning. Mayer did allow that the possibility of further research and investigation might provide evidence that there is indeed a concept entitled spiritual intelligence, but that Emmons did not quite make a sufficient case to satisfy his understanding of intelligence.
**Spiritual values and influence on achievement.** The current literature provides evidence that spiritual values can influence performance. Whether through career planning, cultural reflections, or unforeseen benefits, the importance of spiritual values on a student’s education must be recognized. In a quasi-experimental study by Mosconi and Emmett (2003), the researchers provided students the opportunity to define and evaluate their own values. They found the students tended to arrive at a broader definition of success and could verbalize their values better than a control group of students who had not had the same reflective experiences. A broader study by Tirri et al., (2005) sought clarification on the types of questions asked by average and gifted sixth-grade students in four different countries. The results encouraged further discussion on spiritual and moral issues in order to facilitate spiritual as well as cognitive growth on a global level. Seeley (2004) noted that there is a correlation between motivation and achievement in at-risk gifted students. He found that students who were challenged to value what they were learning over simply earning a grade appeared to be more motivated to learn than those students who focused only on extrinsic grade motivations. Another study by Jankowski (2002) encouraged spiritual transformation in order to overcome adversity. He advocated strengthening a relationship with God in order to increase one’s resiliency and thus find encouragement to succeed.

Zohar and Marshall (2001) reiterated the importance of spiritual intelligence to holistic values formation. Their analysis of spiritual intelligence (which they refer to as SQ) derived from general considerations of intelligence that measure degrees of intellectual intelligence (IQ). Equally important is the use of emotional intelligence (EI) as proposed by Daniel Goleman (1995). These authors feel that while IQ quantifies thinking, EI assesses feelings, and SI identifies being or existence. For people to function and thrive, they must incorporate all three of
these intelligences. However, Zohar and Marshall (2001) feel that SI is not only the most important, but the ultimate one. They state:

Spiritual intelligence is the soul’s intelligence. It is the intelligence with which we heal ourselves and with which we make ourselves whole....SQ [SI] is the intelligence that rests in that deep part of the self that is connected to wisdom from beyond the ego, or conscious mind, it is the intelligence with which we not only recognize existing values, but with which we creatively discover new values. SQ [SI] is not culture-dependent or value-dependent. It does not follow from existing values, but rather creates the very possibility of having values in the first place. (p. 9-10)

Their emphasis on values creation is important in connecting spiritual values or intelligence to achievement. Yet this emphasis on values may generate criticism from those who do not maintain the importance of the spiritual to the acquisition of values in education.

Interestingly, the work of another previously discussed theorist also influenced the current trend toward spiritual values. Maslow’s premise that a person who had reached self-actualization was one who knew who they were and understood their values, encouraged the popularity of values clarification in schools. However, after much debate, the values clarification emphasis began to fade, primarily because the theories lacked clear definitions and garnered criticism from the religious community (Kinnier, 1995). One major problem was that religious leaders felt there was moral ambiguity involved when an absolute arbiter of morality was denied (Baer, 1982). After the waning of values clarification popularity, a new focus emerged that emphasized moral development. Berger (1991) underscored the multi-dimensionality of religious and spiritual quests by adolescents, adding validity to the need for more exploration into human development. Revell (2008) noted that both public and private
religious school teachers admitted the importance of moral development to holistic learning. While teachers in both venues felt that religion was not synonymous with spirituality, they had very different approaches to the implementation. “Whereas teachers in religious schools believed the two reinforced each other, in public schools teachers sought their separation (p. 106). Whereas the current political climate that prevails in public schools does not encourage the inclusion of spirituality in academic curricula, there is some support for the inclusion of values. Which values are included seems to be an issue still under debate.

**Spiritual development.** The emerging literature on spiritual development is gaining more popularity as educators and psychologists begin to realize that spirituality and religion are not synonymous and that in order to educate the whole child, a holistic spiritual component exists (Revell, 2008). Hosseini et al., (2010) deems adolescence as a particularly important time for spiritual development. After this formative and maturational time, it is often difficult to change behaviors or learned patterns. The concepts of spiritual development are also critical to any discussions of underachievement. Symptoms of underachieving students appear when there is a failure to meet expectations. If attention is given to spiritual development, then underachievement may be overcome through enhanced goal motivations the student acquires.

One of the scaffolds to spiritual development is the concept of faith development, advocated by Fowler (2004), discussed previously. Fowler’s stages encompass “one’s form of logic, moral reasoning, perspective taking, world coherence, locus of authority, social awareness, and role of symbolic function,” (Parker, 2009, p. 41). He also realized that faith development must be nurtured and that the spiritual aptitude of each person shapes how fast they move through each stage. This nurturing of faith may lead to more positive gains in academic achievement.
Because achievement is measured by external rulers such as grades or test scores, the ability to relate to a student’s individual potential is difficult. Grant (1995) believes that “unrealized potential is not a problem of academic achievement” (p. 133), but rather a failure of the student to meet the educator’s or parent’s expectations and values. Once again, the literature is sparse on this topic and perhaps that is because of the controversial nature and lack of a working definition of the term spirituality. For educators it is important to understand the asynchronous nature of some at-risk or gifted students. Although these students may have the intelligence to ask mature questions, they may not have the emotional maturity to handle the responses. Likewise, any questions of a spiritual nature must include spiritual sensitivity issues of “knowledge and reasoning, as well as, compassion and generosity of spirit” (Lovecky, 1998, para. 30). One study on the relationship between spiritual, existential and religious well-being and intrinsic religious orientations and anxiety found that the higher the spiritual and religious orientations, the lower anxiety levels especially in males (Davis, Kerr, & Kurpius, 2003). This study suggests that including spiritual exploration may reduce the negative psychological implications that hamper achievement. The need for children to explore these issues from a holistic standpoint, and the ramifications these concerns may have on achievement are necessary for educators to comprehend. During their educational experience, students will explore multiple subjects and areas of interest. Perhaps if more educators added curricular components that included spirituality, students could fulfill their spiritual needs and be more academically engaged (King & Boyatzis, 2004).

Summary

Assisting the underachiever and consequently increasing America’s global competence is an imperative. Diligent educators wishing to encourage academic success must consider factors
that influence achievement. The theoretical frameworks that support the current research include Ford’s Motivational Systems Theory, Maslow’s hierarchy of needs with an emphasis on self-actualization, Vygotsky’s Zone of Proximal Development that encourages a supportive social learning philosophy, and Gardner’s theory of multiple intelligences that advocates various kinds of intellectual processes.

Another emerging trend in the literature is the inclusion of moral and spiritual development into curriculum discussions. The theories of Piaget and Erikson help define the cognitive and psychosocial aspects, Kohlberg and Rawls assist in understanding the moral facets, while the philosophy of Fowler adds to the faith and spiritual viewpoint of development. All of these theories help explain the multifaceted dimensions that can affect the performance and achievement of at-risk or underachieving learners. One important area that is often overlooked is the teaching of morality and spiritual foundations to help students find meaning in their lives and consequently in the learning. The theory of spiritual intelligence provides relevance for these discussions.

What is currently known about the variables included in the current research is significant. Achievement in the United States is continuing to decline as shown on international tests, yet the United States spends more on education than most other nations (Duncan, 2012). Factors that have the most influence on achievement are school, student, and parental factors (Bosworth, Ford, & Hernandaz, 2011; Brewster & Fager, 2000). Age (Grissom, 2004) and gender (Bryce & Blown, 2007; Conrad-Curry, 2011) are variables that have been studied often in educational research, but the results are not consistent and they have not been studied in the United States in relation to spiritual intelligence and achievement. Spirituality as a concept is often confused with religion and this causes caution, hesitation, and exclusion in educational
settings (Bradley & Kauanui, 2003). Spiritual Intelligence is a controversial concept and experts disagree on whether or not it is a true intelligence (Gardner, 2000; Sisk & Torrance, 2001; Zohar & Marshall, 2001). Most studies on spiritual intelligence occur in other countries (Azizi & Zamaniyan, 2013) or at the college level (Astin, Astin, & Lindholm, 2011), where the idea of spirituality is not as restricted.

What the literature does not make clear is also critical for improving achievement. The reasons for the continual decline of student scores in the United States on Programme of International Student Assessment are unknown. Whether the variables of age and gender predict achievement when they are coupled with spiritual intelligence needs to be investigated. In addition, if spiritual intelligence has any relationship to a student’s achievement, and whether the inclusion of spiritual values or constructs may bolster a student’s success need to be scrutinized.

What the current research adds to the field of knowledge is threefold. First, research indicates that while both age and gender are important to achievement dialogue, questions remain about how to alleviate any differences these variables bring to the academic equation. Second, what the impact of age and gender, when coupled with SI, conveys about these variables’ effects or possible predictive value on achievement was analyzed. Third, studying the influence of spiritual intelligence on achievement in an American setting provides a culturally relevant view of these variables and their possible influences on underachievement.

For the students, parents, teachers, and administrators concerned about underachievement, current trends suggest including at least spiritual if not religious aspects to help mitigate the problem. Adolescence is a particularly important time in the developmental life of secondary students. Markstrom (1999) stated that adolescents “move beyond concrete childhood impressions of religion to reflect on issues and concepts that are embedded in
existential and transcendental realms” (p. 205). During this intense time of growth and development, educators need to understand the influence of all intelligence constructs to include the spiritual. While there is some evidence that spiritual values may positively affect achievement, more research is needed to strengthen this concept.
CHAPTER THREE: METHODOLOGY

The purpose of this non-experimental correlational quantitative research study was to determine if there was a relationship between a student’s self-reported spiritual intelligence and his or her achievement, while controlling for the variables of age and gender. Students from two private and two public secondary schools in a southeastern state participated in this research by completing the Spiritual Intelligence Self-Report Inventory 24-question Likert scale instrument (King, 2008), while completing and granting permission to access the results of their American College Test (ACT) for analysis. Two sequential (hierarchical) multiple regression analyses were used to show the relationship between the variables of interest, achievement and SI, when age and gender were controlled. In addition, whether the demographic variables of age and gender or the four subscales of SI were predictive of that achievement were also investigated. In an effort to ensure the research process can be replicated, this methodology delineates the design, participants, setting, instrumentation, procedures, and data analysis used.

Design

This study was a non-experimental correlational quantitative research design used to analyze the relationship between the two variables of interest, spiritual intelligence and achievement, while controlling for the demographic variables of age and gender in secondary public and private students in a southeastern state. This design allowed the researcher to assess not only the relationship that existed between the variables of interest, but was an extension of the bivariate regression correlation that permitted the investigation of several predictor variables instead of just one upon the criterion variable for each subject (Tabachnick & Fidell, 2001). This technique was chosen because it enabled the researcher to find the best possible weighting of the predictor variables (SI, age, and gender) to yield a maximum correlation with the variable of
interest, achievement (Ary, et al., 2006). Both age and gender (Roos, et al., 2013) have been shown to be significant predictors of achievement, thus these variables were controlled in this study. To avoid strong inner correlations that prevent relevant interpretations or the confounding of variables between the Total SISRI-24 and its subscales, separate regression analyses were conducted as recommended by Meyers, Garnst & Guarino (2012). The use of this research was warranted because there have been few studies conducted on spiritual intelligence with high school students (Sisk, 2008; Tirri et al., 2005) and none that addressed the issue of achievement.

Questions and Hypothesis

Research Questions

The research questions for this study are

**RQ1:** Is there a statistically significant relationship between spiritual intelligence as measured by the total score on The Spiritual Intelligence Self Report Inventory-24 (SISIR-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled?

**RQ2:** Do the demographic variables of age and gender contribute to the model that predicts achievement on the American College Test (ACT)?

**RQ3:** Does spiritual intelligence as measured by the four spiritual subscales on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT)?

Hypotheses

The research hypotheses for this study are
1. There is a statistically significant relationship between spiritual intelligence as measured by the total score on the Spiritual Intelligence Self-Report Inventory-24 (SISRI-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled.

2. The demographic variables of age and gender do contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

3. The four subscales of spiritual intelligence as measured on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) do contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

**Null Hypotheses**

The Null Hypotheses are

1. There is no statistically significant relationship between spiritual intelligence as measured by the total score on the Spiritual Intelligence Self-Report Inventory-24 (SISRI-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled.

2. The demographic variables of age and gender do not contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

3. The four subscales of spiritual intelligence as measured on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) do not contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).
Participants

Participants for this study included students who attended one of four schools, two public or two private in a southeastern city, whose superintendent, principal, or director agreed to partake in this research. At each school, the principals selected the teachers and classes they wished to be included. All of the students in the chosen classrooms were invited to participate in the testing. The target populations for this study were those students who met the following criteria: parents granted permission, students willingly volunteered to participate, students registered and completed the ACT within the school year, and students took the SISRI-24 self-report inventory.

The number of students invited to participate in this research was 314. Returned consent forms yielded 29% return rate or 90 volunteers. These 90 students completed the SISRI-24, but 14 either did not take or report their ACT scores or had too much missing data to be usable. Thus, the final number of participants used in this research was a convenience sample of 76. This sample was used because of the availability and accessibility of data to the researcher (Ary et al., 2006). The ages of the students ranged from 12 to 19 years of age. To facilitate analysis, the students were grouped into categories by age and by gender.

Correlational studies do not require a large sampling of students because if there is a relationship, it will be present in a medium sample of 50 to 100 participants (Ary, et.al., 2006, p. 380). Tabachnick and Fidell (2001) discuss a simple rule for determining sample size between the DV and IVs. The formula for testing when using a multiple correlation is $N \geq 50 + 8m$ [$m$ is the number of IVs] (p. 117). Using this formula, this test would need $50 + 8(3) = 50 + 24 = 74$, and the total number of participants used in this study was 76, thus slightly exceeding this recommendation.
Another consideration about sample size that was important for this research was the statistical power or likelihood that there was sufficient sample participants to reject the $H_0: \rho = 0$ when the population correlation $\rho$ is actually nonzero. In correlation research, power is dependent on the true effect size in the population, the alpha level that is used as a criterion for statistical significance, and the number of participants who provided X, Y scores (Warner, 2008, p. 294). After conducting a power analysis using a .5 effect size and a power of .8, a minimum sample size of 75 was recommended (Warner, 2008). The goal of this research was to have as many participants as were necessary to ensure the smallest confidence level possible. Therefore the guidelines, formulas, and recommendations of Ary, Tabachnick and Fidell, and Warner indicate the sample size of 76 participants was sufficient.

