PREDICTING ACADEMIC ACHIEVEMENT FOR SEVENTH GRADE
LANGUAGE ARTS STUDENTS USING THE SEVEN DIMENSIONS OF THE
MULTI-DIMENSIONAL ASSESSMENT

by

Mary LeAngela Rogers

Liberty University

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

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ABSTRACT

The purpose of this correlational study was to test how accurately end of the year achievement scores can be predicted by using the seven dimensions of the Multi-Dimensional Assessment in the seventh grade language arts classroom in a southeastern Tennessee school district. The predictor variables were the seven dimensions of the MDA: community engagement, curriculum expectations, developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and school climate. The criterion variable of interest, academic achievement, was generally defined as scores made on the Tennessee Department of Education state mandated test for seventh grade in reading/language arts, the Tennessee Comprehensive Assessment Program (TCAP). The research examined 265 student responses to the Multi-Dimensional Assessment given to seventh grade students in their language arts classes. A statistical positive correlation was found with developmental perspectives and educational attitudes and a negative correlation was found with community engagement of the MDA. The findings of this study allow educators to prioritize their focus on the non-academic components of education. The results assure educators that their focus on students’ affective dimensions will show through standardized test scores. Future research in this area should include additional subject areas and grade levels. The data analysis chosen for this research study was the multiple regression.

Keywords: Multi-Dimensional Assessment; Tennessee Comprehensive Assessment Program (TCAP); Community Engagement; Curriculum Expectations; Developmental Perspectives; Educational Attitudes; Faculty Fidelity; Leadership Potential; School Climate.
Dedication

I would like to dedicate this manuscript to two people: my son and my mom.

Cooper DeWitt Rogers, you are my sunshine. I never knew unconditional love until our gracious Lord blessed your dad and I with you. May this dissertation show you that your dreams are always possible no matter what life brings your way.

I would also like to dedicate this manuscript to my mom, Marion Kilgore. You have been my cheerleader, my supporter, my encourager, and most importantly, my prayer warrior. My entire life, you have always been “that person” who believed in me, even when I did not see anything to believe in. Thank you for holding me accountable and pushing me further, even when I thought I had reached my limit.
Acknowledgement

First and foremost, I would like to honor my Lord and Savior, Jesus Christ. As a freshman in college, I made the decision to trust in his plan for my life and cling to the promises of my life verse, Jeremiah 29:11,

“For I know the plans I have for you,” declares the Lord. Plans to prosper and not to harm you, plans to give you a hope and a future.

The journey has not always been easy, but I am grateful for the peace You provide when I am in the center of Your will. I can do all things through You!

I would like to thank my family, who supported me through this journey. My husband, Ross Rogers, my son, Cooper Rogers, my parents, Jay Dee and Marion Kilgore, and my brother, Andy Kilgore. You all were always empathetic and encouraging through this entire process. Without your love and support, I would not have been able to accomplish this dream.

Ross, thank you for allowing me to follow this dream. Thank you for your encouragement, love, and support. As long as I’m rocking with you!

Cooper, it is my prayer that seeing this dream become my reality will encourage you to never give up trying to reach beyond the stars. I love you to the moon and back.

Dad and Mom, you have never put limits on me. You have always encouraged me to go beyond status quo and to never give up. I am grateful for the love of learning that you instilled in me as a little girl.

Andy, you are the best brother and I am so proud of the man you have become. Thank you for always being there for me with a shoulder to cry on, a listening ear, a word of encouragement, and a much-needed laugh. Thank you for being you!
To my chair, Dr. Connie Pearson, thank you for your leadership, support, and encouragement. Thank you for walking beside me on this journey. I am grateful for your ability to scaffold this process so that it is attainable. Thank you for your calm presence and positive reassurance throughout this journey.

Thank you to my committee, Dr. Reginald Kimball and Dr. C. Adam Clagg for your time and feedback that you have given to help me accomplish this dream. Dr. Clagg, thank you for your friendship for over 30 years and example of Christ you have always been in my life.

There are countless others: family, friends, and colleagues, who have supported me during this endeavor. Thank you for asking me about the process, as I needed the ongoing accountability. Thank you for assisting me when I asked, listening to me when I needed to talk something out, and/or editing something when I needed assistance. I am forever grateful for your love and encouragement.
# Table of Contents

ABSTRACT .................................................................................................................. 3

Dedication ..................................................................................................................... 4

Acknowledgments ........................................................................................................ 5

List of Tables .................................................................................................................. 11

List of Figures .............................................................................................................. 12

List of Abbreviations ................................................................................................... 13

CHAPTER ONE: INTRODUCTION ............................................................................. 14

Background ................................................................................................................... 14

Social Development Theory ....................................................................................... 17

Experiential Learning Theory .................................................................................... 18

Stages of Moral Development .................................................................................... 18

Attribution Theory ....................................................................................................... 19

Authentic Leadership Theory ..................................................................................... 19

General Systems Theory ............................................................................................. 20

Problem Statement ...................................................................................................... 20

Purpose Statement ....................................................................................................... 22

Significance of Study ..................................................................................................... 23

Research Questions ...................................................................................................... 24

Null Hypotheses .......................................................................................................... 25
Definitions........................................................................................................................................... 26

CHAPTER TWO: LITERATURE REVIEW.............................................................................................. 28

Introduction........................................................................................................................................... 28

Theoretical Framework......................................................................................................................... 28

Social Development Theory.................................................................................................................. 29

Experiential Learning Theory.............................................................................................................. 30

Theory of Moral Development............................................................................................................ 32

Attribution Theory............................................................................................................................... 34

Authentic Leadership Theory.............................................................................................................. 36

General Systems Theory..................................................................................................................... 37

Related Literature................................................................................................................................ 38

The Middle School Student................................................................................................................. 38

Adolescent Development..................................................................................................................... 40

Gender Differences of Adolescents..................................................................................................... 42

Learning Style Differences of Adolescents Based on Gender.............................................................. 44

Development of the Middle School in the United States..................................................................... 45

The Middle School Model.................................................................................................................... 49

Seven Dimensions of Multi-Dimensional Education.......................................................................... 53

Common Core Standards.................................................................................................................... 57

Impact on Academic Achievement: Response to Intervention......................................................... 62
Null Hypothesis Five .............................................................................................................. 94
Null Hypothesis Six .................................................................................................................. 94
Null Hypothesis Seven ............................................................................................................. 95
CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS ............... 98
Discussion ................................................................................................................................. 98
Conclusion ............................................................................................................................... 103
Limitations ............................................................................................................................... 108
REFERENCES ......................................................................................................................... 111
APPENDIX A: TCAP Scores and Multi-Dimensional Scores ................................................... 126
APPENDIX B: Agreement with MDED and Permission to use MDA ................................. 136
APPENDIX C: Permission from School District .................................................................... 138
APPENDIX D: Principal Letter ............................................................................................... 139
APPENDIX E: Parent Consent Form ..................................................................................... 140
APPENDIX F: Outline/Timeline for study given to teachers ............................................. 142
APPENDIX G: Box and Whisker plots, Histogram, and Scatterplot for data ................. 143
List of Tables

Table 1.1 .........................................................................................................................17
Table 2.1 ..........................................................................................................................34
Table 3.1 ..........................................................................................................................71
Table 3.2 ..........................................................................................................................72
Table 3.3 ..........................................................................................................................74
Table 3.4 ..........................................................................................................................79
Table 4.1 ..........................................................................................................................90
Table 4.2 ..........................................................................................................................96
Table 4.3 ..........................................................................................................................97
List of Figures

Figure 2.1 ..........................................................................................................................32
Figure 2.2 ..........................................................................................................................52
Figure 3.1 ..........................................................................................................................82
List of Abbreviations

Achievement Test (ACH)
Authentic Leadership Theory (ALT)
Common Core State Standards (CCSS)
Common Core State Standards Initiative (CCSSI)
English Linguistically Simplified Assessment (ELSA)
Experiential Learning Theory (ELT)
General Systems Theory (GST)
Multi-Dimensional Education, Inc. (MDED)
Multi-Dimensional Assessment (MDA)
No Child Left Behind (NCLB)
Social Development Theory (SDT)
Tennessee Comprehensive Assessment Program (TCAP)
Tennessee Department of Education (TDOE)
CHAPTER ONE: INTRODUCTION

Background

With accountability of public school education being at an all-time high, schools are scrambling to prioritize their focus. The United States Secretary of Education, Arne Duncan, has stated that schools are entering a new era where they are expected to produce more academic results with fewer resources (Baker, 2012). As accountability and high-stakes testing are at the forefront of current educational debate, leading researchers continue to search for the answer to improvement and success in America’s classrooms (Berkowitz & Hoppe, 2009). The lack of advancements in academic achievement over the past decade has led some to research factors impacting the decline of standardized test scores (Berkowitz & Hoppe, 2009; Parker, Nelson, & Burns, 2010; Ryan, 2013; Schmoker, 2006; Stiff-Williams, 2010; Stoddard, 2012). Researchers are questioning the impact of the following areas on academic success: the amount of money a country or state spends on education, the quality of pre-kindergarten schooling a toddler receives, and post-college training for educators. Additionally, Stoddard (2012) states, “If we want real progress in public education, we must place more value on the things that are harder to measure, like curiosity, creativity, and character” (p. 38).

Just as the foundation of education was built upon creating moral, diverse, educated students, so is the ideology of why people choose to work in the field of education. According to Pytel (2013), 73% enter the profession of education because of their desire to influence young people cognitively and affectively. The desire to reveal future opportunities, to create avenues of enriched learning, and to make a significant mark on a child’s life often drive a teacher to work in a profession that is given little
respect for its contributions (Marshall, 2009). Most novice educators begin with a vision of assisting their students to become productive citizens by increasing their “pro-social behavior” and decreasing their “risky behavior” (Schwartz, Beatty, & Dachnowicz, 2005, p. 5). The concept of education goes beyond instruction to encompass the development of academics and behavior.

Thomas Jefferson and Horace Mann, two of the men who are credited as founders of education, saw the educational system as a means to help students internalize characteristics such as respect, loyalty, self-discipline, and other skills necessary to be productive citizens (Seider, Novick, & Gomez, 2013). Benjamin Franklin, as cited in Reed (2001), said, “Nothing is more important for the public welfare than to form and train our youth in wisdom and virtue” (p. 1). However, today in academic circles, the conversation focuses on educational reform, increased standardized test scores, and students who can compete in a global economy (Boykin & Noguera, 2011; Schmoker, 2006; Schmoker, 2011; Zhao, 2009).

More recently, educational circles have focused on increased rigor that incorporates differentiation to reach all students in the classroom. In his 2006 State of the Union address, President George Bush proposed:

We need to encourage children to take more math and science, and to make sure those courses are rigorous enough to compete with other nations.

We’ve made a good start in the early grades with the No Child Left Behind Act, which is raising standards and lifting test scores across our country…

If we ensure that America’s children succeed in life, they will ensure that America succeeds in the world. (Bush, 2006)
Through No Child Left Behind (NCLB), the government began to change the focus on quality schools based on standardized test scores. This shift in focus led to the belief that students scoring below proficient on standardized tests had experienced ‘less than subpar’ education (Zhoa, 2009). In order to comply with the new federal legislation, standards were re-written to be more rigorous, instructional time was increased in the subjects of English, math, and science, and administrators and teachers became increasingly more adept in disaggregating data related to student performance (Zhoa, 2009). NCLB forced schools to focus on academic achievement in areas where students had historically struggled. It also forced administrators to recognize and develop a plan of action to decrease the achievement gaps related to gender and race (Boykin & Noguera, 2011).

Although the intention of NCLB was sincere—to increase academic achievement of all students while zeroing in on the achievement gap—the lack of advancement in the academic achievement of all students is still a fundamental issue that educators are battling (Boykin & Noguera, 2011).

Researchers have always searched for answers for how to increase test scores, how to decrease the achievement gap, and how to design an education where students are competitive from a global lens (Hanushek, Kain, & Rivkin, 2005; McEwin & Greene, 2011; Rockoff & Lockwood, 2010). In his collection of personal essays, Eisner (1998) states, “what we are seeing in American education today is a well-intentioned but conceptually shallow effort to improve our schools” (p. 178). It is this frustration that led the developers of Multi-Dimensional Education Inc. (MDED, 2014) to begin to research factors that impact student achievement and allow students to reach their full potential academically, socially, and professionally. This research study looked at the factors that
are suggested by MDED to impact student achievement and determine if any of these factors can predict a student’s achievement score on a standardized test.