**Setting**

The researcher sought participation from two private Christian schools and two public high schools in a southeastern state with the goal of obtaining participation from a minimum of 50 students. The schools were accredited by various agencies and each of the private schools had a different religious affiliation. In order to protect the anonymity of the students, pseudonyms were given to all schools or participants when listing the study or results. Following are the specific descriptions of each school invited to participate. While the names are fictional, the descriptions were taken from the websites of each school.

**School One–County High School**

This secondary school is one of 18 in the county and has a population of over 1,400 students. The faculty and staff are dedicated to providing an excellent academic program that provides its students with the aptitude, proficiency, and values necessary for success in a diverse
society. The school has received a Good Standing on the state’s annual Adequate Yearly Progress report on K-12 education.

**School Two–Traditional Christian School**

This preparatory school is an independent co-educational, interdenominational school with college preparatory programs for students from pre-school (beginning at age 2) through twelfth grade. This school delivers instruction similar to the public schools, with students being taught by subject matter experts and then changing classrooms for each subject. Their mission is to assist students to maximize personal God-given talents, while encouraging the core values of academic and community excellence that centers the child in Christ and teaches fiscal responsibility. The total enrollment is 175 students. The 65 students enrolled in the secondary grades were invited to participate in this study.

**School Three–Ace Christian Academy**

This academy provides both a Christian and classical educational experience for their students in kindergarten (beginning at age two) through twelfth grade. This school uses the Accelerated Christian Education (A.C.E., 2013) curriculum, which delivers instruction on an individual basis and students progress at their own pace. They encourage Christian growth in their students by teaching the Bible in every grade. In addition, the low teacher to pupil ratio (1:9) allows teachers to focus on nurturing biblical principles in these students. The school is located outside the city limits, providing students from a rural background for the study.

**School Four–Regional High School**

The only high school in the city system with a student body that numbers over 1,200, it has received the Southern Association of Colleges and Schools District Accreditation and the Center for Performing Excellence Commitment Award. Their mission is to produce lifelong
productive citizens with the academic, social, emotional, and physical expertise necessary to succeed in their community. In addition, this school is ranked among the top in the state and takes pride in their hard working and dedicated staff.

In each facility, the students were given the SISRI-24 (King, 2008) instrument by their individual teachers in the subject classrooms. The participating teachers administered the instrument to their own students using protocols given by researcher and described in Instructions for Administering SISRI-24 (Appendix A) and Spiritual Intelligence Testing Administration Script (Appendix B).

**Instrumentation**

This research study utilized two instruments in researching the correlation of spiritual intelligence to achievement. The American College Test (ACT) was used to measure achievement (ACT, 2013a) and Spiritual Intelligence employed a validated measure developed by D. King (2008) called The Spiritual Intelligence Self-Report Inventory (SISRI-24). The controlling variables of gender and age were reported on the cover sheet of the SISRI-24 measure.

**Achievement Variable**

Achievement was measured using the ACT, a curriculum and standards-based college readiness assessment originally called the American College Test, which is administered by the ACT board. This is a standardized, multiple choice test that measures English, mathematics, reading, and science (ACT, 2013a). See Table 1 for the testing parameters. Students must register with and complete the ACT assessment, which is administered and monitored by personnel sanctioned by the ACT Board, increasing the robustness of the test. First published in 1959, this test was developed to provide a competency assessment that followed the philosophy
of its founder, E.F. Lindquist, who felt that “the content of achievement tests should mirror as closely as possible the skills required to perform coursework” (ACT, 2009, p. 107). Originally created to be an alternative to the Scholastic Aptitude Test (SAT) used to predict success in higher educational institutions, the ACT has been used as both a predictor of college success as well as a measure of current student accomplishment. According to Slavin (2003), “Many testing theorists claim that aptitude and achievement tests are so highly correlated that both should be considered achievement tests,” (p. 524) providing evidence for the acceptance of the ACT as an achievement measure. Although the ACT is accepted by many colleges and universities as a college entrance test, it has also been used by several states to measure end of year achievement (ACT, 2013a), as well as in research as an achievement measure (Craig, 2008).

Table 1

<table>
<thead>
<tr>
<th>Test</th>
<th>Number of questions</th>
<th>Time limit</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>75</td>
<td>45 Minutes</td>
<td>Evaluates standard written English and proficiency in use of rhetoric.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>60</td>
<td>60 Minutes</td>
<td>Assesses mathematical proficiency students should have acquired in typical courses taken by beginning of 12th grade.</td>
</tr>
<tr>
<td>Reading</td>
<td>40</td>
<td>35 Minutes</td>
<td>Rates reading comprehension skills.</td>
</tr>
<tr>
<td>Science</td>
<td>40</td>
<td>35 Minutes</td>
<td>Measures competence of skills gained in natural science classes such as reasoning, problem-solving, analysis, interpretation, and evaluation.</td>
</tr>
</tbody>
</table>

Scoring is calculated by the ACT Board and results are sent to the students and schools selected by the student to receive the outcomes. Scores possible on this test range from one...
(low) to 36 (high) on the composite test score (average of the four subtests,) as well as each subject test. There is no mathematical relationship between subscales and test scores—the subscale tests do not add up to the final composite score (ACT, 2013a).

Students taking the ACT must pay a fee; however, using the ACT as an achievement measure was not an additional hardship for the students in this southeastern area. The significant reasons for using the ACT in this state were: 90% of graduating seniors take the ACT, it is an eligibility requirement for participation in the state scholarship program, and it is part of a voucher system for students (ACT, 2013a). All four of the schools in the current research study encourage their students to take this assessment. The state where the study took place administers the ACT to all juniors enrolled in public schools (“More States,” 2007); therefore, this research utilized this requirement, which provided a larger pool of students for the study. With the evidence given that the ACT is indeed an achievement test as well as a college placement test, and realizing that the state chosen for the research traditionally favors the use of the ACT over the SAT, the researcher chose to use the ACT as the standardized achievement measure.

The Predictor Variables

The coversheet (see Appendix C) used to administer the SISRI-24 asked the participants to list their demographic information.

Age. Students were required to put their chronological age in years on the cover sheet of the SISRI-24 instrument. For analysis purposes, the ages were divided into three categories: low = 12-15, medium = 16-17, and high = 18-19 and were dummy coded as 1, 2, and 3 respectively. This conversion allowed for the discrete variables to be converted for use in the IBM SPSS 21
research software. Correlational research requires the exact number rather than a range in order to analyze. (Tabachnick & Fidell, 2001).

**Gender.** Participants were given the option of marking male or female on the SISRI-24 coversheet to denote their gender. These variables were also dummy coded to allow for the variable to be input as a number value rather than as a term, thus complying with correlational research requirements (Tabachnick & Fidell, 2001). They were coded as 1 = male and 2 = female during analysis and when input into a Microsoft Excel worksheet and IBM SPSS 21 software.

**Spiritual Intelligence (SI).** The Spiritual Intelligence Self-Report Inventory (SISRI-24) by D. King (2008) was used to assess the spiritual intelligence of students. This is a 24 item self-reporting survey that measures four subscales of spiritual intelligence. See Table 2 for a brief discussion of the instrument content.

Individuals were asked to mark the response that best represented their spiritual intelligence using a 5 point Likert scale 0–Not at all true of me; 1–Not very true of me; 2–Somewhat true of me; 3–Very true of me; 4–Completely true of me (King, 2008). Sample questions include: “I have spent time contemplating the purpose or reason for my existence,” or “I have deeply contemplated whether or not there is some greater power or force (e.g., god, goddess, divine being, higher energy, etc.)” (King, 2008, p. 1). The complete instrument can be accessed at http://www.davidbking.net/spiritualintelligence/sisri-24.pdf

The questionnaire is divided into four sections: Critical Existential Thinking (CET), which includes question numbers 1, 3, 5, 9, 13, 17, and 21; Personal Meaning Production (PMP), which comprises items 7, 11, 15, 19, and 23; Transcendental Awareness (TA), which contains numbers 2, 6*, 10, 14, 18, 20, and 22 with question 6 requiring a reversal of scores before
summation occurs; and Conscious State Expansion (CSE), which includes the last remaining questions 4, 8, 12, 16, and 24 (King, 2008). Higher numerical scores reflect a greater perceived spiritual intelligence than lower scores. Scores ranging between 0 and 39 are categorized as having underutilized SI; scores between 40 and 64 manifest average SI; and students scoring between 65 and 96 are said to have highly defined SI (King, 2010a).

Table 2

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Number of questions</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Existential Thinking</td>
<td>7</td>
<td>The contemplation of one’s purpose or existence and connection to the universe as well as such topics as life, death, reality, truth, or justice.</td>
</tr>
<tr>
<td>Personal Meaning Production</td>
<td>5</td>
<td>The ability to create meaning and purpose in one’s life and discern purpose from both mental and physical experiences even in failure.</td>
</tr>
<tr>
<td>Transcendental Awareness</td>
<td>7</td>
<td>The capacity to perceive the “Big Picture” that is not material and goes beyond normal experiences. This awareness of spiritual existence can be recognized in others and personally observed.</td>
</tr>
<tr>
<td>Conscious State Expansion</td>
<td>5</td>
<td>The power to control and move into higher spiritual planes through deep meditation, prayer, or contemplation.</td>
</tr>
</tbody>
</table>

King measured reliability using a Cronbach’s Alpha, a test mainly used to measure attitude scales. In previous studies, King and DeCicco (2009) found construct, divergent, and convergent validity all held up well. Of particular interest for the current research were the findings about the relationship between the SISRI-24 and religiosity, age, and IQ. Correlations between the SISRI-24 measure and “intrinsic religiosity exceeded correlations with extrinsic religiosity” (p. 77). King and DeCicco (2009) also found “a significant positive correlation
between spiritual intelligence and age, lending potential support to the development of spiritual intelligence over the lifespan” (p. 79). The most relevant result to the current study was “IQ displayed no significant correlations with SI or any of the SISRI-24 subscales” (King, 2008, p. 154). Overall, the inter-subscale correlations showed $p < .05$. For a complete review of the validity findings for this test, please refer to findings published by the author at: http://www.davidbking.net/spiritualintelligence/sisri-24.pdf

Although there are other assessments that measure SI, most presented problems. Some of the measures were very lengthy and cumbersome for use in this study, some were too costly, some provided no scoring or feedback directions for the administrators or participants, and some were computer enabled measures that would have limited participation and researcher access to scores. King allowed free access to his measure, scoring information, and statistical findings, which made this instrument ideal for use with secondary students in a high school setting.

**Procedures**

The first step in the research process was to contact David King, the author of the instrumentation measure for permission to use The Spiritual Intelligence Self-Report Inventory-24. Studies used for academic purposes involve no cost, but the author requested a copy of test results. This permission was granted in October 2010. See the permission request and acceptance found in Appendix D.

The next step was to gain permission from each of the schools to conduct the research. After receiving clearance from interested schools, the participating principals provided a letter printed on the school’s letterhead granting permission for testing to occur at their school. In accordance with Liberty University policies, the International Review Board (IRB) application
was submitted, and the IRB committee granted permission to collect data on April 8, 2012. The approval letter is found in Appendix E.

Appointments were arranged with the point of contact designated by the principals, to schedule the administration of the instruments at each school. Folders were collated that contained instructions for the teachers (Appendix F) who were participating in the research, a poster to place on display (Appendix G), an invitational letter to be read to students (Appendix H), and a consent form packet (Appendix I). These packets were given to all students who qualified for testing and who attended the selected schools. This packet contained two permission letters, one for the participants to retain for personal use and one to return to the school, as well as an invitational letter explaining the research and defining spiritual intelligence. The participants were selected based on returned permission/consent forms, which also granted the researcher permission to acquire the ACT scores from the counselors or designated point of contacts at each school. After all permission/informed consent letters were returned, the researcher prepared test packets for each teacher to administer the SISRI-24 survey. The researcher downloaded the SISRI-24 instrument from the web site and attached a cover sheet created to gather the demographic data needed (Appendix C). Random numbers were generated and entered twice into a label template and printed onto self-adhesive labels. These were then adhered to both the cover sheet and SISRI-24 document to allow for separation in order to preserve student anonymity. The researcher then prepared the test packets and placed them in legal sized brown accordion folders for each test administrator and point of contact. Each folder contained Instructions for Administering SISRI-24 (Appendix A); Spiritual Intelligence Testing Administration Script (Appendix B); a Research Participants form (Appendix J) that provided columns to record Student Name, Consent Form returned, and ACT scores; a folder marked
Consent Forms to place returned documents; two legal sized envelopes—one marked ‘COVER SHEETS’ and the other ‘SISRI-24’; and the required number of testing assessments necessary for each teacher. In addition, the Point of Contact (Appendix K) instructions were given to each designated person at each school. These packets were delivered to each school prior to the testing date.

On the day of the administration of the SISRI-24 instrument, the classroom teacher gave each participant a two page document containing a numbered cover sheet and a correspondingly numbered survey. The teacher read the instructions from the script, and the students completed the cover sheet, providing their name, gender, and age. The participants then removed the cover sheet and gave it to the classroom teacher, who placed it in a legal sized envelope marked COVER SHEETS. The teachers sealed the envelope after all participants had completed the cover sheet. This procedure left no visible personal information, but only a random number on the survey instrument, thus providing the students with complete anonymity from that point in the research process.

The students then completed the SISRI-24 following the researcher’s protocols given to the teacher. The actual instrument contained a 24-item self-report Likert survey printed on one side of standard 8 1/2 by 11 inch paper. The instrument was scored by the researcher, so either a pen or pencil was used to complete it. The projected time frame to finish this instrument was 15 to 45 minutes, but there were no time restraints given to the participants. Students returned the completed instrument to the classroom teacher who placed the surveys into a second legal sized envelope labeled SISRI-24. The teachers then sealed the envelope when all the students had submitted their surveys. From the beginning of the survey administration to its completion took approximately 20 minutes to one hour. The teachers returned all testing materials into the brown
accordion test packet and returned them to point of contact at each school. All packets were gathered by the researcher for analysis.

Students individually registered and completed the ACT test. The cost of the test was $36.50 (ACT, 2013a) and this fee was the responsibility of the students with no financial restitution given by the researcher. Because the tests were required for college entrance, the price was not an additional cost for the students to participate in this study. For those attending public schools, this test was administered to all juniors free of charge. In order to prevent certain internal threats to validity such as history, maturation, and test mortality, the SISRI-24 was scheduled within close proximity to the ACT test. Each school was provided a form to list all student participants (Appendix J), with a place for the school-designated test coordinator to write in the ACT scores for each student.

After the surveys were collected, sums for all item responses or subscale scores (after accounting for reverse-coded item) were input into an Excel spreadsheet. To provide students with feedback about their personal SI, their individual SI results were recorded on an explanatory results sheet (Appendix L), sealed in an envelope with the student’s name on the front, and returned to the point of contact to distribute to each student.

When both the SISRI-24 and ACT scores were obtained, the results were input into an Excel spreadsheet and then uploaded into the IBM Statistical Package for the Social Sciences version 21 (SPSS). After the specific tests were conducted the results were compiled and analyzed.

**Data Analysis**

Two sequential (hierarchical) multiple regression analyses were used to measure the relationship between the two main variables of interest, achievement and spiritual intelligence,
while controlling for the predictor variables of age and gender or the subscales on the SISRI-24. Effect sizes for this correlation and regression analyses were determined by squaring the correlation coefficient, the coefficient of determination. This resulted in an analysis of the null hypotheses occurring with a $R^2$ value of .21 and .25. Using Cohen’s $d$ guidelines, the result indicated a small effect size (Ary, et al., 2006). The research analysis involved a three step process: the data were swept for errors, assumption tests were performed, and the multiple regression analysis was conducted.

Proofreading the data revealed that no errors occurred when the demographic variables from the cover sheet or the student responses to the SISRI-24 inventories were in put into the Excel spreadsheet. To verify this initial screening process, an analysis of descriptive statistics using IBM SPSS revealed 14 missing cases and these were eliminated from the analysis.

In order to encourage test robustness and prevent analysis bias, it was important to test the results for violations to statistical assumptions (Mertler & Vannatta, 2002). Therefore, analyses were conducted to test for the statistical assumptions of normality, extreme outliers, linearity, and homoscedasticity of the residuals. Histograms, a P-P plot, and scatterplots were generated from the data to test these assumptions. See Table 3 for a summary of the analyses conducted.

One of the most important assumptions to verify was that of normality. If the data fall within a normal distribution then the data will have a mean equal to 0 and a standard deviation equal to 1 (Howell, 2008). A histogram and Normal Probability-Probability (P-P) Plot of Regression Standardized Residuals were generated from IBM SPSS 21 regression analysis. The actual shape of the distribution for each group was found to follow roughly the traditional bell curve in the histograms indicating normality. In P-P plots the data are normally distributed when
the observed values along the x-axis and corresponding y-axis appear to be a straight line (Mertler & Vannatta, 2002). The data followed the plot line closely. Both the histogram and P-P plot indicated the data were fairly normally distributed.

Table 3

Assumption Tests Conducted

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum &amp; maximum values</td>
<td>Descriptives in Descriptive Statistics (SPSS)</td>
</tr>
<tr>
<td>screening</td>
<td>**</td>
</tr>
<tr>
<td>Normality</td>
<td>Descriptive Statistics (SPSS)</td>
</tr>
<tr>
<td></td>
<td>Histograms</td>
</tr>
<tr>
<td></td>
<td>Normal Probability-Probability Plot of Regression Residual</td>
</tr>
<tr>
<td>Linearity</td>
<td>Scatterplot</td>
</tr>
<tr>
<td>Homoscedasticity</td>
<td>Scatterplot</td>
</tr>
<tr>
<td>Multicollinearity</td>
<td>Excluded variables (SPSS) tolerance and variance inflation factor (VIF)</td>
</tr>
<tr>
<td></td>
<td>Collinearity diagnostic (SPSS)</td>
</tr>
<tr>
<td>Extreme outliers</td>
<td>Outlier labeling rule (Hoaglin, Iglewicz, &amp; Tukey, 1986; Tukey, 1977)</td>
</tr>
</tbody>
</table>

After completing the histogram and exploring extreme values, there was some concern about the problem of outliers affecting analysis. In an effort to test for outliers, the *outlier labeling rule* first proposed by Tukey (1977) and refined by Hoaglin, Iglewicz, and Tukey (1986) was used. These results suggest that the questionable data fell within an acceptable range for inclusion in analysis.

Linearity is the assumption that there is a straight-line relationship between the two variables, or combination of variables. This is important in correlation analysis because the Pearson’s *r* only describes linear relationships and ignores nonlinear ones. Bivariate scatter plots
were the graphic tools used to assess linearity. The scatter plots were assessed and revealed that no curvi-linear relationship existed between variables, and were roughly oval in shape. When the variables are normally distributed and related linearly the scatterplot results will be oval-shaped (Tabachnick & Fidell, 2001).

The definition of homoscedasticity is the assumption that the variability in scores for one continuous variable is approximately the same at all values of another continuous variable. It is similar to the univariate assumption of homogeneity of variance and related to the assumption of normality (Tabachnick & Fidell, 2001), because when the data meet the multivariate assumption of normality, the relationships between variables are homoscedastic (Mertler & Vannatta, 2002). A visual scan of the scatter plots suggested there could be a problem with homoscedasticity. The results were not as sparse as those provided in texts, and the results, though similar, were not matching the descriptions given exactly. Therefore, the Mertler and Vannatta statement was used to support the homoscedasticity of the data. It should be noted that while the scatterplot did not align with those in the texts, that “heteroscedasticity is not fatal to an analysis of ungrouped data...the analysis is weakened, but not invalidated” (Tabachnick & Fidell, 2001, p. 80). The data failing to match these requirements exactly raised the possibility that heteroscedasticity was likely; however, the researcher considered this to be a moderate violation that was acceptable. When discussing the possibility of moderate violations to assumptions, Mertler and Vannatta admit, “in reality, we would probably be justified in expecting some slight departures from the ‘ideal’ situation . . . due to sampling fluctuations” (2002, p. 174).

An examination of the coefficients output from the regression analysis was used to test for any multicollinearity or singularity relationship among variables that might exist. Multicollinearity and singularity occur when the variables used in a correlation matrix are too
highly correlated or are redundant respectively (Tabachnick & Fidell, 2001). A tolerance measure with values that usually fall between 0 and 1, with a tolerance close to 0 indicates multicollinearity. This data set revealed a Tolerance less than 1 at .984 and .988. In addition, an examination for the variance inflation factor (VIF) for a given predictor variable indicates if there is a strong linear association present between the predictor variable and the remaining IVs. All of the VIF’s in this research were found to be at 1.010 to 1.016. If the VIF exceeds 10 it is generally a cause for concern and indicative of multicollinearity (Mertler & Vannatta, 2002). Neither the Tolerance nor the VIF’s were problematic. The histogram, P-P Plot, scatterplot, Tukey’s outlier examination, and Tolerance and VIF results revealed that the data met assumptions for accurate regression analysis to occur.

Two sequential (hierarchical) regression analyses were chosen to measure the strength of the relationship between variables and to identify if any of the predictor variables had predictive value on the criterion variable. This regression procedure was chosen over a standard multiple regression because it allowed the researcher to ground the entry of variables into the regression equation based upon logical or theoretical premises. Several other studies were examined to identify other possible statistical analyses such as one-way ANOVA or Spearman rho correlations. None of the statistical analyses used in previous research met the criteria for the research data used in this study. Therefore, they were rejected because the data were not collected through an interview process, the subjects were not divided into groups, nor were the data ordinal in nature. See Table 4 for other studies examined.

According to Tabachnick and Fidell (2001), regression analysis has several goals: a) to investigate the strength and importance of the relationships between DV and IVs, b) to examine relationships between a DV and some IVs when the influences of other IVs have been eliminated
statistically, and c) to compare the predictive ability of several different sets of IVs on the DV.

In addition, the sequential regression analysis provides the added bonus of allowing the researcher to choose when to enter variables into the analysis equation.

Table 4

**Methodologies Surveyed and Considered**

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Studies examined using similar protocols</th>
<th>Rationale for acceptance or rejection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchical regression analysis</td>
<td>Alumran &amp; Punamaki, 2008 Azizi &amp; Zanamiyan, 2013 Bolghab-Abadi, Ghofrani, Abde-Khodaei, 2012 Olsen, 2008</td>
<td>These tests allowed the best weighting between multiple variables upon a criterion variable (Ary et al., 2006). It examined relationships and predictive values as well. This methodology was accepted.</td>
</tr>
<tr>
<td>Bivariate correlation–Spearman’s ranks</td>
<td>Christ-Laken, 2010</td>
<td>Ordinal data is required for this analysis and the current study used normally distributed interval data. This methodology was rejected.</td>
</tr>
<tr>
<td>One-way ANOVA’s</td>
<td>Christian &amp; Barbarin, 2001</td>
<td>Data obtained through qualitative interviews for the purpose of analyzing data from more than one group. No interviews were conducted. This methodology was rejected.</td>
</tr>
</tbody>
</table>

The primary focus of this study was to investigate the relationship that may occur between SI (SISRI-24) and achievement (ACT), and to remove or control for the variables of age, gender and SISRI-24 subscales. To avoid strong inner correlation that prevent relevant interpretations or the confounding of variables between the Total SISRI-24 and its subscales, separate regression analyses were conducted as recommended by Meyers, Garnst, & Guarino(2012). In order to discern which had more predictive value on achievement, the demographic variables of age and gender, or the subscales of spiritual intelligence, previous research was consulted. The literature suggests that both demographic variables of age (Defoe et
al., 2013; McClelland et al., 2013; Roos et al., 2013) and gender (Bryce & Blown, 2007; Conrad-Curry, 2011) have impact on achievement and intelligence, and both emerge earlier in a child’s development than SI. Therefore, in order to control or remove the effects of the demographic variables of age and gender (dummy coded 1 = Male, 2 = Female), they were entered into the SPSS program in Block 1 in both analyses and then followed by either the Total SISRI-24 or the demographic variables of SI into Block 2 (see Table 5 for entry of data source blocks used in multiple regression analyses). While both standard multiple regression and stepwise regression allowed for the correlation and predictive capabilities, they did not allow the researcher order of variable entry choice and were dismissed in favor of sequential regression. Therefore, two sequential (hierarchical) multiple regression analyses were carried out to determine whether the variables of age, gender, total SI, or the subscales of the SISIR-24 had predictive value regarding the students’ achievement performance on the ACT.

Table 5

*Entry of Data Sources into Sequential Multiple Regression Analyses*

<table>
<thead>
<tr>
<th>Data source</th>
<th>Variables</th>
<th>Sequential multiple regression analyses conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>Age, Gender</td>
<td>Age Gender</td>
</tr>
<tr>
<td>Block 2</td>
<td>SISRI-24 Total</td>
<td>SISRI-24 subscales: Critical Existential Thinking (CET) Personal Meaning Production (PMP) Transcendental Awareness (TA) Conscious State Expansion (CSE)</td>
</tr>
</tbody>
</table>
Summary

This non-experimental correlational quantitative research study was conducted to examine the relationship between a student’s achievement and his or her self-reported spiritual intelligence, while controlling for the demographic and SI subscale variables. Two sequential (hierarchical) regression analyses were conducted to examine the relationship between the variables of interest and specific predictor variables that had significant influence on the criterion variable. A delineation of the research design to include the research questions, alternative and null hypotheses; participants and settings; instrumentation and procedures; and data analysis to include assumption testing and rationale for study chosen were included in this chapter on methodology.
CHAPTER FOUR: FINDINGS

This research study examined the relationship between a student’s achievement, as measured on the American College Test (ACT), and his or her self-reported spiritual intelligence as measured by the SISRI-24 (King, 2008) when age and gender were controlled. The data were collected from two private and two public secondary schools in a southeastern state and controlled for the demographic variables of age and gender, and the subscale variables on the spiritual intelligence measure of Critical Existential Thinking (CET), Personal Meaning Production (PMP), Transcendental Awareness (TA), and Conscious State Expansion (CSE). The following research questions were used to guide this study.

RQ1: Is there a statistically significant relationship between spiritual intelligence as measured by the total score on The Spiritual Intelligence Self-Report Inventory–24 (SISIR-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled?

RQ2: Do the demographic variables of age and gender contribute to the model that predicts achievement on the American College Test (ACT)?

RQ3: Does spiritual intelligence as measured by the four spiritual subscales on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT)?

The remainder of chapter four will be organized into three sections. The first section includes the descriptive data, the second section delineates the descriptive statistics, and the third section discusses the hierarchical regression analysis for each research question.
Descriptive Data

Participants for this study included students who were enrolled in participating secondary schools located in a southeastern state. Two schools were private Christian schools and two were public secondary schools. The participants’ ages ranged from 12 to 19 years, with a mean age of 16.82 (SD = 1.32). Among the participants, 32 were male (42%) and 44 were female (58%). The participant demographic information is found in Table 6.