Due to the nature of this study, there are several relevant theoretical frameworks that will be referenced as they relate to the seven dimensions (See Table 1.1).

Table 1.1

*Theoretical Frameworks Associated with the MDA Dimensions*

<table>
<thead>
<tr>
<th>MDA Dimension</th>
<th>Theoretical Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Engagement</td>
<td>Social Development Theory</td>
</tr>
<tr>
<td>Curriculum Development</td>
<td>Experiential Learning Theory</td>
</tr>
<tr>
<td>Developmental Perspective</td>
<td>Stages of Moral Development</td>
</tr>
<tr>
<td>Educational Attitudes</td>
<td>Attribution Theory</td>
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<tr>
<td>Faculty Fidelity</td>
<td>Experiential Learning Theory</td>
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<tr>
<td>Leadership Potential</td>
<td>Authentic Leadership Theory</td>
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<tr>
<td>School Climate</td>
<td>General Systems Theory</td>
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</tbody>
</table>

**Social Development Theory**

The dimension of community engagement is based on Vygotsky’s (Buhl, 2010; Gredler, 2011) Social Development Theory, which states that cognition and consciousness are the result of social interaction and behavior. Vygotsky viewed adolescence as a time of renowned advancements in a child’s thinking, given the child’s experiences warrant such development (Gredler, 2011). Buhl (2010) outlines the three fundamental themes of Vygotsky’s theory:

1. Social interaction is a necessity in the development of an adolescent.
2. Learning occurs through another person who is more knowledgeable.
3. Learning happens through the Zone of Proximal Development, which is defined as the distance between what a student can do with the assistance of a peer or teacher and what the student can do independently.

**Experiential Learning Theory**

The theory most related to curriculum development, faculty fidelity, and student behavior is Experiential Learning Theory (McCarthy, 2010; Roaten & Schmidt, 2009; Yardley, Tuenissen, & Dornan, 2012). Yardley, Tuenissen, and Dornan (2012) define Experiential Learning Theory (ELT) in its most basic form as “constructing knowledge and meaning from real-life experience” (p. 161). ELT shows the impact of the learning environment is as important as the learners themselves (Yardley et al., 2012). ELT is based on experience in conjunction with perception, cognition, and behavior (Hedin, 2010; McCarthy, 2010).

**Stages of Moral Development**

Lawrence Kohlberg’s Theory of Cognitive Development is the foundation of the dimension of developmental perspective. Kohlberg originally set out to expand Piaget’s research; however, his “theory evolved from a longitudinal study of the development of adolescent males and became known as Kohlberg’s theory of cognitive moral development” (Wright, 1995, para. 7). Kohlberg’s cognitive moral development theory has four major components:

- “Moral judgment has a cognitive base”; and
- “Stages represent qualitative differences in modes of thinking- hierarchical, integrated systems of thought, each representing a structured whole”; and
• “Individuals prefer problem solution at the highest stage available to them” 
  (Trevino, 1992, p. 446).

Kohlberg developed six stages of cognitive moral development; each level of Kohlberg’s theory has two subsequent stages that a child must pass through in his or her quest to moral maturity.

**Attribution Theory**

The dimension of educational attitudes is most related to the Attribution Theory, which was first postulated by Fritz Heider and was further developed through the work of Bernard Weiner (Royal, 2012). This theory “examines individuals’ beliefs about why certain events occur and correlates those beliefs to subsequent motivation” (Anderman & Anderman, 2009).

**Authentic Leadership Theory**

In recent years, the more prominent leadership theories have seen their demise with multiple scandals and failures of large corporations (Avolio & Gardner, 2005; Cooper, Scandura, & Schriesheim, 2005; Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008). Avolio and Gardner (2005) suggest that such falls from grace have left researchers in the field of leadership looking for a new focus, one of poise, prospect, and optimism. Authentic leadership theory has developed as the new construct in the field of leadership as a way to prepare leaders for tomorrow (Avolio & Gardner, 2005; Cooper et al., 2005; Walumbwa et al., 2008). Luthans and Avolio (2003) state authentic leadership theory is a process that combines capacities of a positive leader and a well-developed organizational context.
**General Systems Theory**

The General Systems Theory is the basis for the dimension of leadership potential and school climate. This theory provides an insight in how the overall culture impacts the parts of the whole (Buhl, 2010). Buhl (2010), quoting Pianta, describes this theory as follows:

Relationships between children and adults are systems and are, in turn, part of larger systems (classrooms). This perspective is helpful in understanding how relationships between children and teachers form, how they are maintained, and how they are important for development. (p. 13)

The aforementioned theoretical frameworks provide the base level of understanding when researching the ability to predict academic achievement scores based on the seven dimensions of effective schools as identified MDED (Corrigan, Grove, & Vincent, 2011). Marzano, Waters, and McNulty (2005) suggest, “whether a school operates effective or not increases or decreases a student’s chances of academic success” (p. 3). One area of effective operation is to determine where a school will center its focus. The topic of this research study was to determine which, if any, of the seven dimensions, as suggested by MDED, could predict a student’s achievement score on a standardized test. The outcome of this study has a noteworthy for schools when determining their focus.

**Problem Statement**

A child’s experience in school has a significant impact on his or her future opportunities in life (Corrigan, Grove, & Vincent, 2011; Flook, Repetti, & Ullman, 2005;
Laidra, Pullmann, & Allik, 2006). Proficiency in reading and writing have been identified as essential components to achieving academic success (Flook et al. 2005). With the lens of school effectiveness currently focused on standardized testing, research is needed to identify strategies that enhance academic achievement, specifically in the middle school (Heller, Calderon, & Medrich, 2003).

A plethora of correlational research exists to document dimensions relevant to academic achievement of students in elementary and post-high school age (Corrigan et al., 2011). Paunonen and Ashton (2001) conducted research of college undergraduate students around the “Big Five” personality factors: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Flook, Repetti, and Ullman (2005) studied classroom social experiences as a predictor of academic achievement for fourth grade students. Laidra, Pullmann, and Allik (2006) compared personality and individual differences to academic achievement of secondary students. Few studies have been conducted that relate to middle schools.

The weakness of current research is trifold. First, most of the research on middle grades students is focused on characteristics and developmental needs of the age group (Heller et al., 2003). Another limitation in existing literature is that the scope is often one-dimensional: achievement based. For example, a study might only look at socioeconomic status and its impact on academic achievement (Heller et al., 2003). Finally, the research often implies there is no fundamental difference between students in various age groups, and makes recommendations to middle school practitioners based on research from different age groups (Heller et al., 2003). The problem is there is not significant research in multiple dimensions that impact academic achievement or how
those dimensions impact academic achievement. This research study looked at the seven dimensions of a student as identified by the MDA and determined if any of the seven areas have a direct correlation with language arts standardized test scores.

**Purpose Statement**

The purpose of this quantitative correlational research study was to investigate what dimensions of the Multi-Dimensional Assessment, if any, best predict academic achievement of seventh grade students, as indicated by test scores on the language arts section of the end-of-year TCAP, in a southeastern Tennessee school district (See Appendix A and B). The predictor variable, the results of the Multi-Dimensional Assessment, was generally defined as the following indicators: community engagement, curriculum expectations, developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and school climate (Multi-Dimensional Education, Inc., 2014). The criterion variable of interest, academic achievement, was generally defined as scores made on the Tennessee Department of Education state mandated test for seventh grade in reading/language arts, the Tennessee Comprehensive Assessment Program (TCAP). The population was approximately 675 seventh grade students, in a southeastern Tennessee school district. Determining the relationship between the MDA indicators and academic achievement of middle school students is valuable to educational leaders when considering the impact each indicator may have on high-stakes standardized test scores. The purpose of this study is to provide future researchers with evidence on whether or not the seven dimensions of the Multi-Dimensional Education framework have a direct impact on student achievement in language arts.
Significance of Study

The goal of education has been at least two-fold: academic achievement and the development of good citizens (Lickona, 1993; Ryan, 2013; Ryan & Bohlin, 1999). Much research has been completed in both of these areas with hopes of unveiling how educators can achieve optimum results in the classroom. Since the turn of the century, improving academic achievement through the disaggregation of data has been at the forefront of educational reform (Bernhardt, 2003; Corrigan et al., 2011; Schmoker, 2006). In an effort to change school direction, educational leaders are examining related data to determine areas of need and also to find and use other indicators that may reveal areas to strengthen (Bernhardt, 2003).

Data in the school setting are multi-faceted. Schools must assess demographic data, student knowledge numbers, cultural data, and learning methods data (Bernhardt, 2003; Corrigan et al., 2011; Marsh, Pane, & Hamilton, 2006). Corrigan, Grove, and Vincent (2011) discuss the data available to schools:

We have the data on hand to better inform our practices. We could and should collect even more data, or at least look at what we have, what we know, and what we do through a new, more meaningful, and more useful lens. (p. 27)

However, even with the plethora of data at educators’ fingertips, many still shy away for numerous reasons, including more accountability as to individual performance and the lack of knowing what data to use and how to use them.

Assessing data from a multi-dimensional stance allows a school to narrow the focus to what might possibly be the seven most powerful aspects of improving achievement scores. By using a correlational design with a multiple regression analysis,
this study provides future researchers with evidence on whether or not the seven dimensions of the Multi-Dimensional Education framework have a direct impact on student achievement in language arts.

**Research Questions**

This research study is to explore the following questions:

**RQ1**: How accurately can end of the year achievement scores be predicted using the community engagement dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ2**: How accurately can end of the year achievement scores be predicted using the curriculum expectations dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ3**: How accurately can end of the year achievement scores be predicted using the development perspectives dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ4**: How accurately can end of the year achievement scores be predicted using the educational attitudes dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ5**: How accurately can end of the year achievement scores be predicted using the faculty fidelity dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ6**: How accurately can end of the year achievement scores be predicted using the leadership potential dimension from the Multi-Dimensional Assessment for seventh grade language arts students?
RQ7: How accurately can end of the year achievement scores be predicted using the school climate dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

Null Hypotheses

The null hypotheses for this study were:

H_0^1: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, community engagement, of the Multi-Dimensional Assessment.

H_0^2: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, curriculum expectations, of the Multi-Dimensional Assessment.

H_0^3: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, developmental perspectives, of the Multi-Dimensional Assessment.

H_0^4: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, educational attitudes, of the Multi-Dimensional Assessment.

H_0^5: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, faculty fidelity, of the Multi-Dimensional Assessment.

H_0^6: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, leadership potential, of the Multi-Dimensional Assessment.
There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, school climate, of the Multi-Dimensional Assessment.

**Definitions**

1. *Community Engagement* - The support of parents and positive interpersonal interactions within the greater community and service to the community (Corrigan et al., 2011).

2. *Curriculum Expectations* - Factors that are examined in this area include instructional curriculum, instructional creativity, academic support, and educational rigor (Multi-Dimensional Education, Inc., 2014).

3. *Developmental Perspective* - Encompasses a “student’s behavior issues, compassion for others, good deeds, student success traits, school misconduct” (Multi-Dimensional Education, Inc., 2014).

4. *Educational Attitude* - Includes the following areas: “academic empowerment, feelings for school, motivation to learn, and students work ethic” (Multi-Dimensional Education, Inc., 2014).

5. *Faculty Fidelity* - Incorporates the following areas: “teacher belief in students, teacher satisfaction, teacher trust, and organizational support” (Multi-Dimensional Education, Inc, 2014).


7. *School Climate* - An assessment of the school culture, school liking, school isolation,
and student relationships (Multi-Dimensional Education, Inc, 2014).
CHAPTER TWO: LITERATURE REVIEW

Introduction

According to the National Center for Education Statistics, there are more than 15,000 middle schools in America’s public school system (McEwin & Greene, 2011). The movement to establish a three-tier school system—elementary, middle, and high schools—is more than 100 years old and began at the inception of the junior high school (McEwin & Greene, 2011). However, there is still much research and debate about the programs and practices used in this middle level due to lack of growth and achievement from the students who have experienced this learning environment (Heller et al., 2002; McEwin & Greene, 2011; Rockoff & Lockwood, 2010).