Table 6

Percentages of Student Participants by Gender and Age Groups

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age group</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1) 12-15 years old</td>
<td>4</td>
<td>5</td>
<td>9</td>
<td>11.8</td>
</tr>
<tr>
<td></td>
<td>2) 16-17 years old</td>
<td>21</td>
<td>29</td>
<td>50</td>
<td>65.8</td>
</tr>
<tr>
<td></td>
<td>3) 18-19 years old</td>
<td>7</td>
<td>10</td>
<td>17</td>
<td>22.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>32</td>
<td>44</td>
<td>76</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>42.1</td>
<td>57.9</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The range of scores possible on the ACT was 1-36. The mean and standard deviation for achievement (ACT) in the current study were $M = 23.00$, $SD = 5.10$, which was higher than the national average composite score of 21.1 (ACT, 2013b). Table 7 displays the descriptive statistics for the variables used in this study, except for the dichotomous variable of gender which can have no mean or standard deviation. Scores for the SISRI-24 range from 0-96. The mean score for Total SI was 60.80, and the mean score for age was 16.84, indicating that the participants overall scored on the higher range of average SI (40-64), and were predominantly in the eleventh grade.
Table 7

Mean and Standard Deviation of Criterion and Control and Predictor Variables

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>23.00</td>
<td>5.10</td>
<td>13</td>
<td>34</td>
<td>0-36</td>
</tr>
<tr>
<td>Age</td>
<td>16.84</td>
<td>1.31</td>
<td>12</td>
<td>19</td>
<td>12-19</td>
</tr>
<tr>
<td>SISRI-24 Total</td>
<td>60.80</td>
<td>16.76</td>
<td>13</td>
<td>92</td>
<td>0-96</td>
</tr>
<tr>
<td>CET</td>
<td>17.76</td>
<td>5.98</td>
<td>0</td>
<td>28</td>
<td>0-28</td>
</tr>
<tr>
<td>PMP</td>
<td>14.08</td>
<td>4.32</td>
<td>0</td>
<td>20</td>
<td>0-20</td>
</tr>
<tr>
<td>TA</td>
<td>19.14</td>
<td>5.56</td>
<td>4</td>
<td>28</td>
<td>0-28</td>
</tr>
<tr>
<td>CSE</td>
<td>9.82</td>
<td>5.33</td>
<td>0</td>
<td>20</td>
<td>0-20</td>
</tr>
</tbody>
</table>

Note. CET = Critical Existential Thinking, PMP = Personal Meaning Production, TA = Transcendental Awareness, and CSE = Conscious State Expansion

Descriptive Statistics

Prior to analysis, the data were screened through various SPSS functions for accuracy of data entry, missing values, and fit between their distribution and the assumptions of regression analysis. For 14 of the 90 participants, there were no ACT scores; therefore these were deleted, leaving 76 cases available for analysis.

Correlation of predictor variables and achievement. The results of the correlation analyses are presented in Table 8. The analysis suggested a slight inverse relationship between achievement and Total SI ($r(75) = -.033, p = .39$) that was not significant. Higher scores on achievement were associated with a slight decline in SI scores. Therefore the researcher fails to reject the Null Hypothesis for Research Question 1: There is no statistically significant
relationship between spiritual intelligence as measured by the total score on the Spiritual Intelligence Self-Report Inventory–24 (SISRI-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender are controlled. There was a significant correlation between achievement and age ($r(75) = .458, p = .001$), indicating a significant linear relationship between the two variables. While the model as a whole was significant, the correlation between gender and ACT was not statistically significant ($r(75) = .005, p = .48$).

Table 8

**Correlation Matrix of Control and Predictor Variables for Analysis 1 and 2 Combined**

<table>
<thead>
<tr>
<th></th>
<th>ACT</th>
<th>Age</th>
<th>Gender</th>
<th>CET</th>
<th>PMP</th>
<th>TA</th>
<th>CSE</th>
<th>SISRI-24 total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.458**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.005</td>
<td>.102</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CET</td>
<td>.038</td>
<td>-.123</td>
<td>-.016</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP</td>
<td>-.024</td>
<td>.007</td>
<td>-.022</td>
<td>.283*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA</td>
<td>.035</td>
<td>.027</td>
<td>.027</td>
<td>.522**</td>
<td>.561**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSE</td>
<td>-.164</td>
<td>-.161</td>
<td>-.246*</td>
<td>.477**</td>
<td>.536**</td>
<td>.607**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>SISRI-24 total</td>
<td>-.033</td>
<td>-.084</td>
<td>-.081</td>
<td>.754**</td>
<td>.715**</td>
<td>.855**</td>
<td>.828**</td>
<td>-</td>
</tr>
</tbody>
</table>

* $p < .05$. ** $p < .01$

There were intercorrelations revealed between the subscales of the SISRI-24 instrument because they are subscales of the same instrument, but none were found to be significantly correlated with ACT, age, or gender except CSE. The results indicated a weak inverse
relationship with gender \( r(75) = -.246, p = .02 \) that was significant. The negative slope of gender suggested that the lower scores on gender (i.e. males) predicted lower scores on CSE. The regression analysis revealed no additional relationship between achievement (ACT) when the subscales of the SISIR-24 were separated. However, an inverse relationship between Conscious State Expansion (CSE) and gender was noted.

**Assumption Testing.** Preliminary analyses were completed to examine the normality, extreme values, linearity, homoscedasticity, and multicollinearity for the data set. The histogram and Normal Probability-Probability (P-P) plots for each of the variables were fairly normally distributed; therefore the assumption of normality for all variables was found to be plausible. Two of the cases were suspected to be outliers, but Tukey’s (1977) outlier labeling rule refined by Hoaglin, Iglewicz, and Tukey (1986) found the data fell within an acceptable range for analysis. The assumption of homoscedasticity was found tenable. A scatterplot of the residuals after regression analysis also showed that the assumption of linearity was tenable.

Collinearity diagnostic was also conducted in IBM SPSS 21 to identify if there were any existing problems with multicollinearity, which are strong inner correlations that prevent relevant interpretations. To prevent the confounding of variables, separate regression analyses were conducted as recommended by Meyers, Garnst & Guarino (2012). The first regression analysis included the total score of the SISRI-24 and the second used only the subscales of the instrument. Both the Tolerance and its inverse the VIF (Variance of Inflation Factor) were within acceptable cut-off limits (Pallant, 2013). The collinearity diagnostic revealed that the relationship between variables was not highly correlated with each other, therefore, no multicollinearity problems existed, and interpretation of results from the multiple regression
correlation analyses were reliable. The assumption testing revealed the data for all variables was within acceptable parameters for analysis.

**Results of hierarchical regression model.** The primary focus of this research study was to investigate if there was a relationship between achievement and spiritual intelligence while controlling for the demographic variables of age and gender. While correlational analysis allows the researcher to determine if there is a relationship between variables, regression is the most commonly used multivariate correlational statistic because it allows the researcher to measure two or more variables and provides the variables’ predictive value on the criterion variable (Gall, Gall, & Borg, 2005). In order to determine whether the null hypothesis could be rejected, the first sequential multiple regression investigation was conducted. The researcher placed the student demographic variables of age and gender into Block 1 and SISRI-24 Total scores into Block 2 of the regression analysis so that their significance on the overall model could be assessed. See Table 9 for the first regression results.

Age and gender emerge earlier in a student’s development than SI and become prior causal variables which explains the rationale for this order of entry. The control variables entered into block one explained 21.2% of the variance in achievement and were statistically significant, with $F (2, 73) = 9.8$, $p = .001$. Age was found to be a statistically significant variable within this block ($beta = .46$, $p = .001$). The Total SISRI-24 score was entered into Block 2, and accounted for no additional change to the total variance after controlling for the Block 1 variables, $R^2$ change $(1,72) = .000$, $p = .98$. Block 2 was not found to be statistically significant to the overall model $F (1, 72) = .001$, $p = .98$. While the model as a whole was significant, $F (3,72) = 6.44$, $p = .001$, the demographic variable of age ($beta = .46$, $p = .001$) contributed more to the model than did gender ($beta = -.04$, $p = .70$) or Total SISRI-24 ($beta = .003$, $p = .98$). For
Research Question 2, the Null Hypothesis 2 can be rejected in favor of Alternative Hypothesis 2:
The demographic variables of age and gender do contribute to the model that predicts
achievement as measured by the composite score on the American College Test (ACT).

Table 9

Regression Analysis 1 Summary

<table>
<thead>
<tr>
<th></th>
<th>R² change</th>
<th>F ratio for R² change</th>
<th>B</th>
<th>SEB</th>
<th>β</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>.212</td>
<td>.212</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td>.212</td>
<td>.179</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>1.80</td>
<td>.41</td>
<td>.46</td>
<td>4.43</td>
<td>.001</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td>-.43</td>
<td>1.08</td>
<td>-.04</td>
<td>-.40</td>
<td>.69</td>
</tr>
<tr>
<td>SISRI-24</td>
<td></td>
<td></td>
<td>.001</td>
<td>.03</td>
<td>.00</td>
<td>.02</td>
<td>.98</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>.001</td>
<td>.03</td>
<td>.00</td>
<td>.02</td>
<td>.98</td>
</tr>
</tbody>
</table>

The second regression analysis also used a two block process to evaluate the predictive
value of the demographic and SI subscale variables on the criterion variable of achievement.
The demographic variables were once again placed into Block 1 because of their prior causal
status. The percentage of variance for age and gender, 21.2% were consistent with the first
analysis $F (2, 73) = 9.8, p = .001$, but after entry of the SISRI-24 subscales into Block 2, there
was a change in total variance to 25.4% $F (4, 69) = .99, p = .42$ which was not statistically
significant. The four subscales explained an additional 4.3% of the variance in achievement after
controlling for age and gender, $R²$ change $(4, 69) = .043, p = .42$. The model as a whole was
statistically significant $F (6,69) = 3.92, p = .002$. To assess the contributions of the individual
subscales, the $t$ ratios for the individual regression slopes were examined. See Table 10.
Table 10

Regression Analysis 2 Summary

<table>
<thead>
<tr>
<th></th>
<th>$R^2$ change</th>
<th>$F$ ratio for $R^2$ Change</th>
<th>B</th>
<th>SEB</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>.212</td>
<td>.190</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td>.254</td>
<td>.043</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.736</td>
<td>.420</td>
<td>.445</td>
<td>.065</td>
<td>.445</td>
<td>4.135</td>
<td>.000</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.051</td>
<td>1.135</td>
<td>-.102</td>
<td>.102</td>
<td>-.102</td>
<td>-9.26</td>
<td>.357</td>
</tr>
<tr>
<td>CET</td>
<td>.139</td>
<td>.108</td>
<td>.163</td>
<td>.163</td>
<td>.163</td>
<td>1.287</td>
<td>.202</td>
</tr>
<tr>
<td>PMP</td>
<td>.014</td>
<td>.156</td>
<td>.012</td>
<td>.012</td>
<td>.012</td>
<td>.091</td>
<td>.928</td>
</tr>
<tr>
<td>TA</td>
<td>.082</td>
<td>.140</td>
<td>.089</td>
<td>.089</td>
<td>.089</td>
<td>.584</td>
<td>.561</td>
</tr>
<tr>
<td>CSE</td>
<td>-.245</td>
<td>.146</td>
<td>-.256</td>
<td>-.256</td>
<td>-.256</td>
<td>-.1675</td>
<td>.098</td>
</tr>
</tbody>
</table>

Five of the six predictors entered into Block 2 did not individually significantly contribute to the predictive model for achievement. These include gender, $t(69) = -.93, p = .36$; CET, $t(69) = 1.29, p = .20$; PMP, $t(69) = .09, p = .93$; TA, $t(69) = .58, p = .56$; and CSE, $t(69) = -1.68, p = .10$. While none of the subscales met statistical significance levels, the negative slope of Conscious State Expansion (CSE) implied an inverse relation to achievement; that is, higher scores for CSE predicted lower scores on achievement. The only predictor to make an individually statistically significant contribution to the predictive model was age $t(69) = 4.14, p = .001$.

Although the model as a whole was significant, achievement was not highly predictable from this SISRI-24 subscale set of variables; the strongest unique predictive contribution was from age. Therefore for Research Question 3, the researcher fails to reject the Null Hypothesis.
The four subscales of spiritual intelligence as measured on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) do not contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

**Findings Summary**

The descriptive data for this study indicated that the SISRI-24 Total was not statistically significantly correlated with achievement. The demographic variables of age and gender had the most predictive influence on ACT achievement scores. The SISRI-24 subscale scores did not contribute to the model that was predictive of achievement. For research questions 1 and 3, the researcher failed to reject the null hypotheses; however, the null hypothesis was rejected for research question 2. Chapter Five will discuss the hypothesis, the relationship to current research, implications of this research, both methodical and practical limitations, and future research recommendations to provide a stronger understanding of the results. This chapter will enable the results to contribute to the current body of literature on this topic.
CHAPTER FIVE: DISCUSSION

This non-experimental, regression study examined the relationship between spiritual intelligence as measured by the total score on The Spiritual Intelligence Self-Report Inventory–24 (SISIR-24) and academic achievement as measured by the composite score on the American College Test (ACT) in secondary students when age and gender were controlled. The idea of spirituality as an intelligence has been debated and often disputed (Emmons, 2000; Gardner, 2000; Mayer, 2000; Radford, 2006). Proponents feel that spiritual intelligence is a viable tool that can contribute to students’ overall academic performance by increasing problem solving capabilities, enhancing critical thinking skills, and providing coping mechanisms gained through their abilities to transcend conflicts and difficulties (Palmer, 1999; Sisk & Torrance, 2001). However, the political climate in the United States discourages any spiritual influences in educational forums. There is evidence that spiritual intelligence is a consideration for enhancing the lives of college level students (Astin, et al., 2011; Capeheart-Meningall, 2005; Olson, 2008), but few research studies have been conducted with secondary students (Sisk, 2008; Tirri et al., 2005). Consequently, the idea of spiritual intelligence influencing the achievement of high school students had not been addressed. This study was an attempt to provide evidence to satisfy that disparity in educational discourse.

In this study, students from two private Christian schools and two secondary public high schools in a southeastern state were surveyed. The research included an informed consent; demographic questions; a 24-question self-report instrument, The Spiritual Intelligence Self Report Inventory-24 (SISIR-24); and a standardized aptitude assessment, The American College Test (ACT), administered by The College Board. Two sequential (hierarchical) regression analyses were used to analyze whether the model could identify the existence of a relationship
between student achievement and spiritual intelligence, while first controlling and then identifying any predictor variables.

This section contains a summary of the findings, a discussion of these results and possible implications when viewed through the lens of current literature, a delineation of limitations of this study, inclusion of methodological and practical implications, and recommendations for future research. An examination of the relationship of spiritual intelligence to achievement and the influence of student age and gender was an instructive study with implications for educational stakeholders.

**Summary of Findings**

Data obtained in this study were analyzed through two separate sequential (hierarchical) regression processes using a two block process. This allowed the researcher to gain an understanding of the relationship between variables and the contributions each might supply to student achievement (ACT). The predictor variables were divided into demographic information and spiritual intelligence total or subscales.

Research Question 1 addressed the relationship inquiry between SI and achievement. The demographic variables of age and gender were entered into Block 1 of the regression and Total SI of the SISRI-24 instrument into Block 2. This analysis revealed no clear correlation between SI and ACT. There was a slight inverse correlation that was not significant between the two variables ($r (75) = -.033, p = .39$) implying that as SI increased, there was a slight decrease in achievement. Therefore, the researcher failed to reject Null Hypothesis 1: There is no statistically significant correlation between total spiritual intelligence and academic achievement in secondary students when age and gender are controlled.
A second regression analysis was conducted to address Research Questions 2 and 3, with demographic variables entered into Block 1 and the subscales of SISRI-24 (CET, PMP, TA, and CSE) entered into Block 2. The results of this second investigation indicated that age and gender were predictive of achievement on the ACT. Approximately 21.2% of the variance in achievement was accounted for by the age and gender of the students $F(2, 73) = 9.799, p = .001$. However, the influence of age was the only individual predictor of statistical significance. While the model as a whole was significant, the small beta value indicated that gender ($beta = -.04, p = .70$) did not contribute as much to the model as age ($beta = .46, p = .001$). Therefore, the researcher rejected the Null Hypothesis 2 in favor of the Alternative Hypothesis 2: The demographic variables of age and gender do contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

The subscales of the SISRI-24 (CET, PMP, TA, CSE) added an additional 4.3% to the variance in achievement $F(4, 69) = .99, p = .42$. While the model as a whole was significant, $F(6, 69) = 3.92, p = .002$, the subscale variables did not contribute to the model that predicted achievement when $t$ values were examined. Therefore, the researcher failed to reject Null Hypotheses 3: The four subscales of spiritual intelligence as measured on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) do not contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT).

**Discussion of Findings and Implications Based on Literature**

Investigating the relationship between achievement and spiritual intelligence while grounding and comparing with current literature was a challenging process. There were no
previous studies that employed these exact variables; consequently there was no guidance available to use for comparative analysis. Therefore, implications were drawn from studies that utilized some of the variables and analyses used in the current research, and these investigations revealed inconsistent or contradictory findings. The criterion variable of achievement and the predictor variables of age and gender appear often in research; however, it is the variable of spiritual intelligence that is unique in the world of educational research. Therefore grounding these findings in existing literature was more synthesis than equivalent analysis.

**Relationship of Achievement to Spiritual Intelligence**

While the goal of education is academic success, the definitions of what constitutes success are neither absolute nor easily definable. While grades and scores on standardized tests are straightforward assessments to quantify, they should not be the only measures considered. Much of the research, in fact, encourages the acquisition of wisdom (Sisk, 2008); the development of potential (Grant, 1995); profiting from resiliency as a coping mechanism (Raftopoulos & Bates, 2011); applying moral and ethical values in life situations (DeGaynor & Day, 2011); holistic development (Capeheart-Meningall, 2005); supporting leadership practices (Dougherty, 2011); and ultimately gaining inner strength to improve quality of life (Hosseini, et al., 2010). All of these may be obtained through inclusion of spiritual avenues, and none are easily measured. However, simply because attitudes, values, and self-esteem are not calculated by numerical scores or income gains, does not mean they are unimportant concepts to consider when evaluating student success and achievement.

In this research study, Null Hypothesis 1 was rejected: There is no statistically significant correlation between total spiritual intelligence and academic achievement in secondary students when age and gender are controlled. While there has been no research between SI and
These findings do not corroborate results obtained in comparable studies. Azizi and Zamaniyan (2013) recently conducted an inquiry that showed a statistically significant relationship between the King (2008) instrument of SI subscales and the metacognitive and social vocabulary learning strategies in EFL learners that was contrary to the findings in the current study. These results were also not consistent with previous literature that suggested spirituality and SI were related to positive processes such as goal achievement or problem solving (Hosseini et al., 2010); resilience for African-American children (Christian & Barbarin, 2001); Emotional Intelligence and achievement (Nasir & Masrur, 2010); and in predicting quality of life for university students (Bolghan-Abadi et al., 2012). The relationship of spiritual intelligence to achievement was originally thought to contribute to a student’s overall academic performance. The findings of the current study, however, do not support this conjecture.

**Predictor variables of age and gender**

The findings on the demographic variables of age and gender were more consistent with outcomes found in other studies. Null Hypothesis 2 was rejected in favor of the Alternative Hypothesis 2: The demographic variables of age and gender do contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT). The variable of age was the most statistically significant contributor within the entire model and the semipartial correlation coefficient revealed that it explained 21.1% of the variance with achievement, as measured on the American College Test (ACT).

Of the predictor variables, both age and gender were entered into Block 1 of the regression analyses, but only age was found to be statistically significant. In research that evaluated the influences of age, prior achievement, and academic self-efficacy on achievement, it was discovered that these variables were significant predictors of GPA (Cassidy, 2012). An
investigation into inherent student and family characteristics on educational attainment also showed that age was the only significant predictor of achievement in integrated science (Ogunkola & Olatoye, 2010). By contrast, in a study conducted in Spain, no differences were found between age group responses on an achievement goal tendencies questionnaire (Ingles et al., 2011). Although not all findings concurred with these results, the implications for age being a predictor variable of achievement align with Piaget’s theories of cognitive development (Piaget & Inhelder, 2000). The more advanced the stage of development through which a student passes, the higher the intellectual abilities that will be manifested. More simply, as a student grows older his or her achievement scores will likely grow as well.

Gender findings were less uniform. While the model as a whole was significant, the demographic variable of age had a higher beta value (beta = .462, p = .001) than gender (beta = -.042, p = .48), implying that gender did not contribute significantly to the model. This is not consistent with most of the research. Although boys and girls may have equitable cognitive abilities (Spelke, 2005), females outperform males both nationally (Bae et al., 2000) and internationally (Clark et al., 2008). One study showed that controlling for intelligence revealed grades of girls were significantly higher than boys, yet the researchers believed that personality and motivations were responsible for the differences in achievement (Steinmayr & Spinath, 2008). Some of the research seems to indicate that the real difference between the achievement of girls and boys is due to learning style preferences. While boys prefer more intake and mobility, girls are more constant and conforming (Dunn, 1993). Girls also tend to excel when verbal tasks are required (Bae et al., 2000) and males prefer visual-spatial learning (Colangelo & Davis, 2003). WRobelen (2012) noted a tendency for males to score higher and prefer careers in STEM (Science, Technology, Engineering, and Mathematics) more than females. The results for
scores on gender found in this study were not significant. The mean score on the ACT by males was 23.50 and for females was 22.64 showing a negligible difference of .86. While most of the research indicates that females outperform males, the results obtained in this research study do not concur.

**Predictor variables of spiritual intelligence subscales**

The researcher failed to reject the Null Hypothesis 3: The four subscales of spiritual intelligence as measured on the SISRI-24 instrument (i.e. Critical Existential Thinking-CET, Personal Meaning Production-PMP, Transcendental Awareness-TA, or Conscious State Expansion-CSE) do not contribute to the model that predicts achievement as measured by the composite score on the American College Test (ACT). The results of the subscales ability to predict achievement were inconsistent with those found in the study by Azizi and Zamanian (2013) that tested the relationship between SI and vocabulary learning strategies in EFL learners. While no subscale was a predictor of achievement in the current research study, PMP and CSE were found to be positive predictors of vocabulary learning strategies in the previous study. Explanations for the difference in results could be that the Azizi and Zamanian study focused on verbal, language acquisition skills of Iranian college level students, while the ACT measured English, mathematics, reading, and science competence in North American secondary students. Suggesting that differences could be the result of age differences, test parameters, or cultural orientations.

While no comparable study has been conducted, several studies that were similar in nature to the current research included investigations about Emotional Intelligence with these variables. The results from these studies were not uniform. A Pakistani study on the relationship between EI, gender, age, and achievement by Nasir and Masrur (2010) suggested that EI was a
significant predictor of academic achievement. Likewise, a Bahraini study on EI, gender, age, achievement, and coping styles showed that gender and achievement accounted for variances in EI and coping styles, but age did not (Alumran & Punamaki, 2008). One study with interesting results showed that while EI had a positive significant relationship to academic achievement there was no such relationship between EI and cognitive intelligence (Al-Ahmadi, 2007). A study on the effects of EI, age, work experience and academic performance in undergraduate business students suggested that EI was not significantly associated with academic achievement (Shipley, Jackson, & Segrest, 2010). The differences in these contradictory findings are unclear; however, the two studies with significant findings used the same EI measure BarOn Emotional Quotient Inventory, and the others did not. This suggests that differences may exist between EI assessments and what they define. Another reason for the discrepancies may be due to cultural influences because certain cultures may encourage EI development more than others.

The findings for this research study showed that while demographic variables especially age more than gender were predictors of achievement, there was no apparent relationship between SI as measured by the SISRI-24 instrument and achievement as measured on the ACT, nor did the subscales of SI predict academic achievement. In addition, the findings as they applied to achievement were inconsistent for gender and SI and more analogous for age. Although SI was thought to be a motivator to enhance achievement, there was no statistical significance between these two instruments.

**Limitations of the Study**

Rigid test protocols were employed to protect the student participants and the acquired data; however, there were still limitations in this study. Using a unitary measure for
achievement, the instrument used to assess SI, as well as the region of the country where this research took place are limitations that are discussed.

The use of the ACT, an intelligence measure using predominantly verbal and mathematical concepts as the single ruler of achievement, was an important limitation. Gardner (1983) himself based his entire theories of multiple intelligences on the premise that one intelligent score could not encompass the breadth of intellectual prowess of individuals. Thus using only this assessment which predominantly measures verbal and math skills, may be an example of a construct underrepresentation (Ary, et al., 2006) that is too narrow to adequately evaluate complete achievement. Although several states employ the ACT to measure graduation proficiencies, thus lending validity to the use of this assessment to measure achievement, it is still a limitation for consideration in this research investigation.

Several limitations can be ascribed to the instrument used for deriving spiritual intelligence scores used in this research study. The advanced vocabulary may have been unknown and confusing to the students. Such terms as transcendental or conscious state expansion may have been foreign terms to them and may have caused uncertainty. This could have provided a construct-irrelevant variance (Ary, et al., 2006) to the results because the students’ misunderstanding of the terms may have affected the process and actually have been extraneous to their true spiritual intelligence. Some of the students who participated in this research attended private Christian schools and the concepts, about conscious state expansion in particular, not only were not embraced but were contrary to the precepts of their school’s curriculum. In addition to the kinds of questions asked on the instrument, the results were gained from students self-reporting their understanding of their own spiritual intelligence with no cross-validation from parents or another source. These scores may or may not have adequately
reflected their true spiritual intelligence, but rather their need to appear spiritually superior or inferior, thus creating the possibility of a Hawthorne effect. Another limitation may have been examiner influence caused by the participants’ wishing to impress their teachers who were the examiners, or to align their answers to meet examiner expectations. One last limitation arises from the fact that students were asked to rate their spiritual intelligence, a concept with which they may have previously been unfamiliar, this may have severely limited their ability to adequately define something so foreign to their comprehension.

Another important limitation was the region of the country used for this research. In relation to spiritual aspects, the southeast is often referred to as the *Bible Belt* and the latest report issued by the Barna Group, one of the leading research organizations on matters of faith, upholds this belief. In *The Most Post-Christian Cities in America* (2013) all of the states who scored highest on several scales were in the southeast region. Those who had the most orthodox view of God (86%); top Protestant city (83%); highest number of Sunday school attendees (54%); most church attendance (64%); highest number of self-identified Christians (97%); greatest number of Baptists (57%); most practicing Christians (69%); and greatest number of Bible readers in the past week (60%) all hailed from the southeast. It should be noted that four of these statistics occurred in the state where this research occurred, implying that those students who participated in this research had a greater than average chance of considering themselves spiritual, if not Christian. Therefore, when considering the generalizability of the scores in this state, it is apparent that while they may correspond to others in this region of the country, the same cannot be said of the entire United States. If this research were conducted in regions of the country that have a wider range of ethnic or cultural differences, such as the Northeast or
Southwest, the results may indeed be different, where fewer preferences toward fundamental Christianity and greater knowledge of other spiritual experiences exist.

Although this research utilized several protocols, there were limitations. The fact that there was only a single measure of achievement could have created a construct underrepresentation and limited a true gauge of the student’s achievement. The potential of creating a Hawthorne effect, a construct irrelevant variance, and competing spiritual orientations were all limitations possible when using the SISRI-24 instrument to measure SI. The last limitation that may have affected results was the setting of the country in which the research took place.

**Methodological and Practical Implications**

This research study was proposed on the conceptual frameworks of Ford’s Motivational Systems Theory, Maslow’s hierarchy of needs and self-actualization philosophies, Vygotsky’s social learning and Zone of Proximal Development concepts, and Gardner’s theory of multiple intelligences. Since the study is now completed, it is necessary to see how the results of the study aligned with these practitioners.

**Theoretical Frameworks**

Motivational Systems Theory developed by Ford has important implications for the current research. He was emphatic that holistic development was crucial in motivational considerations. Unfortunately, many of the demands placed on educational institutions prevent meeting all of the needs of the whole child, and thus this may be hampering achievement. Another premise of MST is that people learn behaviors and function as a unitary entity in their environment. In other words, they must be actively engaged in activities, they must seek information about a situation, and they must enjoy the experience and utilize it for future
planning. If all of these are not allowed to occur, then the behavior does not become a part of their learned scheme or their personal tools that help them to develop rules, to make wise choices, and find meaning in new situations. A student cannot find personal meaning or understand their place in the world if he or she is not allowed to reflect on and practice these behaviors so they can be inserted into their conduct and become relevant in their lives. In addition, one of the pivotal points of the MST is that achievement occurs when a person is motivated, has the physical and mental capabilities to succeed, but most of all is embedded in a supportive and responsive environment. The main stream media and cultural society in which students reside do not encourage spiritual concepts. Therefore, it will be difficult for a child to develop spiritual intelligence constructs in an environment devoid of spiritual sustenance.