Chapter Two will focus on relevant research regarding the theoretical studies of Lev Vygotsky, David Kolb, Lawrence Kohlberg, and others. This chapter will also include current and reliable literature in the areas of seven MDA dimensions, history of American education, middle grades organization, and student characteristics during the middle grade years, which are related to this research study.

Theoretical Framework

During the 20th century, a plethora of research and studies were conducted surrounding the seven dimensions of the MDA. In order to fully encompass the totality of the seven dimensions one must examine the following:

- Social Development Theory,
- Experiential Learning Theory,
- Stages of Moral Development,
- Attribution Theory,
• Authentic Leadership Theory, and
• General Systems Theory.

**Social Development Theory**

Social Development Theory (SDT), also referred to as the Sociocultural Theory, was coined by the work of Lev Vygotsky. Vygotsky was born in 1896 in Western Russia and received formal training in law, but pursued a career in psychology because of his personal interest (Gallaher, 1999). Due to his lack of official training, the Russian government repudiated Vygotsky’s work; however, his work remained alive through his students. SDT is the foundation for the dimension of community engagement.

Vygotsky’s research was focused on the process that children embrace in order to solve issues that are above their developmental levels. Vygotsky defined adolescence as an important time in the child’s development of cognitive skills and felt the environment played a pivotal role in this development (Gredler, 2011). Buhl (2010) detailed Vygotsky’s work around the SDT and stated “Vygotsky argued that a child’s development cannot be understood by a study of the individual” alone; the child’s social environment must also be examined (p. 17).

SDT is built around three central themes of interaction. First, the idea that social interaction is a primary contributor to cognitive development (Buhl, 2010; Culatta, 2013; Nelson, 2014). Vygotsky’s work stated that every action is a two-step process: the first step is when the child experiences an action socially and the second step is when the child experiences an action as an individual (Buhl, 2010). Second, interaction is primarily in learning environments where Vygotsky stated there is always a person who holds more knowledge: a teacher, a coach, or peers. The person, who Vygotsky called the More
Knowledgeable Other (MKO), is capable of leading the child to a learned action. Third, Vygotsky viewed learning as an interaction between one’s ability and the MKO’s ability, which he termed Zone of Proximal Development, or ZPD (Buhl, 2010).

**Experiential Learning Theory**

Experiential Learning Theory (ELT) is the theoretical framework for the dimensions of curriculum development and faculty fidelity. ELT was developed based on works from Dewey, Lewin, and Piaget (McCarthy, 2010; Passarelli & Kolb, 2011; Roberts, 2006). ELT, commonly referred to as hands-on learning, learning-by-doing, and/or active learning, has been shown to make significant positive impacts in today’s classrooms (Brickner & Etter, 2008; Hawtry, 2007; McCarthy, 2010). With the groundwork of the aforementioned research previously laid, David Kolb penned his research of ELT in 1984 in the book, *Experiential Learning*. Educational researchers regard Kolb’s research of ELT as sound and established (Hedin, 2010; McCarthy, 2010; Miettinen, 2010; Passarelli & Kolb, 2011; Roberts, 2006).

ELT is a holistic approach to learning that combines research in the following areas: experience, perception, cognition, and behavior (McCarthy, 2010; Miettinen, 2010). Kolb (1984) defines learning “as the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (p. 41). ELT, according to Kolb, is a four-stage circular process that involves grasping information and then transforming it into learning (Miettinen, 2010; Roberts, 2006).

According to Roberts (2006), Kolb’s model indicates that learning does not have a concrete beginning and end; learning is a continuous cycle occurring at any point on the
Model of Experiential Learning Process (Figure 2.1). However, for the most effective learning to occur, the learner must complete the full scope of the model (McCarthy, 2010). Kolb (1984) refers to the four components of the model as different types of learning abilities. Furthermore, “Experiential learning is a process of constructing knowledge that involves a creative tension among the four learning abilities” (McCarthy, 2010, p. 131). The cycle dictates two dimensions that are complementary: grasping information and the transformation of information. One’s ability to work through these dimensions will determine the stage of learning that occurs (Miettinen, 2010; Passarelli & Kolb, 2011; Roberts, 2006). Roberts (2006) defines the four types of learning abilities:

- Concrete Experience: learner must fully commit to the experience;
- Reflective Observation: Reflection of experiences from various perspectives;
- Abstract: learning is through grasped information, which leads to the formation of rules, generalizations, hypotheses, or theories; and
- Active Experimentation: The learner applies rules, generalizations, hypothesis, or theories to future learning dilemmas.
Theory of Moral Development

The dimension of developmental perspective is based on the Theory of Moral Development. Lawrence Kohlberg is one of the most respected researchers in the area of moral development. Prior to Kohlberg’s research, behaviorism served as the practiced standard in psychology (Myyry, 2003). Lawrence Kohlberg’s research created a paradigm shift from the assumption of previous researchers: teaching children moral virtues and social norms of their culture would make them moral. It was not until Lawrence Kohlberg first published results from his follow-up study of the development of moral judgments that it was more widely acknowledged that even children have their own morality and they make moral judgments, which are not internalized, from parents, teachers, or peers. (Myyry, 2003, pp. 13-14)

Lawrence Kohlberg admired the work of Jean Piaget and sought to further the research that had already been conducted. Based on his predecessor’s work and his own research,
Kohlberg developed a theory based on his “longitudinal study of the development of adolescent males” that “became known as Kohlberg’s theory of cognitive moral development” (Wright, 1995, p.18).

Kohlberg’s theory of cognitive development expanded Piaget’s stages to six with three identified overarching levels (Fleming, 2005; Myyry, 2003; Nucci, 1998). In comparison, “Kohlberg elaborated a stage model representing the developmental path of individuals’ reasoning” (Myyry, 2003, p. 13). Each level of Kohlberg’s theory has two stages and represents a “fundamental shift in the social-moral perspective of the individual” (Nucci, 1998, p. 3). Each of “these stages represent the cognitive structure of moral thought” (Myyry, 2003, p. 14). Moreover, “The underlying concept of Kohlberg’s stages is justice. Each stage of moral judgment is characterized by a certain concept of justice and with the development of moral judgments one’s conception of justice changes” (Myyry, 2003, p. 13).

The stages of moral reasoning “are regarded as measuring the development of moral judgment competence even by those who take a critical stand to the theory” (Myyry, 2003, p. 14). Kohlberg’s cognitive moral development theory is largely based on the following four major components:

1. “Moral judgment has a cognitive base”;
2. “Stages represent qualitative differences in modes of thinking- hierarchical, integrated systems of thought, each representing a structured whole”;
3. “Individuals develop through an invariant sequence of stages”; and
Table 2.1 explains the cognitive moral development theory of Lawrence Kohlberg.

Table 2.1

*Kohlberg’s Theory of Moral Development*

<table>
<thead>
<tr>
<th>Level</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level One: Pre-conventional Morality (0-9 years)</td>
<td>Stage 1: Punishment-Obedience Orientation</td>
</tr>
<tr>
<td></td>
<td>Stage 2: Instrumental Relativist Orientation</td>
</tr>
<tr>
<td>Level Two: Conventional Morality (9-20 years)</td>
<td>Stage 3: Good Boy-Nice Girl Orientation</td>
</tr>
<tr>
<td></td>
<td>Stage 4: Law and Order Orientation</td>
</tr>
<tr>
<td>Level Three: Post-Conventional Morality (20+)</td>
<td>Stage 5: Social Contract Orientation</td>
</tr>
<tr>
<td></td>
<td>Stage 6: Universal Ethical Principle</td>
</tr>
<tr>
<td></td>
<td>Orientation</td>
</tr>
</tbody>
</table>

Kohlberg felt that the unspoken standards of American education should be that of creating moral and ethical beings instead of the one-size-fits-all approach to value education that was being practiced (Lower & Winsor, 1980; Nucci, 1998). Kohlberg believed the way to make the most profound impact on moral development of children was to focus on developing the stages of moral development he outlined in his theory. He felt the stages were “critical” and represented “the way a person organizes their understanding of virtues, rules, and norms, and integrates these into moral choice” (Nucci, 1998, para. 15). As a result, “According to Kohlberg, a person is ‘in’ a particular stage of moral judgment which dominates her/his reasoning across situation” (Myyry, 2003, p. 14).

*Attribution Theory*

The attribution theory was originally studied by Fritz Heider, and was later more
developed by Bernard Weiner (Anderman & Anderman, 2009; Royal, 2012). This theory is the foundation of the dimension of educational attitudes. Weiner’s research is centered on student learning in the school setting and its relation to attributions of student behaviors (Anderman & Anderman, 2009; Linnenbrink & Pintrich, 2002).

The attribution theory proposes that when a student succeeds or fails in a task, the student will analyze the event to determine the perceived cause of the failure or success (Anderman & Anderman, 2009; Linnenbrink & Pintrich, 2002). The determination of the perceived cause is essential in the growth of the person in future tasks of a similar nature. Weiner categorizes the perceived causes in three causal dimensions:

- Stability- How stable is the perceived cause?
- Locus- Is the cause external or internal?
- Controllability- Can the perceived cause be controlled? (Anderman & Anderman, 2009; Linnenbrink & Pintrich, 2002).

According to Royal (2012), Weiner’s research provides the example of a student who takes an important exam for which he spent time studying but receives a failing grade. Following the initial feeling of unhappiness, the student will then search for reasons that led to the failing grade. Knowing the student spent time studying, but other classmates took the test and passed it, he may attribute his failure to a lack of self-aptitude, which is “an internal, stable, uncontrollable cause” (p. 17). Such a circumstance could result in lowered self-esteem, a feeling of hopelessness and a decreased chance of success in the future in similar tasks. According to Weiner (2000), over time, this “low expectancy (hopelessness) accompanied by these negative affects promotes the decision to, for example, drop out of school” (p. 33).
Linnenbrink and Pintrich (2012) applied Weiner’s work on the Attribution Theory to the school setting: “in general, research on attributions suggests that for success it is adaptive to attribute the success to stable, internal factors such as ability, skill, or talent as these factors should be present for future tasks” (p. 317). In order to keep student learning and student attributions in check, students require consistent feedback and communication from educators and parents (Anderman & Anderman, 2009). Anderman and Anderman’s (2009) research also delineates the importance for differentiated feedback based on the attributions of the learner.

Teachers affect students’ attributions on a daily basis, through their comments to students, feedback on assignments and examinations, and the types of praises that they offer during instruction. These comments can have important long-term effects on student learning and motivation … Educators need to remember the power they have in shaping students’ attributions. (Anderman & Anderman, 2009, para. 15)

**Authentic Leadership Theory**

Although the construct of authenticity dates back to the ancient Greek era, its application to a leadership theory has sparked new research in recent years (Walumbwa et al., 2008). The Authentic Leadership Theory (ALT) gained researchers’ attention after multiple large corporations have faced challenges due largely to leadership failures (e.g., Worldcom, Enron, Martha Stewart) and a continued decline to the ethicalness of the general society (Cooper et al., 2005). Ethics is the cornerstone of the leadership potential dimension. Avolio and Gardner (2005) “suggest that such challenges have precipitated a renewed focus on restoring confidence, hope, and optimism” within the leadership realm
Authentic Leadership Theory can be found in multiple arenas of society. Former corporate leader of Medtronic, Bill George stated, “We need leaders who lead with purpose, values, and integrity; leaders who build enduring organizations, motivate their employees to provide superior customer service, and create long-term value for shareholders” (Avolio & Gardner, 2005, p. 316). The Authentic Leadership Theory (ALT) is based on such premises. Walumbwa et al. (2008) define ALT as a pattern of leadership behaviors that embrace positive psychological and ethical climates, promote self-awareness in relation to the organization, and uphold high moral practice and transparency of all stakeholders. In the school setting, this theoretical practice of leadership is used when analyzing the potential of success of the building principal.