Maslow’s hierarchy of needs and self-actualization theories also have particular relevance for the results found in this research. Maslow felt that people had to have certain needs fulfilled before they could be effective in life or to achieve, which is the main variable in this study. “Man is a hierarchy of needs, with the biological needs at the base of the hierarchy and the spiritual needs at the top” (Maslow, 1971, p. 186). Maslow believed that before a person can experience the peak experiences found at the top of the hierarchy, he or she has to become self-actualized. This study had students define their own spiritual intelligence, which aligns with Maslow’s opinion about the goal of teachers and counselors. “If we want to be helpers, counselors, teachers, guiders, or psychotherapists, what we must do is to accept the person and help him learn what kind of person he is already” (p. 182). In effect, this research was a step toward helping students become self-actualized, by realizing the kind of people they were spiritually, by defining their internal spiritual intelligence, and academically, by delineating their achievement. However, this study gave no time for student reflection nor discussion of what
these scores meant for personal goals, nor allowed for time to develop SI to enhance a successful self-actualization process.

Vygotsky’s supported Zone of Proximal Development and socially embedded learning theories were not as obviously present as Ford’s and Maslow’s theories; however, there were subtle implications found in the results of this study that reflect his premises. For Vygotsky, learning occurs more through support systems than as a reflection of natural intelligence. When schools try to measure learning through standardized assessments, they may fail to adequately encompass all of the learning that takes place. Similarly, by correlating achievement with SI, the researcher was trying to measure what, if any, support SI could provide to academic achievement or in other words, what scaffold SI could impart. The second theory about social embedded learning is intimated by James M. Towers’s (1992) reflections about lessons learned from the Coleman Report:

Coleman and his associates told us that schools can and will continue to be effective as the larger society of which they are a part. Schools are a mirror image of society, and if schools are to become better, then society must get better as well. (p. 95)

Many of the problems faced in American schools that are impacting achievement are a direct result of the problems faced by individual communities. For student achievement to improve, the social structures must improve as well. This idea of societal values impacting education was supported by a meta-analysis study about cultural differences in the academic motivation goals among 13 societies. The researchers found that mastery goals appeared higher in egalitarian societies, while performance goals rated stronger in less developed societies. Therefore they concluded that achievement goals were rooted within the dominant values of the society (Dekker, & Fischer, 2008). Vygotsky’s social embedded learning theories imply a need to look
at the society that surrounds students in order to help improve their achievement. The importance of the setting or area of the country where this research occurred, and subsequent societal spiritual influences to some extent supported Vygotsky’s ideas, yet more research needs to occur to validate this observation.

The entire idea of spirituality being an intelligence is strengthened through Gardner’s theory of multitude intelligences and his views about enhancing achievement. To see improvement in schools, Gardner (1991) recommends four different elements: assessments, curriculum development, teacher instruction, and community support. “What is needed is the creation of a climate in which students come naturally to link their intuitive ways of knowing with scholastic and disciplinary forms of knowing” (p. 258). This quote implies that intuitive way of knowing are important, creating the consideration that Si could be that knowing.

Gardner’s reasons for hesitating to include spirituality as an intelligence did not negate his awareness of the importance of spiritual elements, and provided implications for this study. “Spirituality is worthy of study as an intelligence if that lens illuminates its nature; the possibility that it may encourage more study of religion, or improve religion’s place in the world, is not in my mind a proper rationale” (Gardner, 2000, p.33). This research attempted to provide an avenue for the investigation of spirituality as an intelligence and perhaps did not meet with as much success as anticipated because an underlying expectation was that it would in fact encourage what Gardner denounced.

Achievement

The results of this research revealed no clear statistical relationship between achievement and SI. In light of the Common Core Curriculum and NCLB requirements, schools must dedicate hours to the mastery of educational outcomes leaving no time to include outliers that may have
negligible impact on the students’, teachers’, or school’s achievement. Just as many schools are omitting the arts in favor of the sciences; it is not surprising that any spiritual inclinations are excluded. Therefore, this research supports the premise that educators whose main goal is to improve standardized test scores, may need to focus on skills other than those that represent SI.

It should be noted that even though the evidence revealed an inverse non-significant statistical correlation between SI and achievement, it does not preclude the impact that SI has on students and their performance. This study did not address the holistic aspects of education nor the spiritual development or backgrounds of the students themselves. Vaughan (2002) stated that although SI must be developed, there is no one route to SI, “a spiritual path that leads to love, freedom, and wholeness is concerned with the well-being of the whole—the whole person, the whole human family, the whole planet, and the whole web of life” (p. 24). Education must focus on the academic skills needed to succeed on standardized tests, for those are the assessments the government has decided are the rulers of achievement. However, educators interested in achievement should not overlook the fact that students are more than paper and pencil entities who read and compute—they are multifaceted individuals who need a holistic education in order to be complete. It should not be forgotten that “in the life of the spirit, academic achievement is not an end, or even a means, but a consequence of pursuing certain goals and enacting certain motivations” (Grant, 1995, p. 132). While the main goal of this research was to assess the relationship between achievement and SI, a secondary goal common to most educators was to identify other factor that might encourage that success.

**Spiritual Intelligence**

While definitions and characteristics of spirituality are fairly widely accepted, those for spiritual intelligence are not. Just as beauty is defined in the eye of the beholder, SI seems to be
described or identified through the philosopher’s or educator’s lens. Proponents of SI feel that it is not only an intelligence, but perhaps may be the glue that binds all other intelligences together (Amram, 2007; Emmons, 2000; King, 2010b; Sisk, 2002; Zohar & Marshall, 2001). The detractors are often suspicious of the term and resist efforts to recognize SI as an intelligence (Gardner, 2000; Mayer, 2000; Zwilecki, 2000). When these different views are discussed in relation to educational curricula, educators are often left confused about how to successfully provide a complete, holistic education for students.

Most of the prevailing literature seems to indicate that SI is enhanced and strengthened through time, with many authors using a journey metaphor. In fact Maslow (1971) said that self-actualization was a lifelong multifaceted process. “The ‘spiritual disciplines,’ both the classical ones and the new ones that keep on being discovered these days, all take time, work, discipline, study, commitment” (p. 349). Whether SI exists as an intelligence is still controversial. Gardner (1983) noted that one indicator of an intelligence was found in those individuals who may exhibit stronger characteristics of that intelligence than others, such as prodigies or savants. However, it is understood that while some individuals may exhibit a natural talent or proclivity toward music, art, or athletics, to become a master in these fields may require years of talent and hard work to excel. The literature recognizes such spiritual leaders as Mahatma Gandhi, Martin Luther King, or Mother Teresa (Sisk, 2008), yet the influence of their spirituality was not recognized until they reached adulthood and had worked in their communities or countries for many years. The same may be true of SI. As a kinesthetically intelligent athlete must hone his or her innate abilities to perform, so must students sharpen their spiritual abilities before they can be viable attributes and contribute to their success. Another issue raised by Gardner’s definition of what is an intelligence is the question of value. Gardner (1983) stated, “An intelligence is the
ability to solve problems, or to create products, that are valued within one or more cultural settings” (p. x). Perhaps one of the main reasons he refuses to grant intelligence stature to spirituality is that he does not think the current culture values the contribution. Unfortunately, many will agree that spirituality is less valuable than scientific beliefs.

**Separation of Church and State**

In spite of the many reasons presented for moral and spiritual development as an incentive for achievement, several issues must be addressed. In the United States, the inclusion of anything pertaining to religion or spirituality is often denied, using the concept of separation of church and state, rather than the words found in the Constitution. This phrase was originally included in a letter by Thomas Jefferson (1802) to the members of the Danbury Baptist Association in Connecticut to alleviate their fears that the government would interfere with their religious rights. Currently, many in America contend that this separation has come to be the intent of the Constitutional phrase, which states that the legislature will "make no law respecting an establishment of religion, or prohibiting the free exercise thereof," (Jefferson, 1802, para. 2). Regardless of the original intent, for most public schools, the result is that educators, parents, and students feel that any discussion of spiritual or religious subjects is not only restricted, but unconstitutional as well. Therefore, the inclusion of a spiritual intelligence measure is not acceptable in all public venues. Although this research was conducted in both public and Christian schools, the researcher was aware of possible resistance from public forums and realized that this measure might be discounted in academic institutions because it dealt with spiritual matters. Rachael Kessler, director of the Institute for Social and Emotional Learning in Boulder, Colorado (1999), makes a pertinent observation:
But because we have concerns about the separation of church and state, because we confuse spiritual development with religion, and because we fear reprisal from ‘the other side’ in a decade of culture wars, educators have been reluctant to develop a methodology and a curriculum to directly address this aspect of human growth. (p. 52)

These reservations have indeed hampered the inclusion of spiritual elements in schools, as well as the acceptance that elements of the spiritual may be included as an intelligence.

Charles C. Haynes, Senior Scholar of Religious Freedom Programs for the Freedom Forum First Amendment Center in Virginia (1999), makes further recommendations about the separation of church and state. He feels that schools should not try to indoctrinate nor restrict religious education, but should teach about religion carefully, respectfully, and objectively. “By including religious perspectives, ideas, and events in teaching history, literature, and other courses, public schools enable students to learn about the spiritual dimension of life in ways that are respectfully authentic, educationally sound, and constitutionally permissible” (p. 27). The inclusion of spiritual elements as they genuinely appear in curricular studies creates a valuable learning platform for teachers and students.

Regardless of the many proponents for including spiritual elements in educational settings, there will always be dissenters. Palmer (1998) stated that one of the greatest reasons is fear.

Fear is everywhere–in our culture, in our institutions, in our students, in ourselves–and it cuts us off from everything. Surrounded and invaded by fear, how can we transcend it and reconnect with reality for the sake of teaching and learning? The only path I know that might take us in that direction is the one marked ‘spiritual.’ (p. 6)
Palmer says it is this fear that causes the nation to pay a great price for fearing anything associated with the spiritual. This fear prevents dealing with real life issues and reduces education to “dispensing facts at the expense of meaning, information at the expense of wisdom” (Palmer, 1999, p. 6). Another reason that any teaching about spiritual matters is discouraged is the legitimate concerns raised by parents who do not wish their children to receive what they consider heretical or proselytizing philosophies. Educational systems must perform a delicate balancing act between the valid disquietude of parents and the justifiably spiritual elements apparent in the curriculum. The result is that educators have often erred on the side of safety and avoided the issue all together. Whether fear or genuine concern is the cause, the result, in effect, mutes schools to dullness where students have no clear spiritual compass and are left feeling isolated and insecure.

Much of the disagreement about spirituality and its place or role in education comes from a difference in what spirituality means. Many seem to tout the benefits of considering spirituality in terms of an intelligence because this raises its value (Mayer, 2000). They also imbue spirituality with health, wellness, and coping skills that are not always embraced by all. The complex, and in fact paradoxical nature of spirituality constrains attempts to codify it as a single theoretical concept—especially an intelligence (Kwilecki, 2000). Yet that does not mean it is not an intelligence nor that future research should not be encouraged to explore and delineate the importance of joining the spiritual to the intelligent.

**Southeastern Research Setting**

This research study took place in a southeastern state which has several implications about educational rankings and spiritual understandings. Traditionally, the Southeast trails the nation in achievement scores and in fact, none of these 12 states ranked in the top 10 states on
the ACT (ACT, 2013b). The national average composite ACT score was 21.1 but the state in which the study took place scored below 20. Of the 12 southeastern states (Alabama, Arizona, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia) the scores in this state were among the lowest. The mean score for the region in which the study took place was 20.4, and the median was 20.3. The composite average scores from the entire state in which the study took place achieved below both of these scores, uses the ACT as a graduation exit exam, and consequently, 100% of the students in this state took the ACT (ACT, 2013b). Yet the participant ACT scores in this investigation were not consistent with the state scores. The mean participant score was 23.08 with a standard deviation of 5.05, demonstrating that scores of students in this study were much higher than the mean for the region. See Table 11 for ACT scores in the southeastern states. It should be noted however that of the lower scoring states, 100% of their students were tested, while the highest scoring states tended to test below 40% or even as few as 20%. Thus, the scores were most likely skewed because of extreme outliers (ACT, 2013b).

However, the news is better for the state where the current research took place. In a national ranking of best and worst states for math and science it was above the 50 % ranking (“State”, 2012). According to the NEA Rankings & Estimates (2012) enrollment in this state dropped a few percentage points, yet it had one of the highest changes in graduation rates, placing in the top 10. Teacher salaries were in the bottom 10; overall personal income was in the top 20, yet dropped to the bottom 20 for personal per capita income; it generated some of the highest state tax revenues, but had one of the lowest student expenditures per student attendance; and fell into the bottom 5% of states in total expenditures for public schools. This research study
used a southeastern state for convenience, but also because there was an opportunity to conduct research in public forums that would not have been possible in other regions.

Table 11

*National and Southeast Region ACT Scores*

<table>
<thead>
<tr>
<th>State</th>
<th>Percent of graduates tested</th>
<th>Avg. composite score</th>
<th>Average English score</th>
<th>Average math score</th>
<th>Average reading score</th>
<th>Average science score</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>52</td>
<td>21.1</td>
<td>20.5</td>
<td>21.1</td>
<td>21.3</td>
<td>20.9</td>
</tr>
<tr>
<td>Alabama</td>
<td>86</td>
<td>20.3</td>
<td>20.3</td>
<td>19.6</td>
<td>20.7</td>
<td>20.1</td>
</tr>
<tr>
<td>Arkansas</td>
<td>88</td>
<td>20.3</td>
<td>20.0</td>
<td>20.0</td>
<td>20.6</td>
<td>20.1</td>
</tr>
<tr>
<td>Florida</td>
<td>70</td>
<td>19.8</td>
<td>18.9</td>
<td>20.0</td>
<td>20.5</td>
<td>20.9</td>
</tr>
<tr>
<td>Georgia</td>
<td>52</td>
<td>20.7</td>
<td>20.1</td>
<td>20.6</td>
<td>21.0</td>
<td>20.5</td>
</tr>
<tr>
<td>Kentucky</td>
<td>100</td>
<td>19.8</td>
<td>19.5</td>
<td>19.4</td>
<td>20.2</td>
<td>19.8</td>
</tr>
<tr>
<td>Louisiana</td>
<td>100</td>
<td>20.3</td>
<td>20.4</td>
<td>19.9</td>
<td>20.4</td>
<td>20.1</td>
</tr>
<tr>
<td>Mississippi</td>
<td>100</td>
<td>18.7</td>
<td>18.6</td>
<td>18.3</td>
<td>18.9</td>
<td>18.7</td>
</tr>
<tr>
<td>NC</td>
<td>20</td>
<td>21.9</td>
<td>21.0</td>
<td>22.3</td>
<td>22.2</td>
<td>21.4</td>
</tr>
<tr>
<td>SC</td>
<td>57</td>
<td>20.2</td>
<td>19.5</td>
<td>20.2</td>
<td>20.4</td>
<td>20.1</td>
</tr>
<tr>
<td>Tennessee</td>
<td>100</td>
<td>19.7</td>
<td>19.6</td>
<td>19.1</td>
<td>19.9</td>
<td>19.6</td>
</tr>
<tr>
<td>Virginia</td>
<td>25</td>
<td>22.4</td>
<td>22.1</td>
<td>22.3</td>
<td>22.7</td>
<td>21.9</td>
</tr>
<tr>
<td>WV</td>
<td>68</td>
<td>20.6</td>
<td>20.6</td>
<td>19.6</td>
<td>21.3</td>
<td>20.5</td>
</tr>
</tbody>
</table>

*Note.* (Act, 2013b)

**Christian Implications**

The findings from this study seem to be paradoxically different than what a review of previous studies lead the researcher to expect. However, upon reflection, the results should not have been surprising when taken from a biblical perspective. In 1 Corinthians 1:27 (New
International Version), the Bible states, “But God chose the foolish things of the world to shame the wise; God chose the weak things of the world to shame the strong.” Traditionally, people thought to be more intelligent often support the beliefs that spiritual things are weak and emotional and have no place in a logical, scientific world. God often uses the spiritual things to confound secular wisdom and therefore the results of the present study seem to follow this biblical principle.

In addition, the results seem to inadvertently support the refutation of heretical teachings proposed by Gnostics. Gnosticism was a heresy thought to have derived from ideas that salvation could be gained through a secret knowledge or knowing (Zavada, 2013). Their beliefs seemed to support the idea that the more knowledge gained, the more spiritual a person would become. The results of this study do not concur, and suggest that higher scores on traditional intelligence measures do not relate to higher scores in spiritual intelligence.

O’Connor, (2009) a health and well being writer, addressed an important issue that may occur when trying to make spirituality more palatable to the general public. “The study of spiritual intelligence attempts to make the intangible tangible. It helps legitimate ‘spiritual speak’ in a secular, scientific world that operates on the idea that if you can’t see it or measure it then it doesn’t exist” (p. 66). Instead of obtaining the goal of causing secular thinkers to be more accepting of spiritual entities, sometimes what is gained is a “secularizing [of] the sacred” (p. 66). In the Bible, God often operates and functions in ways that seem foolish to humans, so the fact that a student who professes a higher level of SI yet does not reflect higher achievement scores should not be surprising.
Recommendations for Future Research

Investigating the relationship between achievement and the relatively new term of spiritual intelligence has yielded some new insight into influential factors on achievement. In an ongoing effort to further enhance student performance both locally and globally, certain recommendations are provided.

Using the ACT as the only measure of achievement was problematic. Although recognized as a competent measure of NCLB and Common Core requirements and for forecasting college readiness, there are nevertheless questions when using it as a single measure of competence. In a four-year study of reading results on the ACT, Conrad-Curry (2011) identified the quandary found in this assessment:

At present, NCLB compliance assessments like ACT cannot offer rich data about individual performance and maintain test integrity. As a result, a dichotomous environment exists—one in which quality educators insist on individualized instruction yet measure learning with standardized tests. (p. 34)

Just as spiritual intelligence is an individual experience, expecting its influence to be substantial on a standardized instrument is unrealistic. One recommendation would be to include other measures of achievement such as GPA, class standing, college attendance, or a combination of factors that would give a clearer measure of achievement, rather than what one standardized test provides.

The demographic variables of age and gender added insight into the lives of the participants and were predictors of achievement. Evidence suggests that the spiritual (Christian & Barbarin, 2001) or socioeconomic (Brooks-Gunn, et al., 2005) backgrounds of students may in fact strengthen performance. Therefore it is recommended to add other variables in subsequent
studies such as socio-economic status, culture or ethnicity, as well as spiritual background or orientation, thus providing more insight into factors that may impact both achievement and/or SI in students.

There is evidence that participation in religious programs (church, temples, etc.) or practices (prayer, meditation, reading sacred texts, etc.) may influence spiritual development. Identification of religious affiliations, practices, or experiences may clarify more effectively if SI is inherent or whether it is nurtured. In fact, one study on African American children and the effects of spirituality and racial attribution (Christian & Barbarin, 2001) showed that the religiosity of parents had a positive impact on student behaviors suggesting that including a study of both culture and religious participation might also impact achievement in students or strengthen SI.

Conducting research on these variables but including an experimental research design could increase student knowledge about the definitions and existence of SI. A similar study was conducted with gifted sophomores in Texas by Sisk (2008) to increase global awareness, and showed satisfactory results. If a similar training program were initiated it could be beneficial to observe whether the teaching about SI would help students utilize this intelligence in daily life, thus influencing performance.

Several researchers have investigated the influence of emotional intelligence on achievement. A study that examines the effects of intelligence, spiritual intelligence, and emotional intelligence on student achievement would broaden the understanding of which factors and/or combination of factors has more influence on achievement or behaviors. One study that addressed the influence of emotional intelligence, self-esteem, and spiritual well-being on
academic achievement in first semester students at a private Christian Bible college showed that spiritual well-being significantly correlated with GPA (Olson, 2008).

Although the current study showed a slight inverse non-significant correlation between spiritual intelligence and achievement, further research is warranted. The limitations and recommendations cited here may have had undue influence on the outcomes, and looking at other factors that SI does impact or implementing a different research design may yield further insights to help students achieve and cope.

Conclusion

One of the theoretical foundations of this research was the philosophies of Abraham Maslow. As his theories evolved he began to change his mind about spirituality and education. In *Religions, Values, and Peak-Experiences* Maslow (1964) begins with this quote:

I want to demonstrate that spiritual values have naturalistic meaning, that they are not the exclusive possession of organized churches, that they do not need supernatural concepts to validate them, that they are well within the jurisdiction of a suitably enlarged science, and that, therefore, they are the general responsibility of all mankind. If all of this is so, then we shall have to reevaluate the possible place of spiritual and moral values in education. For if these values are not exclusively identified with churches, then teaching values in schools need not breach the wall between church and state. (p. 6)

Spiritual values are important to the growth of students and have meaning far beyond the scope of one achievement test score. Educators need to embrace all factors that may influence academic success. While students in American schools are failing to keep pace with their global counterparts, educators keep investigating and trying new things, but seem constrained to consider anything in the realm of the spirit that might breach church and state preconceptions. In
light of all the NCLB and Common Core requirements, it is little wonder that teachers remove themselves from controversial curricular options. In an effort to reverse this downward trend, further research to explore and to identify causes and possible solutions of underachievement are a must. And if that journey includes the spiritual, students may be the greatest winners in this debate.

This quantitative non-experimental study explored the relationship between achievement as measured by the American College Test (ACT) and spiritual intelligence as measured by the SISRI-24 (King, 2008) when age and gender were controlled in a sequential regression analysis. A second regression analysis was performed to test if the variables of age, gender, and subscales on the SISRI-24 could predict achievement (ACT). The theoretical framework proposed by Ford’s MST (1992) implied that achievement was inspired by motivation. The theory proposed by the current study was that SI could provide the motivation necessary to influence achievement. Further support is given by Maslow’s (1971) theory of self-actualization, which contends being self-actualized is an important component for educational achievement. Vygotsky’s ZPD theory (Morris, 2008) stated learning needs to be supported by scaffolds provided by the society and culture in which the child resides. In addition Gardner’s theory of multiple intelligences (1983), coupled with Goleman’s theory of emotional intelligence(1995), lends credence to the possibility that spiritual intelligence is a viable concept. The literature implied that students who value their learning tend to be better performers.

Evidence from the 76 participants in two Christian private schools and two public secondary schools indicated there was a slight non-significant, inverse relationship between SI and ACT, and only the demographic variables of age and gender were predictive of achievement. However, the literature suggests that the development of SI in students may help develop healthy
coping and problem solving skills that will provide a wider definition of achievement than can be quantified on one achievement measure. It should be noted that the SISRI-24 was a self-report instrument that asked students to rate their own spirituality. Perhaps a similar response would be gained if students who had never taken calculus were asked to rate their abilities to apply calculus skills—the students would be so unfamiliar with the nomenclature and concepts they could not help but rate themselves poorly.

It is important in a final commentary to raise an important question. Could it be possible that educational systems, in reflecting secular value systems, have suppressed any innate spiritual intuitiveness? The results of this study show there is no statistically relationship between SI and achievement. Perhaps the reality is that academic arenas have closed the door on anything spiritual for so long that any SI has atrophied. Just as a musician who does not practice will soon lose competence, the same may be happening with spiritual proficiency. Too often, anything that pertains to the term spiritual has been vilified and denigrated for so long, that society has come to feel that not only is there no place for the spiritual in schools, it is shamefully inferior and/or downright subversive to discourse. This is underscored by the recent meta-analysis that suggested intelligent people are less religious (Zuckerman et al., 2013). Perhaps the most alarming fact is the implication of an educational bias that discourages acquisition of religious values on the pretext that it will negatively impact intellectual status.

It is a fine balance educators must maintain between a scientific, anti-religious atmosphere that permeates most academic workplaces and any indefinable qualities that are the benchmarks of spiritual intelligence. Because it cannot be seen, does not negate its reality. Because it is not scientific does not negate its existence or subvert its importance. Unfortunately, educators have often suppressed spirituality with altruistic reasons, and have prevented its
inclusion in an educational value system, so that too often the high academic performers reflect that mind set as well.

This research study began with the belief that SI would be a motivator to improve achievement in secondary students. What was found was that SI and achievement as measured with these two instruments—SISRI-24 and the ACT—do not have a relationship. As Thomas Edison (as cited in Forbes, 1921) said in an interview, “For we had learned for a certainty that the thing couldn’t be done that way, and that we would have to try some other way.” Therefore, more work is necessary to find viable motivators that will increase academic achievement in students in the United States.

Recommendations to improve achievement support Piagetian cognitive development theories on age of student progress, but not gender theme concepts. Educational stakeholders are encouraged to continue the quest to find solutions to alleviate underachievement, to be courageous in utilizing new and unique strategies, and most of all to be persistent in the quest to help students achieve more than just minimum standards on assessments. This research included controversial issues that have not previously been addressed with secondary students. Therefore even with results dissimilar to expectations, the researcher realizes that spiritual intelligence, while providing many resources for personal growth, did not exhibit explicit impact on student achievement. Students may very well exhibit an inclination toward spiritual matters, but the literature suggests they must journey to hone their spiritual acuity and unfortunately, that road does not often intersect that of American schools.
References

http://www.aceministries.com/curriculum/


Akyüz, G. & Berberoğlu, G. (2010). Teacher and classroom characteristics and their relations to
mathematics achievement of the students in the TIMSS. *New Horizons in Education, 59*
(1), 77-95.

academic achievement to a sample of Taibah University students in Al-Madinah. *Journal

effective teacher-student interactions in secondary school classrooms: Predicting student


achievement, emotional intelligence, and coping styles in Bahraini adolescents.
*Individual Differences Research, 6*(2), 104-119.


Reston, VA: ERIC Clearinghouse on Handicapped and Gifted Children.


http://www.huffingtonpost.com/arne-duncan/how-do-us-students-compare_b_2279307.html


ESF. (2010). Education Services Foundation. Retrieved from
http://www.esfweb.com/ESFweb_BAC_070111/aboutESF.html


doi:10.1080/01621459.1986.10478363


183


Appendix A

Instructions for Administering SISRI-24

1. Check that all materials are in expanding envelope and mark below. (Please contact researcher immediately to receive missing documents.)

   Instructions for Administering SISRI-24
   COVER SHEETS envelope
   SISRI-24 envelope
   Folder for Consent Forms
   Spiritual Intelligence Testing Administration Script
   Research Participants checklist
   SISRI-24 test documents

2. Read Instructions for Test Administrators and Spiritual Intelligence Testing Administration Script to become familiar with test procedures.

3. On day of test place all permission documents in CONSENT FORMS folder and place in expanding envelope.

4. Read from the Spiritual Intelligence Testing Administration Script and begin administering the test.

5. Have students check that numbers on front of cover sheet and on test document are the same. Please replace if there are any discrepancies.

6. After students complete information on front, have them separate COVER SHEET from SISRI-24, collect, and place in COVER SHEET envelope. Please close only using metal clasps. DO NOT MOISTEN ENVELOPE SEAL.
_____ 7. Continue reading from script to administer assessment. Please write names of students taking the assessment on Research Participants checklist (if you have time). The ACT scores will be added by Point of Contact for test administration.

_____ 8. Collect completed assessments and place in SISRI-24 envelope. Please close only using metal clasps. DO NOT MOISTEN ENVELOPE SEAL.

_____ 9. Place all documents from checklist into the expanding folder and mark that all are accounted for.

_____ Instructions for Administering SISRI-24

_____ Envelope filled with COVER SHEETS

_____ Envelope containing SISRI-24 documents

_____ Folder with completed Consent Forms

_____ Spiritual Intelligence Testing Administration Script

_____ Research Participants Checklist

_____ 10. Return to Point of Contact for this research.

Once again, I wish to extend my sincere thanks for your participation in this research. I truly believe that the information gained in this research project will yield important results for educators and parents wishing to encourage achievement in students. I look forward to analyzing the data and communicating the results with you and your administrators.

Thank you,

xxxxxx xxxxxx
Appendix B

Spiritual Intelligence Testing Administration Script

Instructions for directions are included in italics. Please read these as scripted with no additions or deletions.

In order to ensure that all students are given an equal opportunity to complete the instrument and that all classes follow the same procedures, please read and follow the directions below exactly. As this is a test, I appreciate your managing the classroom in order to maximize the student’s chances of success.