**General Systems Theory**

General Systems Theory (GST) was originally developed by Ludwig von Bertalanffy in the 1930s-1940s and is related to the dimension of school climate (Frick & Thompson, 2004; Jones & Bartlett, 2010). Von Bertalanffy’s research began to gain recognition in the 1950s and 1960s. As part of the movement from a machine era to the Industrial Revolution, the systems approach quickly became a new lens for looking at organizations (Frick & Thompson, 2004). According to Jones and Bartlett (2010), Bertalanffy’s GST has been used in many fields: “math, science, research, technology, industry, education, policy, management, and organizations” (p. 1). GST is a vehicle to solve issues in an entire system as well parts to the system. GST operates under the idea, the whole is greater than the sum of its parts (Jones & Bartlett, 2010). Bertalanffy’s research led him to a frustration with modern science and its focus...
on specialization fields. Bertalanffy (1968) noted that by “surveying the evolution of modern science, we encounter a surprising phenomenon. Independently of each other, similar problems and conceptions have evolved in widely different fields” (p. 30). He intended for the GST to be a useful model that could be transferable to many research fields and comprising of general principles that could be applied to all systems (Bertalanffy, 1968).

General Systems Theory gives an inside look at how the various parts of an organization are impacted by the culture (Buhl, 2010). When GST is applied, the researcher looks at the organization as a whole and then analyzes the numerous components to recognize how the parts of the system influence the observed behaviors. For example, in a school setting, this could mean observing student and teacher interaction at the classroom level and analyzing how these behaviors impact the overall culture of the school (Buhl, 2010).

**Related Literature**

**The Middle School Student**

Between 10 and 15 years of age, the average adolescent undergoes more internal and external changes than any other time in his or her life (Association for Middle Level Education, 2010; Bruzzese, 2009; George, 2009; Lounsbury, 2009; Wormeli, 2009). The promotion to the middle school includes many shifts, expected and unexpected. Bruzzese (2009) suggests that this time in an adolescent’s life includes expected changes, including “a new campus, a full complement of teachers, and an increased academic load—there are more subtle changes in a child’s physical and emotional development that add complexity to the equation” (p. 8). Furthermore, Bruzzese (2009) discusses some of the
unexpected changes:

the onset of puberty—in addition to the increased sense of self-awareness brought on by intense peer scrutiny—leaves many adolescents feeling emotionally insecure. Combined with the stress of an increasingly demanding academic load, these factors can make for some drama-filled friendships. (p. 8)

Adolescent students also experience profound cognitive development (Association for Middle Level Education, 2010; Steinberg & McCray, 2012). For that reason, “These students are beginning to become more and more responsible for their own learning as they leave elementary school and transition into high school” (Steinberg & McCray, 2012, p.2). It is during this time that adolescents develop patterns of thought that make them inquisitive about the inner workings of the world around them. Wormeli (2009) shared,

These morphing humans are amazing doers and thinkers. Their comments can be profound, pithy, honest, absurd, and juvenile all at the same time. They reveal wisdom, deep understanding, free spirit, and are a generation of thinkers in the making. (para. 3)

Middle school students’ abilities to process the abstract, sort out hypothetical situations, and make connections with meta-cognition increase rapidly during this time frame (Smith, 2009). Similarly, “These shifts may be apparent in the questions they pose to each other and to trusted adults, in their reflections about personal experiences, in their views on moral issues, and through their perceptions of stories, images, and humor” (Association for Middle Level Education, 2010, p. 6).

Increased self-awareness and physical maturity are also factors that greatly impact
the well-being of a middle school student (Association for Middle Level Education, 2010). Such developmental changes impact a student’s self-perception and often can influence relationships with others. Simultaneously, “Young people’s desire for peer acceptance and the need to belong to particular social groups are often intense and sometimes lead to shifting allegiance from adults to peers” (p. 7).

During the adolescent years, the school’s responsibility is to meet the needs of this ever-changing time in the student’s life. The four fundamental needs of the middle school student that must be met by the school are as follows:

1. Adolescent students have a need to feel a sense of affection and security. They need to feel accepted and that they belong.
2. Adolescent students need to be recognized and rewarded on a regular basis.
3. Adolescent students must have a sense of achievement.
4. Adolescent students must be in fun and adventurous settings (Sagor, 2003).

Wormeli (2009) states, “The way we deal with conflict, relationships, and personal development as adults have direct connections to specific experiences we had between the ages of ten and fourteen” (para. 1). If the school can assist in these areas of development of all middle school students, “we can create a very positive future, then, when we provide careful and compassionate experiences for today’s young adolescents” (Wormeli, 2009, para. 1).

**Adolescent Development**

The American Psychological Association (APA) published *Developing Adolescents: A Reference for Professionals* in 2002. This publication was constructed to be a resource for various professionals who interact with adolescents. The APA notes, “It
is intended to describe the characteristics of adolescents and aspects of the contexts in which they live that make a difference in promoting healthy adolescent development” (p.2). The reference guide identifies the following categories of adolescent development:

- Physical Development,
- Cognitive Development,
- Emotional Development,
- Social Development, and
- Behavioral Development.

Physical development includes puberty, body image, and physical appearance. Physical changes and maturation have a strong connection to emotional and behavioral development. Open communication and understanding with adolescents regarding their concerns about their appearance is important (Gentry & Campbell, 2002).

Cognitive development addresses the growth in adolescent thinking and reasoning to include more abstract and analytical thinking. Adults can prevent gender stereotypes by encouraging adolescents not to limit choices or abilities based on social conformity (Gentry & Campbell, 2002). Within cognitive development is moral development. Adults’ modeling of appropriate moral behavior influences adolescent behavior in addition to volunteer work and/or service learning.

Emotional development is grounded in an adolescent’s sense of identity and self-esteem. Gentry and Campbell (2002) acknowledges emotional intelligence and behaviors as critical to emotional development. The most important skills include:

- Recognizing and managing emotions,
- developing empathy,
• learning to resolve conflict constructively, and
• developing a cooperative spirit.

The development of those skills is often affected by gender, ethnicity, and sexual orientation.

Social development is rooted in relationships among peers, family, school, work, and community. The emphasis on acceptance is a fundamental aspect of social development in adolescence. Peer groups tend to evolve over time and impact interpersonal skill development (Gentry & Campbell, 2002). Adolescents experience changes within school structures: elementary school to middle or junior high, and then to high school. This frequent change often complicates social development in adolescents.

Behavioral development is reliant on cognitive, social, emotional, and physical development in preparing adolescents for making behavioral choices (Gentry & Campbell, 2002). Risky behavior in adolescents reflects their ability to reason and think about situations, to understand how one’s actions affect others and one’s self, and to feel comfortable in one’s self-identity. During this time, risk-taking behavior becomes problem behaviors including school failure, delinquency, violence, and substance abuse.

Gender Differences of Adolescents

In today’s high-stakes testing and high accountability culture, educators face the daunting task of developing educational programs to meet the individual needs of all students in their classes (Chadwell, 2007). Certainly this is true during the adolescent years, where research shows “the greatest decline in basic literacy” during the middle grades (Lawell, 2010, p. 11; Rockoff & Lockwood, 2010). Educators must be aware of all aspects of the children with whom they come in contact daily and understand what
makes them who they are (Chadwell, 2007; Lawell, 2010; McBride, 2011; Poulin, 2013).

Lawell’s (2010) research shows significant differences in the development of boys and girls in a plethora of areas, such as “vision, hearing, nervous system, brain development, memory, and communication of emotions” (p. 18). Other recent research concurs with Lawell’s findings: “boys and girls differ by physical characteristics, self-control, performance levels in writing, reading, and math, and interests” (Poulin, 2013, para. 2). Research into various systems of development shows gender differences are relevant.

- **Vision**: Research shows a significant difference in the development of the retina between boys and girls. It also shows that the ability of the eyes to work together develops earlier for females (Lawell, 2010).

- **Hearing**: Females are born with an increased sensitivity level of hearing than males. As a child gets older the hearing difference gap between boys and girls widens (Lawell, 2010).

- **Nervous System**: There are substantial differences in the nervous system of males and females. The parasympathetic nervous system (“digestion, vasodilation, cutaneous blood flow, and slows the heart rate”) impacts the overall functioning of females while the sympathetic nervous system (“adrenaline response, heart rate, dilated pupils, and vasoconstriction”) controls the functioning of males (Lawell, 2010, pp. 19-20).

- **Brain Development**: Research shows that an adolescent male brain is approximately 10% larger than a female brain and becomes fully developed a few years later than its female counterpart (Poulin, 2013).
• Memory: The gender differences in this area center around fine motor ability and language maturity of girls excels at a faster pace while spatial memory and visual targeting mature at a more rapid pace for boys (Lawell, 2010; McBride, 2011).

• Communication of Emotions: A female student develops the ability to communicate emotions much earlier than a male because of the "maturation process between the amygdala and the cerebral context" which "only occurs in female" adolescents (Lawell, 2010, pp. 21-22).

Learning Style Differences of Adolescents Based on Gender

Embracing the needs of adolescent students during the middle school years is important for both their academic and physical growth. Wormeli (2009) concludes, Our young adolescents do not need teachers who see themselves solely as dispensers of all there is to know about particular subjects. They need dynamic adults offering a solid core of current knowledge but ones who create the ability and inclination to learn more in years ahead (para. 14).

Learning strategies for boys include:

• Short, concise instructions;

• scaffold work times with discussions throughout the lesson;

• problem-based learning; and

• lessons that include decisions and choices (Chadwell, 2007).

Other classroom practices that have been found successful with boys is to allow them to stand, toss a small object, offer them avenues for experimentation and competition, and attention to the proximity of the teacher. These methods have all been found to increase
engagement of adolescent boys (Lawell, 2010; McBride, 2011; Poulin, 2013).

Learning strategies for girl students include:

- Opportunities to allow them to feel as if they have pleased the teacher;
- make real-world connections;
- point out relationships between skills and the lives of people; and
- embrace their inquisitiveness (Chadwell, 2007).

In addition, girls respond more favorably to soft-toned teachers, educators who demonstrate good manners, and assignments that integrate creativity (Chadwell, 2007; Lawell, 2010).

**Development of the Middle School in the United States**

The framework known as the public school system developed in America without a blueprint (Lounsbury, 2009; Prosser, McCallum, Milroy, Comber, & Nixson, 2008). According to Lounsbury (2009), “America’s school systems developed piecemeal over time and are still very much works in progress” (p. 31). At the foundation of education in America, students were primarily educated privately or in religious, one-room settings (Coulson, 1999; Smith, 2009). Since agriculture was the driving force of the economy, the learning standards were centered on fundamental skills in reading, writing, and arithmetic. Students generally attended school through what is currently known as seventh or eighth grade (Smith, 2009).

In 1642, the first public law was passed in Massachusetts General Court, which mandated parents to ensure their students were literate, and could comprehend the Bible and the laws of the Commonwealth (Race Forward, 2006). During the 1700’s, private academies were established offering a wide range of study focuses, including traditional
to more practical courses. The need for a formal education process became apparent as the number of immigrants fleeing to America in search of religious freedom began to increase exponentially (Coulson, 1999; Thattai, 2001).

Thomas Jefferson stood united with other well-respected men of the time (Benjamin Rush, Noah Webster, Robert Coram, and George Washington) in his belief that education should be a provision of the government, without religious preference, and accessible to all Americans (Coulson, 1999; Thattai, 2011). With Jefferson’s vision illuminating the path, the 19th century proved to be an era of development and growth for the newly established public school setting. In 1821, the first public high school, owned and operated by the government, opened in Boston, Massachusetts. From 1820-1850, federal and local governments across the country supported tax increases to assist in the financial aspect of public schooling as well as approval of mandates to establish school districts throughout the country (Coulson, 1999). By the late 1800’s, most states had organized their education framework into two tiers, elementary (eight years) and high school (four years) and the majority of students, ages 6-13, were attending government elementary schools (Coulson, 1999).

Throughout the late 19th century, the United States began to transform from an agricultural society to a more industrialized society. The new industrialization of the country prompted a new vision for the current educational system. Leaders became increasingly concerned about the number of students who did not attend secondary schools and the newly developed need for semi-trained workers (Smith, 2009).