*To protect your confidentiality and comply with research requirements there are certain protocols that must be followed. Please follow all directions when given and do not proceed until given directions to do so.*

*I will now pass out the two page test document with randomly assigned numbers. Please keep test turned over until you are given permission to read.*

After all have been given a test, read the following:

*You may turn the test instrument over.*

*You will notice there is certain demographic information included.*

*Please write your full name, give your age in years, and check your gender.*

*When you have completed this information, please separate this cover sheet from the test document and I will collect.*

While students are completing this section, please circulate throughout the room to ensure compliance with directions.

Check to see that all have completed the cover sheet and have not proceeded to the test.

After all have completed:
Please turn the page to the SISRI-24 instrument and read the instructions silently while I read them aloud.

“The following statements are designed to measure various behaviors, thought processes, and mental characteristics. Read each statement carefully and choose which one of the five possible responses best reflects you by circling the corresponding number. If you are not sure, or if a statement does not seem to apply to you, choose the answer that seems the best. Please answer honestly and make responses based on how you actually are rather than how you would like to be. The five possible responses are:

0- Not at all true of me; 1–Not very true of me; 2–Somewhat true of me; 3–Very true of me; and 4–Completely true of me.

For each item, circle the one response that most accurately describes you.

Please remember to circle only one answer for each response.

If you change your mind, please put an X through the incorrect one and clearly circle the one you meant to best represent you.

When you have completed the assessment, please raise your hand and I will collect.

Are there any questions?

If not, you may begin.

Please circulate throughout the test to identify any problems or answer any general questions the students may have.

Please do not define any terms or give any information that may slant the results.

Please record any irregularities below.

Thank you,
NAME ____________________________

Age? (In years) ______________________

Gender? (Check one) Male_____Female____

SISRI-24

Research conducted by xxxxx xxxxx, Doctoral Candidate, xxxxxxx University, xxxxxxxxx,xx
Appendix D

Author Permission to Use SISIR-24

... 

David King <xxxxxx@xxxx.xx>

From: ...

View Contact

To: Merial Smartt <xxxxxxxxxx@xxxxx.xxx>

Hi Merial,

Yes, you have permission to use the SISRI in your work. It is free for unlimited use in educational and research settings.

All the best and I'd love to hear about your findings when you get to that point.

David

Sent from my BlackBerry. For additional contact information, visit xxx.xxxxxx.xxx

-----Original Message-----
From: Merial Smartt <xxxxxxxxxx@xxxxx.xxx>
Date: Wed, 27 Oct 2010 20:43:16
To: <xxxxxx@xxxx.xx>
Subject: Permission to use SISIR-24

Mr. King,
Hello, my name is Merial Smartt and I am a doctor of education student at Liberty University beginning my dissertation process. I am very interested in using your instrument to see if I can find empirical data to support my hypothesis that there is a correlation between spiritual intelligence and achievement. I am currently developing my prospectus and would value using your instrument and validated statistics. Please let me know if I have your permission to proceed with this research plan and contact me if you have any questions or need further information. I will attach a current resume so you will know more about my credentials. I look forward to hearing from you.

Thank you,

xxxxxx xxxxxx
xxx xxxxxxxx xxxxxxxx xxxx
xxxxxxx, xx,xxxxx
xxx-xxx-xxxx
Appendix E

IRB Approval Letter

April 6, 2012

Merial Smartt
IRB Approval 1196.040612: The Relationship of Spiritual Intelligence to Academic Achievement of Secondary Students

Dear Merial,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

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

Sincerely,

Fernando Garzon, Psy.D.
IRB Chair, Associate Professor
Center for Counseling & Family Studies

(434) 592-5054

LIBERTY UNIVERSITY
40 Years of Training Champions for Christ: 1971-2011
Appendix F

Research Project Participation Instructions

Instructions for participating in this research project:

1. Post flyers.
2. Read Invitation to Participate in Research.
3. Encourage participation and suggest contacting researcher with any questions.
4. Send home Consent forms—students should return one and keep one for their records.
5. Collect Consent forms—contact point of contact with number of participants.
7. Record names of participants on Research Participants sheet.
7. Turn in all materials to point of contact.

Thank you for your assistance with this project. Your time and participation are invaluable to this research.

xxxxxx xxxxxx
Appendix G

Flyer for Posting in Teacher’s Rooms

ARE YOU SPIRITUALLY INTELLIGENT?
(What is Spiritual Intelligence?)

Do you use your Spiritual Intelligence to help you make decisions?

You may be spiritually **intelligent if:**

- You have ever questioned the purpose of your existence...
- You meditate or pray to relieve stress...
- You have ever wished for wisdom to overcome conflict...
- You have tried visualization to transcend difficult situations...

If so, you may be utilizing your spiritual intelligence to help you cope with situations in life.

This research will attempt to answer the following questions:

- Does spiritual intelligence change as you mature and grow older?
- Does gender affect one's spiritual intelligence?
- Is there a relationship between spiritual intelligence and achievement?

If you are interested in participating in this research, speak to your teacher.

To Participate in This Research Project Participants must:

- Volunteer to participate in research
- Return signed consent form with parental permission included
- Register and take the ACT
- Take the Spiritual Intelligence Self-Report Inventory- 24
Appendix H

Invitation to Participate in Research

TEACHERS: Please read the following to your students to encourage participation in this research opportunity (Copy is included with consent forms).

- You are invited to participate in an exciting research opportunity being conducted at this school. As part of a dissertation research project, Merial Smartt, a doctoral candidate at Liberty University, wishes to explore the relationship between spiritual intelligence and achievement.
- The concept of spiritual intelligence is a relatively new and unique concept. There have been several studies conducted internationally and some in colleges in the US. However, there have been very few that have studied spiritual intelligence in secondary high schools in the US and none have studied its influence on achievement. Therefore, you are being given a unique opportunity to help add to the body of knowledge on the subject of spiritual intelligence and achievement.

**What is spiritual intelligence?** One definition states that:

- “SI (spiritual intelligence) is defined as the ability to apply and embody spiritual resources and qualities to enhance daily functioning and wellbeing” (Amram, 2007, p. 1).
- Emmons (2000) contends that a main component of SI is the “adaptive problem-solving behavior, where problem solving is defined with respect to practical goal attainment and some sort of positive developmental outcome” (pp. 5-6).

- If SI helps students enhance their functioning especially through problem-solving, can SI also help students succeed in academic settings and help them perform well on achievement measures?

- This research will explore this question and you can help discover if there is any relationship between SI and Achievement.

- If you are willing to participate in this exciting research project, please see me today for a permission letter to take home to your parents. Please be assured that your participation in this research will be entirely voluntary. There will be no rewards or penalties for your decision about taking part in this project.

- However, there are some research findings that may help you in making your decision.
  - As a nation, the United States is failing to compete in academic achievement globally (Wilde, 2009).
  - Research indicates that increasing incentives to perform scholastically while exploring values may increase academic engagement (Mosconi & Emmett 2003).
  - There has been some research about the effect of motivation on school performance (Brewster & Fager, 2000).
• Research into spiritual and religious development provides evidence that students who participate in spiritual activities show positive developmental results (Benson, 2004).
• One aspect of research that needs further examination is the effect of spiritual intelligence on achievement.

❖ If you have any questions, please address them directly to xxxxxx xxxxxx at xxxxxxxx@xxxxxxx.xxx

References


Appendix I

Consent Form
The Relationship of Spiritual Intelligence to Academic Achievement of Secondary Students
Principal Investigator – xxxxxx x. x. xxxxx
xxxxxxx University, Education Department

You are invited to be in a research study correlating spiritual intelligence and its effect on
achievement among students in this city. You were selected as a possible participant because
you are currently attending a public or private Christian secondary school in this area. We ask
that you read this form and ask any questions you may have before agreeing to be in the study.
This study is being conducted by xxxxxx x. xxxxx, Education Department, Liberty University.

Background Information
The purpose of this study is to identify if there is a relationship between spiritual
values/intelligence and achievement in high school students attending public or private Christian
schools in the southeast.

Procedures:
If you agree to be in this study, we would ask you to do the following things: 1) Return signed
letter of consent from parents within two weeks of receiving to your classroom teacher. 2)
Participate in spiritual intelligence survey conducted at your school. This short survey should
take between fifteen and thirty minutes. 3) Register and complete ACT and allow researcher
access to results as soon as completed and results are received.

Risks and Benefits of being in the Study
The study has few risks: First, participants will be asked to self-report his or her understanding of
one’s individual spiritual intelligence. Some of these thoughts and feelings may be private and
students may feel the survey is invading his or her privacy. Second, some of the concepts and
explanations may be confusing and cause anxiety when deciding how to respond to the
instrument. However, these risks are minimal and should cause little to no problem for
participants. If at any time the participant feels threatened, he or she may terminate the survey
and his or her participation will be at an end.

Benefits:
The benefits to participation are: There are no known benefits to the participants, however, an
articulation of one’s spiritual intelligence may lead students to greater insight into his or her
efficacy, resilience, self-actualization, better decision making, and ultimately to his or her
achievement. Successful achievement in school is often a precursor to the individual becoming a
contributing member to society.

Compensation:
You will receive no payment. Participation is entirely voluntary. In addition, there will be no
remuneration for the registration fee incurred to take the ACT.
Confidentiality:
The records of this study will be kept private. In any sort of report that may be published, no identifying information will be given. Research records will be stored securely and only researchers will have access to the records. In an effort to protect the anonymity and privacy of each participant, a randomly assigned number will be issued to each participant. All identifying information will be on a numbered cover sheet that will be separated from the correspondingly numbered spiritual intelligence instrument and will only be accessible to the researcher. After survey completion, the researcher will match number to name for analysis. After the research is complete, all survey forms will be stored by researcher. The research data will be utilized for research purposes and may appear in an educational journal. However, at no time will the name of any participants be released or any identifying information provided.

Voluntary Nature of the Study:
Participation in this study is voluntary. The decision on whether or not to participate in this study will not affect current or future relations with the Liberty University, with status in this class, or any relations with the school, teacher, or administration. If participating in the study, the student is free to ask questions at any time or to withdraw at any time without affecting relationships.

Contacts and Questions:
The researcher conducting this study is xxxxxx x. xxxxxx. You may ask any questions you have now. If you have questions later, you are encouraged to contact her at xxxxxxxx@liberty.edu or xxx-xxx-xxxx. The advisor is Dr. xxxxxxxx xxxxxx, xxx-xxx-xxxx, xxxxxxxx@liberty.edu. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Institutional Review Board, Dr. xxxxxxxx xxxxxx, Chair, xxxxx xxxxxxxx Blvd, Suite xxxx, xxxxxxxxx, xx xxxxx or email at xxxxxxxx@xxxxxxx.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:
I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study and to provide access to ACT scores.

Signature: ________________________________________ Date: _______

Signature of parent/guardian: ____________________________ Date: _______ (If minors are involved)

Signature of Investigator: ____________________________ Date: _______
## Appendix J

### RESEARCH PARTICIPANTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CONSENT FORM</th>
<th>ACT SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix K

Point of Contact Instructions

As test facilitator for this research in your school, I am providing general guidelines as well as specific checklists and requirements. These are necessary to ensure equitable administration of this research. Therefore, it is important that each test administrator follow the required protocols by Liberty University. Please encourage each participating administrator to read the instructions completely and follow the simple directions given.

In addition to the testing packets for each teacher, I am providing a copy of all documents for the facilitator as well as extra copies of all documents in case more are needed or are destroyed.

On day of test, please:

1. Verify that test packets are complete. They should contain the following:

   _____ Instructions for Administering SISRI-24
   _____ COVER SHEETS envelope
   _____ SISRI-24 envelope
   _____ Folder for Consent Forms
   _____ Spiritual Intelligence Testing Administration Script
   _____ Research Participants Checklist
   _____ SISRI-24 test documents

2. Distribute test packets to test administrators. Each packet contains a checklist that teachers may wish to complete in your presence.

3. Collect all packets from teachers after students have completed.

4. Double check that packets have been returned with all documents. They should contain:

   _____ Instructions for Administering SISRI-24
5. Return all packets to researcher.

6. After you receive the names of students on Research Participants checklist, please provide the ACT scores and return to researcher again.

Thank you so very much for facilitating this research process. Your contribution to this research topic is invaluable. Please do not hesitate to contact me if you have any questions or concerns or need volunteers – I will be happy to reciprocate. (xxxxxxx@xxxxx.com or xxx-xxx-xxxxxxx).

I have been deeply honored by your interest and commitment to this research. It is my hope that this research will provide suggestions for encouraging and sustaining achievement in students. Once again, I thank you,

xxxxxxx xxxxxx
Appendix L
Results for SISRI-24 Participants

Dear (insert student name here)

Thank you for your participation in this research project. Educators need information based on sound research to make decisions on student achievement and motivation. Your survey results will provide statistical information for these important curriculum decisions. Without your input, valuable data would be missing.

I have included your survey results with a brief description of each term. If you wish to investigate the subject of Spiritual Intelligence further, I recommend you discuss with your parents and your local spiritual leader. In addition, the author of the test instrument is David King and he explains the terms more fully in an interesting article “The Spiritual Intelligence Project.” This can be accessed at http://ww.xxxxx.net/xxxxxx.pdf

| **Spiritual Intelligence (0-96)** – Applying spiritual values to enhance daily life or solve problems. |
| Scores: 65-96 = Highly defined SI; 40-64 = Average SI; 0-39 Underutilized SI |
| **Critical Existential Thinking (0-28)** The contemplation of one’s purpose or existence and connection to the universe as well as such topics as life and death, reality, truth, or justice. |
| **Personal Meaning Production (0-20)** The ability to create meaning and purpose in one’s life and to discern this purpose from both mental and physical experiences even in failure. |
| **Transcendental Awareness (0-28)** The capacity to perceive the “big picture” or dimension of life that is not material and goes beyond normal experiences. This awareness of spiritual dimensions of existence can be personally observed as well as recognized in others. |
| **Conscious State Expansion (0-28)** The power to control and move into higher spiritual planes through deep meditation, prayer, or contemplation. |

Your scores:

<table>
<thead>
<tr>
<th>CET</th>
<th>PMP</th>
<th>TA</th>
<th>CSE</th>
<th>TOTAL</th>
</tr>
</thead>
</table>

Once again, your participation in this research has been invaluable, and I sincerely thank you.

xxxxxxxx xxxxxxx
Graduate Candidate
xxxxxxxxx University
xxxxxxxxxxxx, xx