In 1909 the first public junior high, Indianola Junior High School, opened its doors in Columbus, Ohio (Lounsbury, 1960). This new movement, whose approach
would change the makeup of the educational system, was designed “to provide an effective educational program based on the nature of young adolescents” (Lounsbury, 1960, p. 147). In 1918, the Commission of the Reorganization of Secondary Education made a public recommendation to school systems to better meet the needs of students ages 12 to 18. The formal recommendation included that the last six years of education be divided into two segments (Smith, 2009). According to Lounsbury (1960), “The junior high school was initiated, developed and grew because a variety of factors, all of which related to the times, and existing educational theory and practice, supported it in one way or another” (p. 146). The concept of the junior high school quickly became the model of choice across the nation, and by 1946 had changed the traditional grade division in the United States to a 6-3-3 pattern (Lounsbury, 2009). This was the first time in the history of American education the focus was on the needs of the child rather than academic and curriculum standards (Smith, 2009).

Although the founding focus was to provide support to the adolescent developmental needs and to bridge the gap from elementary to senior high schools, the structure of the junior high school mirrored the senior high school structure. Their purpose was quickly defined as a preparation site for the senior high school. Little consideration to the developmental needs could be found within the walls of the junior high school (Munoz-Bennett, 2008; Smith, 2009).

The scaled-down version of high school is not what school administrators had intended, and was not the original intent of those who were committed to providing an educational environment designed to address the special needs of early adolescents through the creation of the junior high. (Munoz-Bennett, 2008,
The discussion around the needs of adolescent students in the school setting was revived with national school leaders who desired to create a school setting adapted to the “social, psychological, moral, and intellectual needs” of students ages 10 to 14 (Munoz-Bennett, 2008; Smith, 2009, p. 17).

Research in the development of middle grades is a fairly new topic in the fields of education and psychology, with its roots beginning in the early 1960s (George, 2009; Musoleno & White, 2010). Middle grades education began as a transformative approach driven by a speech presented in 1963 by Dr. William Alexander, a curriculum expert (Association for Middle Level Education, 2010; Lounsbury, 2009). At a conference hosted by Cornell University, Dr. Alexander introduced the term “middle school” in his presentation, *The Junior High School: A Changing View* (Armstrong, 2006; Association for Middle Level Education, 2010; Meyer, 2011). Dr. Alexander proposed:

> Intellectual growth means much more than an increasing competence in the academic content of the curriculum. We must endeavor to stimulate in the child a love for learning, an attitude of inquiry, a passion for truth and beauty, a questioning mind. The learning of right answers is not enough… beyond answers alone, we must help children ask the right questions, and discover their answers through creative thinking, reasoning, judging, and understanding. (Association for Middle Level Education, p. 3-4)

With Dr. Alexander’s idea at the forefront of reformation, school districts across America began to consider necessary changes to meet the needs academically and developmentally of adolescent students (George, 2009; Lounsbury, 2009; Musoleno &
“A distinct middle schooling movement” began to take direction in the 1970s (Prosser et al., 2008, p. 16; Rockoff & Lockwood, 2010). The end of the 1970s had established more than 10,000 middle schools. The middle school movement continued to flourish in the 1980s with multiple state initiatives aimed at establishing middle schools at the direction of the newly organized National Middle Schools Association’s recommendations to create learning environments conducive to the needs of the adolescent (Prosser et al., 2008; Rockoff & Lockwood, 2010).

Astoundingly, “just 20 years after entering the educational arena, the number of 6th-8th grade middle schools exceeded the number of 7th-9th grade junior high schools” (Lounsbury, 2009, p. 32). This exponential growth of middle schools in the United States was driven by the idea of providing an education that would “enhance their healthy growth as lifelong learners, ethical and democratic citizens, and increasingly competent, self-sufficient individuals who are optimistic about the future and prepared to succeed in our ever-changing world” (Association for Middle Level Education, 2010, p. 10). The participating schools in this study are comprised of traditional middle school characteristics.

The Middle School Model

Association for Middle Level Education (2010) charges that adolescent students “deserve an education that will enhance their healthy growth as lifelong learners, ethical and democratic citizens, and increasingly competent, self-sufficient individuals who are optimistic about the future and prepared to succeed in our ever-changing world” (p. 3). Different from the previous intent of the junior high school, the middle school model is
designed to address the physical, emotional, and social needs of the adolescent learner.

According to Musoleno and White (2010), “Developmentally appropriate instruction has been a key component of the middle school movement” (p. 5). Munoz-Bennett (2008) distinguishes the differences between the junior high movement and the best practices of the middle school movement:

- Differentiation,
- concept of teaming,
- flexible scheduling,
- advisor/advisee programs,
- cooperative learning,
- multi-media instruction,
- moral/character education,
- student-focused instead of subject focused,
- parental support, and
- athletic opportunities.

According to Armstrong (2006), William Alexander first introduced the middle school philosophy in 1963. Alexander proposed a learning environment that was organized from the ground level to meet the needs of the “middle level” student. This movement in American public schools was the answer to the highly debated question: Are adolescent students more than simply older elementary students or young high school students? The middle school movement was the second attempt to meet the needs of dramatic growth of students ages 10 to 15 (Armstrong, 2006).

According to Forte and Schurr (1993) the middle school philosophy is based on
the following concepts:

- The entire middle school program is developed with complete understanding of the physical, mental, intellectual, community, and moral needs of its students.
- The middle school program is completely student centered.
- Middle school teachers receive extensive training to meet the wide range of needs of its students.
- Middle schools have an understanding of acceptance and respect of its stakeholders.
- Middle schools are committed to consistency and unity with their students and staff.

In more recent research, Armstrong (2006) suggests that effective middle schools create cultures of developmentally appropriate practices. These practices include:

- Creating safe learning environments;
- establishing small learning communities within the larger school;
- developed personal relationships with adults and students;
- active, engaging learning environments;
- positive influences contributed by all staff members;
- research based meta-cognition strategies implemented; and
- student voice in middle school program.

The Association of Middle Level Education (2010) has developed 16 characteristics of successful schools based on their research focusing on adolescent students. The following graphic reflects their research in effective middle school practice (Association for Middle Level Education, 2010, p.14).
The middle school movement has not been without criticism, although the research tends to be positive over the last three decades. One of the most prevalent areas of concern is the achievement gap that appears when students attend a traditional sixth through eighth grade school instead of a K-8 school configuration; research shows that achievement decreases with each year a student is in a traditional middle school setting (Rockoff & Lockwood, 2010). Another point of contention lies in the large class sizes that are regulated by state law, especially in seventh and eighth grades versus the smaller class sizes at the elementary level. Lastly, others see the era of higher accountability and high-stakes testing has hindered the middle school teacher’s ability to truly address all
social, cognitive, and physical needs of this unique group of individuals (Musoleno & White, 2010).

**Seven Dimensions of Multi-Dimensional Education**

Multi-Dimensional Education (MDE) is a systematic approach to improving achievement through focused data analysis (Corrigan, Grove, & Vincent, 2011). For the purpose of this study, the researcher wanted to expand prior research around the seven dimensions identified by Multi-Dimensional Education to determine the correlation between the seven dimensions and a student’s standardized test score. While various methods include a multitude of factors or topics, MDE identified seven key dimensions to focus as specific sources of data to drive decision-making that affects school success.

The seven dimensions of Multi-Dimensional Education are:

- Community Engagement,
- Curriculum Expectations,
- Developmental Perspectives,
- Educational Attitudes,
- Faculty Fidelity,
- Leadership Potential, and
- School Climate.

Community Engagement broadens school relationships beyond teacher and student to include community members, parents, and stakeholders. Corrigan et al. (2011) acknowledge “Vygotsky, Piaget, Erikson, Kohlberg, Dewey, and many others stressed the importance of the larger community’s impact on developing the whole child and helping them accomplish a higher level of learning” (p.161). Parents are critical in
ensuring the success of the child; therefore, it is imperative to establish a positive school and parent relationship. Parents must be valued for what they can offer within and outside the school building. Beyond parental involvement, community members and organizations can have a strong influence on the attitude towards the school and supporting school initiatives (Akimoff, 1996; Ryan, 1992). However, the literature is varied on the exact impact community engagement has on academic achievement (Fan & Chen, 1999). Fan and Chen’s (1999) meta-analysis of community engagement and its impact on student achievement showed multiple studies where no measurable impact could be determined. Henderson and Mapp (2002) also cited multiple studies that showed a negative correlation of community engagement to academic achievement.

Curriculum Expectations encompasses standards (what is taught) and pedagogy (how standards are taught) and the views of educators and students towards learning. Good learning is not solely dependent upon the curriculum but rather equally reliant on the person teaching it (Corrigan et al., 2011, p.70). Creating a learning environment of trust and respect will help develop positive student and teacher relationships.

Developmental Perspectives, development of character and behavior, links to Erikson’s model of development. The aforementioned connection addresses not only cognitive development but also social-emotional development. Corrigan et al. (2011) explain, “Often the difference between good students and bad students depends upon what the students believe about themselves” (p.73).

Educational Attitudes addresses a person’s feelings towards learning or towards a specific topic or content. A major aspect of educational attitude is motivation. One can have motivation or lack of motivation based on his or her feelings. Strategies for
increasing motivation include goal setting, self-efficacy, and positive learning environment. Corrigan et al. (2011) assert that “improving educational attitudes is often the answer to improving learning and increasing test scores” (p.34).

Faculty Fidelity focuses on the educator’s impact on student success. The relationship among faculty members affects how they work together and how they feel towards their work. The interconnectedness of relationships and emotions directly influences the school climate. Corrigan et al. (2011) acknowledge, “Trust and support are significant factors for all stakeholders and must be evident in the classroom and school climate” (p.189). The faculty’s impact reaches beyond each other to affect students, parents, and other stakeholders.

Leadership Potential includes the school administration and leadership teams/positions. Corrigan et al. (2011) define shared leadership as an approach that “encourages all stakeholders to contribute” and “leadership potential does not rest solely on the shoulders of principals” (p. 210). Good leadership contributes to positive outcomes; bad leadership contributes to negative outcomes.

School Climate encompasses all stakeholders and their relationship with the school and feelings towards the school. The perception of stakeholders regarding the school environment affects school climate. Corrigan et al. (2011) identify items of perception to include “environmental factors associated with what is happening in the organization and how the environment might be detracting from the success of the organization in improving student achievement” (p. 103). The previous six dimensions of education also contribute to the school climate.

To be most effective, data, both quantitative and qualitative, should be collected
in each area from various stakeholders to ensure long-term success. The seven dimensions can be tied to relationships. Community Engagement, School Climate, and Educational Attitudes address the relationship among school personnel, parents, students, and community members. Curriculum Expectations, Developmental Perspectives, and Faculty Fidelity connect to teacher-student relationships and how those relationships are affected by attitude, motivation, and views. Leadership Potential attends to administrator-teacher relationship, and is critical to school success.

Assessing the seven dimensions is the first step of the Multi-Dimensional Education’s Systemic Improvement Process. The second step is focused on improvement based on data analysis of the seven dimensions. Corrigan et al. (2011) specify four areas, or the 4Cs, of systematic improvement:

- Community,
- Character,
- Climate, and
- Curriculum.

The 4Cs create a thematic approach to the dimensions. Community encompasses Community Engagement. Character encompasses Developmental Perspectives and Educational Attitudes. Climate encompasses School Climate. Curriculum encompasses Leadership potential, Curriculum Expectations, and Faculty Fidelity (p.127).

The third step in the process is achievement. Increased student success and decreased academic challenges are a result of multi-dimensional data collection and thematic, systematic approach to improvement. Corrigan et al. (2011) assert, “Our approach is not for everyone. It demands true data-driven shared leadership in rethinking
the life of the school and the role that education plays in the life of a child as well as other stakeholders in the school and community” (p, 245). Thus, a multi-dimensional approach to education requires a commitment to student success and an acceptance of change.

**Common Core Standards**

The Common Core State Standards Initiative (CCSSI) sparked a new way of approaching educational standards in K-12. CCSI began in 2008 after George W. Bush’s No Child Left Behind Act ended. Without a replacement and with the dismal state of education in the United States, a need for change became apparent (Phillips, 2014). The Common Core State Standards (CCSS) were designed from end goal to its beginning foundation to ensure students are college and career ready by the time they graduate high school. Input was gleaned from various stakeholders in order to develop learning standards to correlate to the evolving global economy and new career fields. CCSSI garnered bi-partisan political support and various educational stakeholders including Bill Gates (Phillips, 2014).

CCSSI designed logical progressions of math and literacy standards for grades K-12. Math CCSS have clusters that group related standards within domains; each grade level has focus standards for the majority of grade level work. Standards are designed to balance procedural and conceptual understanding. Standards for Mathematical Practice “describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter” (Common Core State Standards Initiative, 2010b, p.8) These practices include:

- Make sense of problems and preserve in solving them,
- reason abstractly and quantitatively,
• construct viable arguments and critique the reasoning of others,
• model with mathematics,
• use appropriate tools strategically,
• attend to precision,
• look for and make use of structure, and
• look for and express regularity in repeated reasoning.

Mathematical Practices apply to all grade levels and transcend standards. Students are expected to apply mathematical knowledge and practices to successfully complete rigorous task work.

CCSS for literacy is complex but complementary in its dual listing of English Language Arts standards and Literacy in History/Social Studies, Science, and Technical Subjects. Literacy standards are divided into four main strands: (a) reading, (b) writing, (c) speaking and listening, and (d) language. CCSS takes the approach of “shared responsibility for students’ literacy development” (Common Core State Standards Initiative, 2010a, p.4) across a variety of content areas. The standards also include a balance of informational and literature texts, increased complexity of texts, text dependent questions and tasks, and accountable talk. Within the introduction of the CCSS for ELA & Literacy (p.7), an outline of what makes students college and career ready is listed as:

• They demonstrate independence.
• They build strong content knowledge.
• They respond to the varying demands of audience, task, purpose, and discipline.
• They comprehend as well as critique.
• They value evidence.
• They use technology and digital media strategically and capably.
• They come to understand perspectives and cultures.

These are the desired outcomes for a student graduating high school, and students should be equipped for these based on the learning progression of the literacy standards.

Additionally, the standards for Literacy in History/Social Studies, Science, and Technical Subjects support the reading and writing strands. The schools participating in this study followed the seventh grade CCSS standards during the school year as required by state and district directives.

To make the implementation of CCSS clearer, (Common Core State Standards Initiative, 2015a; Common Core State Standards Initiative, 2015b) CCSSI listed key shifts for both mathematics and English language arts. Math shifts are focus, coherence, and rigor. The main shift is a greater focus on fewer topics, which allows more time for mastery. Another shift is vertical coherence through logical progression of topics and skills. Lastly, the standards demand a higher level of rigor. Students not only develop procedural skills and fluency, but also conceptual understanding and application with equal intensity.

English Language Arts (ELA) shifts are text complexity, textual evidence, and building knowledge. The main shift is regular practice with complex texts and their academic language. Alongside reading more complex texts is responding—both writing and speaking—with evidence from texts. The third ELA shift is the in-depth focus on content-rich nonfiction as a vehicle to increase student’s knowledge across content areas.
These shifts highlight the difference between Common Core State Standards and previous standards (Common Core State Standards Initiative, 2015b). Not only do the CCSS create a more rigorous progression of learning, but they also require a new approach to teaching and assessing (Common Core State Standards Initiative, 2015b). These shifts highlight the difference between Common Core State Standards and previous standards (Common Core State Standards Initiative, 2015b). Not only do the CCSS create a more rigorous progression of learning, but they also require a new approach to teaching and assessing.

Tennessee was one of many states to apply for the Race to the Top grant, a federal grant endorsed by Arne Duncan, U.S. Secretary of Education, and President Obama. This grant made federal money available to states that proposed a focused but innovative plan to improve student achievement. Within the Tennessee First to the Top proposal was the adoption of CCSS, newly aligned state assessment, and direct teacher training, among other items. Fall of 2012 began the Tennessee Department of Education (TDOE) educator training sessions organized through TNCore, a division of TDOE focused on CCSS. This training utilized Tennessee teachers called Core Coaches in their corresponding content area. Core Coaches were prepared and trained by educator professionals from Institute for Learning, University of Pittsburgh and Sopris Learning. The design was to create teacher leaders within Tennessee to be state and local support persons for educators. TNCore trainings have been offered continuously since the 2012-2013 school year. Training sessions included English Language Arts, mathematics, Literacy in Science/Social Studies/Career and Technical, Intervention for mathematics and literacy, and leadership (for administrators). Teacher preparation programs were also
revamped to ensure pre-service educators were prepared to teach Common Core State Standards. Tennessee was the fastest approving state according to the 2013 National Assessment of Educational Progress with the largest gains in the nation (Tennessee Department of Education, n.d.-a).

Other components of Tennessee’s First to the Top grant was the creation and use of data systems to make data available to educators to support their daily decision making (Tennessee Department of Education, n.d.-a). Another component was an overhaul of the state’s teacher evaluation system. Hence, “In July 2011, Tennessee became one of the first states in the country to implement a comprehensive, student outcomes-based, statewide educator evaluation system” (Tennessee Department of Education, n.d.-c). The evaluation system balanced quantitative student achievement data and qualitative teacher data. The Achievement School District (ASD) was also formed from the grant application aiming to move the bottom 5% of schools in the state to the top 25%. Alongside the ASD is support for Focus Schools through a competitive grant process, which provides additional funding to close the achievement gap at those schools. Haycock (2001) lists the key areas to address the gap closure as:

- Individualize Student Support of high standards,
- Human Capital Development,
- Performance Management and Sustainability of rigorous curriculum, and
- Extended Learning Time.

In addition, the state created Reward School Ambassadors from the top 5% of schools for growth and top 5% for achievement. These ambassadors spent their first year as a teacher receiving additional training and professional development and second year as
a support person within the state’s CORE offices (Tennessee Department of Education, n.d.-a).

The transition to CCSS has been challenging in various ways. Tennessee adopted CCSS in 2010, two years before any training or support was offered. There was limited communication or press about the adoption until implementation was set to begin. There was also public controversy around the CCSS representing federal involvement in state education. Misinformation, lack of information, and confusion led to parent and community frustration. Since CCSS only mandates what to teach, not how, teachers were left with uncertainty about how to teach or what materials to use.

**Impact on Academic Achievement: Response to Intervention**

Individuals with Disabilities Education Act (IDEA) was reauthorized in 2004 and included the use of Response to Intervention (RTI) as a method of identifying students who might have learning disabilities. Rush, Dobbins, and Kurtts (2010) explained,

> The purpose of RTI is founded on the premise that with data-based decision making and evidence-based practices many children, who otherwise may have been identified with a disability, will now have the opportunity to be served in typical educational environments. (p. 1)

RTI is structured with three tiers (Harr-Robins, Shambaugh, & Parrish, 2009):

- Tier I – consists of instruction for all students;
- Tier II – designed to supplement core instruction, are provided to a subset of students (5-30% varying by state) who are struggling in Tier I; and
- Tier III – more intensive interventions and progress monitoring are provided to fewer students, targeting 1-5% of the student population.
Students’ assignment into a tier is determined by their scores on a universal screener assessment tool. This layered approach provides opportunities to provide research-based, strategic choices utilizing data. Rush et al. (2010) list school-wide academic interventions in Tier I, which include,

- Differentiated Instruction (DI),
- Universal Design for Learning (UDL), and
- Culturally Responsive Instruction (CRI).

In support of academics, behavior interventions in Tier I may include,

- Positive Behavioral Support system (PBIS), and
- Positive Classroom management.

Tier II, or secondary services, is designed for students who are not responding to the interventions provided in Tier I. Students in Tier II will receive additional support beyond core instruction. This additional support usually occurs in a small group with research-based practices. Tier III, or tertiary level, is more intensive than Tier II services. The interventions may be more intensive in frequency or length of time. Students who do not show any positive response to Tier II or Tier III intervention are referred to special education services (Rush, Dobbins, & Kurtts, 2010). Harr-Robins, Shambaugh, and Parrish (2009) state, “RTI, therefore, has multiple purposes – as a diagnostic tool for evaluating and identifying students with specific learning disabilities and as a service delivery system for providing early interventions to struggling students” (p.2). Although RTI is often discussed under the umbrella of special education, it can also serve as a model for improving student achievement.
Summary

According to Ryan and Bohlin (1999), to flourish, a society must rest upon a covenant of shared principles between citizens who are ready to fulfill their civic obligations. Personal and social responsibility, combined with allegiance to shared ideals, are integral to the moral fiber of the body politic. Therefore, an education in one’s culture and civic duties is essential. (p. 55)

Since its creation, America has established two overarching goals: to establish a system that promotes learning and the development of its young. Although both goals have greatly changed over the course of history, the non-academic development of students has struggled to stay at the forefront of priorities. With recent outcries to hold educators to higher-stakes testing and increased accountability, teachers struggle with the debate of academic achievement versus personal development of students. The purpose of this research design is to show that both academic and non-academic development of students are essential and have a direct impact on one another.

The adolescent years are a time of tremendous growth and development of all aspects of a person. During this period in a student’s life, strategies are developed to “deal with conflict, relationships, and personal development” (Wormeli, 2009, para. 1). The experiences students encounter between the ages of 10 and 15 have a direct impact on behavioral choices as an adult (Wormeli, 2009). Therefore, it is an “essential task of a society to make sure that its children forge the necessary virtues and moral values that advance human life” (Ryan & Bohlin, 1999, p. 52). The purpose of this study was to determine if a relationship exists between the seven dimensions of the MDA and
academic achievement. The results will assist schools and districts alike in their quest to determine the balance between academic focus and outside indicators that influence achievement growth.
CHAPTER THREE: METHODS

Design

The purpose of this correlational multi-regression study was to determine if a relationship exists between the seven dimensions measured on the Multi-Dimensional Assessment (MDA) and the language arts academic scores of seventh grade students as measured by the Tennessee Comprehensive Assessment Program (TCAP). A correlational design was used to determine whether or not student responses on the Multi-Dimensional Assessment (MDA) are related to TCAP scores.

The data that were examined were from two unrelated data sets: 2015 data from the MDA and the 2015 TCAP scores for three southeastern Tennessee middle schools in one school district. The participants were students from these three middle schools.

A correlation study is appropriate for this study because data as compared to 2015 achievement scores were used to determine if a relationship exists between the two assessments, MDA and TCAP (Fraenkel & Wallen, 2000; Howell, 2008; Ritchey, 2000; Rumsey, 2003). This study included data gleaned from the scores on the Multi-Dimensional Assessment (MDA) given to middle school students in April, 2015 and their language arts standardized test scores measured by the Tennessee Comprehensive Assessment Program (TCAP) in 2015. According to Fraenkel and Wallen (2000), a correlational study investigates “the relationships among two or more variables … without any attempt to influence them” (p. 359). Furthermore, Ritchey (2000) explains that a bivariate analysis or two-variable analysis is used when determining a statistical relationship between two variables.

There are advantages and disadvantages to the use of a non-experimental research
plan. However, since the assessments used in this study were previously administered, absolute control over the variables is not possible; therefore, the outcome of this study rendered a relationship that is more suggestive than confirmed (Clagg, 2011). According to Clagg (2011), “When one utilizes correlational research, it is important to control as many variables as possible to eliminate alternative hypotheses” (p. 48). A disadvantage to this research design is that it can fail to determine if a “cause-and-effect relationship exists between the two variables” (Rumsey, 2003, p. 291). A cause-and-effect relationship would be determined after several similar type studies show an association or correlation of the research (Rumsey, 2003).

The criterion variable in this study was the school’s published test scores on the language arts portion of the Tennessee Comprehensive Assessment Program. TCAP measures students’ skills and progress in mathematics, reading/language arts, science, and social studies on statewide academic standards for grades 3-8 (Tennessee Department of Education, n.d.-b).

The predictor variable for this research study was the student responses on the Multi-Dimensional Assessment (MDA). The seven dimensions analyzed on the MDA are community engagement, curriculum expectations, developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and school climate (Multi-Dimensional Education, Inc., 2013).

Research Questions

This research study explored the following questions:

RQ1: How accurately can end of the year achievement scores be predicted using the community engagement dimension from the Multi-Dimensional Assessment for
seventh grade language arts students?

**RQ2:** How accurately can end of the year achievement scores be predicted using the curriculum expectations dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ3:** How accurately can end of the year achievement scores be predicted using the development perspectives dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ4:** How accurately can end of the year achievement scores be predicted using the educational attitudes dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ5:** How accurately can end of the year achievement scores be predicted using the faculty fidelity dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ6:** How accurately can end of the year achievement scores be predicted using the leadership potential dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ7:** How accurately can end of the year achievement scores be predicted using the school climate dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**Null Hypotheses**

**H\textsubscript{0}1:** There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, community engagement, of the Multi-Dimensional Assessment.
H$_{02}$: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, curriculum expectations, of the Multi-Dimensional Assessment.

H$_{03}$: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, developmental perspectives, of the Multi-Dimensional Assessment.

H$_{04}$: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, educational attitudes, of the Multi-Dimensional Assessment.

H$_{05}$: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, faculty fidelity, of the Multi-Dimensional Assessment.

H$_{06}$: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, leadership potential, of the Multi-Dimensional Assessment.

H$_{07}$: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, school climate, of the Multi-Dimensional Assessment.

**Participants and Setting**

This research study took place in three middle schools in one district in southeastern Tennessee. According to the U.S. Census Bureau (2012), the district had a population of 345,545, which is a 2.7% increase since April, 2010. The ethnicity of the total population was: (a) White: 71.8%; (b) African American: 20.7%; (c) Hispanic:
4.8%; and (d) Other: 2.7% (U.S. Census Bureau, 2012). The median household income from 2007-2011 was $45,826, and the median home cost $151,000 (U.S. Census Bureau). This district has seen tremendous economic growth in recent years due to a large influx of companies related to the automobile industry.

The participants for this research study were middle school students in seventh grade enrolled in a language arts course. The participating schools were located in a diverse school district that educates more than 42,000 students a year. The school district is comprised of 77 schools: 42 elementary schools (grades K-5); 12 middle schools (grades 6-8); 11 high schools (grades 9-12); five middle/high schools (grades 6-12); two elementary/middle schools (grades K-8); and five special services schools. According to the Tennessee Department of Education Report Card 2013, 58.8% of students in the school district are economically disadvantaged and 12.7% of students have disabilities (Tennessee Department of Education, 2013). The district’s ethnicity and gender percentages are shown in Table 3.1.
Table 3.1

District Ethnicity and Gender Percentages

<table>
<thead>
<tr>
<th>Ethnicity/Gender</th>
<th>Percentage for District</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>58.4%</td>
</tr>
<tr>
<td>African American</td>
<td>31.2%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7.7%</td>
</tr>
<tr>
<td>Asian</td>
<td>2.3%</td>
</tr>
<tr>
<td>Female</td>
<td>48.8%</td>
</tr>
<tr>
<td>Male</td>
<td>51.2%</td>
</tr>
</tbody>
</table>


Per pupil expenditures in Hamilton County, Tennessee in 2013 were $9,444, which is a slight increase from the expenditures in 2012 (Tennessee Department of Education, 2013). The funding comes from three sources: local (52.8%), federal (10.2%), and state (37.1%) (Tennessee Department of Education, 2013).

For the purpose of this study, the three participating schools were selected based on convenience and will be identified as school A, B, and C. The following table displays general demographic information of each school as reported on the State of Tennessee 2014 Report card.
Table 3.2

2014 Demographic Information for Schools A, B, and C

<table>
<thead>
<tr>
<th>School</th>
<th>2014 Demographic Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>School A</td>
<td>Total Number of Students 668</td>
</tr>
<tr>
<td></td>
<td>English Learning Students 3.7%</td>
</tr>
<tr>
<td></td>
<td>Economically Disadvantaged Students 59.9%</td>
</tr>
<tr>
<td></td>
<td>Students with Disabilities 16.5%</td>
</tr>
<tr>
<td>School B</td>
<td>Total Number of students 645</td>
</tr>
<tr>
<td></td>
<td>English Learning Students 0%</td>
</tr>
<tr>
<td></td>
<td>Economically Disadvantaged Students 37.5%</td>
</tr>
<tr>
<td></td>
<td>Students with Disabilities 15.7%</td>
</tr>
<tr>
<td>School C</td>
<td>Total Number of Students 540</td>
</tr>
<tr>
<td></td>
<td>English Learning Students 0%</td>
</tr>
<tr>
<td></td>
<td>Economically Disadvantaged Students 56.1%</td>
</tr>
<tr>
<td></td>
<td>Students with Disabilities 13.9%</td>
</tr>
</tbody>
</table>


All three schools offer traditional middle school courses in grades 6-8, as well as a comprehensive development class, CDC, for students of moderate to severe disabilities and students with handicapping conditions. School A offers a program for non-verbal Autistic students, DCC; a program for verbal Autistic students, CALMM; and a program for the deaf and hard of hearing students. School B and School C do not have other specialized classes for students with specific disabilities.

According to Gall, Gall, and Borg (2007), a minimum of 103 participants was required to make this research valid. The participants in this research study were enrolled in English/language arts (ELA) classes in the seventh grade because all students are
required to take ELA in the school district. The makeup of this course was different in each of the schools. School A had a reading and writing class with two teachers on an A/B rotation. School B and C offered combined reading and writing with one teacher in one class five days a week.

The students took the Multi-Dimensional Assessment within a two-week window prior to the Tennessee Comprehensive Assessment Program. Every student took the TCAP Reading/Language Arts portion on Monday, April 27, 2015, as designated by the state department. Survey data from 265 respondents were used.

Table 3.3 displays the frequency counts for school, gender, ethnicity, and achievement level. Of the 265 seventh graders used in the study, 116 attended A Middle School (43.8%), 94 attended B Middle School (35.4%) and the remaining 55 attended C Middle School (20.8%). Eighty-two students were male (30.9%), 128 were female (48.3%) and 55 had missing data for gender (20.8%). Most students were Caucasian (61.5%), with 20 students of Hispanic/Latino ethnicity (7.5%), and 17 students of Black/African American ethnicity (6.4%). The same 55 students had missing racial/ethnic data (20.8%). Most students had language arts achievement levels rated as proficient (54.0%) or basic (31.3%), with only 10 below basic (3.8%) and 29 rated at the advanced level (10.9%).

Tables 3.3 provide demographic statistics for the sample.
Table 3.3

*Frequency Counts for Selected Variables (N = 265)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle School</td>
<td>A</td>
<td>116</td>
<td>43.8</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>94</td>
<td>35.4</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>55</td>
<td>20.8</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>82</td>
<td>30.9</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>128</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>Missing Data</td>
<td>55</td>
<td>20.8</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>Caucasian</td>
<td>163</td>
<td>61.5</td>
</tr>
<tr>
<td></td>
<td>Hispanic/Latino</td>
<td>20</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>Black/African American</td>
<td>17</td>
<td>6.4</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>Missing Data</td>
<td>55</td>
<td>20.8</td>
</tr>
<tr>
<td>Language Arts Proficiency Level</td>
<td>Below Basic</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>Basic</td>
<td>83</td>
<td>31.3</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>143</td>
<td>54.0</td>
</tr>
<tr>
<td></td>
<td>Advanced</td>
<td>29</td>
<td>10.9</td>
</tr>
</tbody>
</table>

**Instrumentation**

Data were analyzed from two sets of assessments: The Multi-Dimensional Assessment and Tennessee Comprehensive Assessment Program.

**The Multi-Dimensional Assessment**

The predictor variable was measured by The Multi-Dimensional Assessment (MDA). This assessment was developed by Corrigan, Grove, Gargani, and Hinga (2012). The purpose of the instrument was to measure seven dimensions of a school community
that have previously been studied and have shown positive impact on student achievement. The seven dimensions measured by the MDA are: community engagement, curriculum expectations, developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and school climate. Each dimension was addressed on this assessment through a series of statements (Corrigan et al., 2011). The instrument used a 5-point Likert scale. A high score of 5 meant that the student strongly agreed with the statement and a low score of 1 meant that the student strongly disagreed with the statement (See Appendix B).

For Dimension 1: Community engagement, a high score of 60 meant that the parent and/or student was extremely involved in the community, whereas a low score of 12 means they are not involved in the community. Note that this dimension had three reversed questions.

For Dimension 2: Curriculum Expectations, a high score of 60 means that educational rigor and instructional creativity are high and a low score of 12 means that these components are lacking. Note that this dimension had one reversed question.

For Dimension 3: Developmental Perspectives, a high score of 60 means that student misconduct is low and student success traits are high. A low score of 12 means that students are more often not following school rules and they do not practice school success traits. Note that there were four reverse responses in this dimension.

For Dimension 4: Educational Attitudes, a high score of 60 means students were motivated to learn and had positive feelings for school. A low score of 12 meant they were not motivated to learn and did not have positive feelings toward school. Note that there were two reverse responses in this dimension.
For Dimension 5: Faculty Fidelity, a high score of 65 reveals the student had a high level of trust in his or her teachers and was satisfied with teachers at their school. A low score of 13 signals a lack of trust and satisfaction of the students’ teachers. Note that there were three reverse responses in this dimension.

For Dimension 6: Leadership Potential, a high score of 75 suggested a trust and satisfaction of the school administration and a low score of 15 suggested no trust and dissatisfaction of the school leadership team. Note that there was one reverse response on this dimension.

For Dimension 7: School Climate, a high score of 70 means that there was a positive school climate and the student did not feel in isolation. A low score of 14 revealed the student perceives the climate as negative and felt in isolation while at school. Note that there was one reverse response on this dimension.

Each dimension has two categories with 4-9 statements for student response.

Dimension 1: Community Engagement
   a. Parent Involvement Scale – 7 statements
   b. Service to Community Scale- 5 statements

Dimension 2: Curriculum Expectations
   a. Educational Rigor Scale- 5 statements
   b. Instructional Creativity Scale- 7 statements

Dimension 3: Developmental Perspectives
   a. School Misconduct Scale- 4 statements
   b. Student Success Traits scale- 8 statements

Dimension 4: Educational Attitudes
   a. Motivation to Learn Scale- 5 statements
   b. Feelings for School Scale- 7 statements

Dimension 5: Faculty Fidelity
   a. Teacher Trust Scale- 7 statements
   b. Teacher Satisfaction Scale- 6 statements
Dimension 6: Leadership Potential
   a. Principal Trust Scale- 7 statements
   b. Leadership Satisfaction Scale- 8 statements

Dimension 7: School Climate
   a. School Climate Scale- 9 statements
   b. School Isolation Scale- 5 statements

According to Corrigan et al. (2011), approximately two statements in each dimension were written for the purpose of recoding as formatted on the MDA. Therefore, when the scoring process took place, a response of 5 (strongly agree) was calculated as a 1 for aggregating purposes in the total value for those statements marked as recoded statements on the MDA. For example, the following statement appears in Dimension 1 under the Parental Involvement statement: “My parents or legal guardian attend school activities regularly (examples: parent/teacher conference, sporting events).” (p. 225). If a student responded with a 5 or strongly agree the value of 1 is calculated in the overall total. The key for the recoding values as stated by the MDA are as follows: 5=1; 4=2; 3=3; 2=4; 1=5.

When developing the MDA, Corrigan et al. (2012) considered three questions when seeking to create an assessment that was a valid and reliable measure:

1. “Are standardized test scores the right measure of school success?” (p.1);
2. “How can schools improve learning, thereby addressing the problem revealed by standardized tests?” (p.2); and
3. “If one believes that the ends of education include more than learning, or if one believes that learning can be promoted by many means, how should the full range of ends and means be measured?” (p. 2).

The Multi-Dimensional Assessment (MDA) was the result of a six-year, federally funded
program that focused on the dimensions of a highly effective school and academic achievement. During that time, the MDA had “repeated pilot testing, including item analysis and factory analysis, that provided an empirical basis for revising the survey” (Corrigan et al., 2012, p. 5). The final version of MDA included seven dimensions: Community Engagement, Curriculum Expectations, Developmental Perspectives, Educational Attitudes, Faculty Fidelity, Leadership Potential, and School Climate. Each dimension of the MDA has subscales that include 4-12 items each. The MDA offers versions for students in grades 3-6 and 6-12. MDED also has a parental assessment and an educator assessment that is designed to measure the same dimensions to obtain the varying perspectives of the stakeholder (Corrigan et al., 2012).

To determine reliability of the MDA, its authors collected data from four different states with a diverse group of more than 30,000 participants (Corrigan et al., 2012). The table below, as provided by Corrigan et al. (2012), shows the data provided from the authors as evidence that the dimensions and their sub-scales are highly reliable when administered to students, teachers, and parents (Cronbach’s alphas of .75 to .95).
Table 3.4

*Multi-Dimensional Assessment data*

*Note. (Corrigan et al., 2012, personal communication)*
The individual dimension reliability of middle school students is as follows:

Dimension 1: Community Engagement  0.926  
Dimension 2: Curriculum Expectations  0.880  
Dimension 3: Developmental Perspectives  0.859  
Dimension 4: Educational Attitudes  0.845  
Dimension 5: Faculty Fidelity  0.836  
Dimension 6: Leadership potential  0.871  
Dimension 7: School Climate  0.958  

Permission to give The Multi-Dimensional Assessment (MDA) for this research study was granted by Doug Groves of Multi-Dimensional Education, Inc. (Appendix C). See Appendix B for a copy of the MDA.

**Tennessee Comprehensive Assessment Program**

The criterion variable was measured by The Tennessee Comprehensive Assessment Program (TCAP). This assessment was state mandated and its purpose is to monitor student progress on the adopted stated learning standards and student performance indicators. TCAP is comprised of two different types of tests: Achievement Test (ACH) and English Linguistically Simplified Assessment (ELSA). The ACH test is given to the general population of students in the state of Tennessee. Students who have qualified for testing accommodations as based on their Individual Education Plan and/or 504 plan are given the accommodations that are allowable by the state of Tennessee on the ACH test. The ELSA is given to students who are deemed eligible to receive English as a Second Language (ESL) services (Tennessee Department of Education, 2014). For this study, the researcher used the academic achievement for reading/language arts for seventh graders at the participating schools for 2014. According to Tennessee Department of Education (2013), achievement scores are a measure of student progress as based on the state approved academic standards for each grade level.
TCAP is a criterion-referenced test, which means a student is graded according to his or her performance on a set of standards instead of being compared to other students who completed the test (Tennessee Department of Education, 2013). In the spring of each school year, grades three through eight take the achievement test, which is a timed, multiple-choice test in the areas of reading, language arts, mathematics, science, and social studies. TCAP is only offered in English to comply with the state’s English-only declaration. The Tennessee Department of Education does not release copies of the Tennessee Comprehensive Assessment Program from year to year; however, the data from the TCAP are made public for each school participating. The TCAP has been used in previous research studies (e.g. Larimore, 2011; Reynolds, 2011). In order to verify that TCAP is aligned with the State Board of Education approved standards all test items undergo a rigorous process. This process includes:

- Creation of test items by vendor consultants that are verified to be in compliance with the specifications set forth in the state-vendor contract;
- Test items are reviewed by a committee which includes teachers, counselors, principals and supervisors for accuracy, standards alignment, and bias;
- Consultants revise test items based on the committees’ recommendations;
- State curriculum and assessment specialists review revised test items;
- Test items are field-tested and researched for reliability and validity; and
- Items proven reliable and valid are entered in to a pool of approved test items for the test maker to include on state assessments (Wesson, 2013).

Beginning in 2009-2010, TCAP reported proficiency levels in the areas of
reading/language arts, math, and science as ordinal, interval, and categorical (Warner, 2013). The ordinal score is referred to as a quick score. The quick score is calculated as 15% of the student’s overall second semester grade calculation in each subject area. In the 2014-2015 school year, Tennessee changed how it calculates quick score numbers (Tennessee Department of Education, n.d.-d; Towns, personal communication, 2015). Quick scores are now calculated based on raw scores and no longer correlate to the categorical score (Tennessee Department of Education, n.d.-d; Towns, personal communication, 2015). The interval scores are referred to as scale scores. The intervals for the Reading/Language Arts ACH test is provided in the following chart (Figure 3.1).

![Figure 3.1. Score Ranges for the Reading/Language Arts ACH test (Towns, personal communication, 2015).](image)

The categorical scores are below basic, basic, proficient, and advanced. Social studies proficiency was not changed and is reported as a quick score in the following categories: below proficient, proficient, and advanced. According to the Tennessee Department of Education (2015), proficiency levels have corresponding interval scores for the seventh
grade Reading/Language Arts test defined as follows:

1. BELOW BASIC – Interval scale score equals 600-717. Students who perform at this level have not demonstrated mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skill specified by the grade/course level content standards and are not prepared for the next level of study.

2. BASIC – Interval scale score equals 718-759. Students who perform at this level demonstrate partial mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skill specified by the grade/course level content standards and are minimally prepared for the next level of study.

3. PROFICIENT – Interval scale score equals 760-797. Students who perform at this level demonstrate mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skill specified by the grade/course level content standards and are prepared for the next level of study.

4. ADVANCED – Interval scale score equals 798-900. Students who perform at this level demonstrate superior mastery in academic performance, thinking abilities, and application of understandings that reflect the knowledge and skill specified by the grade/course level content standards and are significantly prepared for the next level of study (Tennessee Department of Education, 2013).

For the purpose of this study, the scale score was used in the data analysis.
Procedures

To begin this study the research topic was approved by the committee chair and a proposal was written. The chair, committee members, and research consultant approved the proposal. Once the proposal defense was successfully completed, the researcher applied for IRB approval, which was granted in December, 2014.

For the purpose of this study, permission from the school district superintendent was required. During a scheduled meeting on December 15, 2014 with the Assistant Superintendent, Dr. Robert Sharpe, he verbally granted permission and followed up in writing to gain access to the proposed middle schools for the research project and to collect the data from the district accountability office once it was released from the state in June 2015 (See Appendix D). With the approval at the district office, a meeting was arranged in a central location with each school’s principal. During this meeting, the purpose, procedures, and requirements were discussed and permission was verbally given to conduct this study in their schools. At the time of approval from the school administrator, the researcher requested that the administrator speak with the seventh grade language arts teachers to inform them the researcher would be contacting them, and permission had been granted for their participation.

During the meeting held with the participating teachers, the researcher explained the purpose of the study, the procedures, and the requirements for the participants. Teachers were also given copies of the parent letter requesting permission for students to participate in the study (See Appendix F). Each participating teacher received a timeline and calendar to streamline the process (See Appendix G).

Teachers were asked to pass out the permission form to go home to parents in
March, 2015. The signed parental permission letters were returned to the researcher by February 27, 2015. The researcher assigned each student a random number to enhance confidentiality of the student. With their identification numbers, the researcher input student demographic information into an Excel spreadsheet. The key to identify students was placed in a locked cabinet inside the personal residence of the researcher.

Mr. Doug Grove of MDED granted the researcher permission to use the MDA for the purpose of this research study (Appendix C for permission). An agreement was signed between the researcher and MDED ensuring this assessment and the results were only used for the purposes agreed upon and that a copy of the completed dissertation would be available to MDED (See Appendix C).

The Multi-Dimensional Assessment was copied by the researcher and delivered to each school on April 8, 2015. The MDA was given to the present students with parental permission from April 13-27, 2015. The researcher picked up the MDA on April 29, 2015 from each participating school.

As mandated by the state of Tennessee, the students took the TCAP English/Language Arts assessment, both parts, on April 28, 2015. While waiting for the student scale scores to return, the researcher input each student’s response from the MDA into a spreadsheet using Excel.

On June 7, 2015 district principals were notified that the scale scores were posted by the state on the state’s data website. A request was made to the principals of the participating schools to obtain the English/Language Arts scores for the participating seventh grade students. The scores were sent by fax to the researcher on June 7 and 8, 2015. The scale scores of the students were then entered into the Excel spreadsheet in
order to run correlational analysis (See Appendix A).

Once all data were input into the spreadsheet, the identified variables were used to test the hypothesis using a multiple linear regression analysis. The databases were combined into one spreadsheet and imported into SPSS. A thorough analysis of the data was completed to show correlations of the two data sets. The results found through disaggregation of the data were used by the researcher to complete the study.

**Data Analysis**

The student responses on the MDA and the student achievement scale scores were analyzed using SPSS. The data set was used with permission by Doug Grove of MDED and the district regarding Tennessee Comprehensive Assessment Program (See Appendix C and D). The predictor variable is student responses on the MDA. The criterion variable was the TCAP achievement score.

Correlations between the predictor variable and the criterion variable were calculated using a multiple linear regression analysis, which “is used to determine the correlation between a criterion variable and a combination of two or more predictor variables” (Gall, Gall, & Borg, 2007, p. 353). According to Gall et al. (2007), this statistical procedure will result in a multiple correlation coefficient (R), which is “a measure of the magnitude of the relationship between a criterion variable and some combination of predictor variables” (p. 358). For the null hypothesis, data screening and assumption tests were conducted to identify inconsistencies, outliers, and normality. Inconsistencies were identified using procedures suggested by Warner (2013). A Mahalanobis distance test was conducted to identify multivariate outliers and multicollinearity was determined based on inspection of VIF and tolerance scores.
Outlier identification included box and whiskers plots for each predictor variable indicator: community engagement, curriculum expectations, developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and school climate to predict outliers (Warner, 2013). Normality was determined using histograms.
CHAPTER FOUR: FINDINGS

Research Questions

This research study explored the following questions:

**RQ1:** How accurately can end of the year achievement scores be predicted using the community engagement dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ2:** How accurately can end of the year achievement scores be predicted using the curriculum expectations dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ3:** How accurately can end of the year achievement scores be predicted using the development perspectives dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ4:** How accurately can end of the year achievement scores be predicted using the educational attitudes dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ5:** How accurately can end of the year achievement scores be predicted using the faculty fidelity dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ6:** How accurately can end of the year achievement scores be predicted using the leadership potential dimension from the Multi-Dimensional Assessment for seventh grade language arts students?

**RQ7:** How accurately can end of the year achievement scores be predicted using the school climate dimension from the Multi-Dimensional Assessment for seventh grade
language arts students?

**Null Hypotheses**

The null hypotheses for this study were:

- **H₀1**: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, community engagement, of the Multi-Dimensional Assessment.

- **H₀2**: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, curriculum expectations, of the Multi-Dimensional Assessment.

- **H₀3**: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, developmental perspectives, of the Multi-Dimensional Assessment.

- **H₀4**: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, educational attitudes, of the Multi-Dimensional Assessment.

- **H₀5**: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, faculty fidelity, of the Multi-Dimensional Assessment.

- **H₀6**: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, leadership potential, of the Multi-Dimensional Assessment.

- **H₀7**: There is no significant predictive relationship between the criterion variable, end of the year language arts achievement scores, and the predictor variable, school
climate, of the Multi-Dimensional Assessment.

**Descriptive Data**

The purpose of this study was to examine the relationship between end of the year achievement scores and the seven dimensions from the Multi-Dimensional Assessment for seventh grade language arts students in a southeastern Tennessee school district. Using a quantitative type of study, the researcher determined if there was a relationship between end of the year achievement scores and the seven dimensions from the Multi-Dimensional Assessment.

Table 4.1 displays the descriptive statistics for the seven dimensions of the Multi-Dimensional Assessment. These scales were based on a 5-point Likert scale: 1 = *Strongly Disagree* to 5 = *Strongly Agree*. The highest mean scale scores were for developmental perspectives ($M = 3.81$, $SD = 0.44$) and educational attitudes ($M = 3.81$, $SD = 0.45$). The lowest mean scale score was for school climate ($M = 2.95$, $SD = 0.47$). The Cronbach alpha reliability coefficients ranged in size from $\alpha = .77$ to $\alpha = .95$ with the median sized alpha coefficient being $\alpha = .91$. This suggested that all coefficients had acceptable levels of internal reliability (Warner, 2013) (Table 4.2).

Table 4.1

*Psychometric Characteristics for Summated Scale Scores (N=265)*

<table>
<thead>
<tr>
<th>Score</th>
<th>Number of Items</th>
<th>M</th>
<th>SD</th>
<th>Low</th>
<th>High</th>
<th>$\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Engagement</td>
<td>24</td>
<td>3.35</td>
<td>0.55</td>
<td>1.87</td>
<td>4.82</td>
<td>.91</td>
</tr>
<tr>
<td>Curriculum Expectations</td>
<td>24</td>
<td>3.76</td>
<td>0.53</td>
<td>1.91</td>
<td>4.96</td>
<td>.92</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>---</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>Developmental Perspectives</td>
<td>31</td>
<td>3.81</td>
<td>0.44</td>
<td>2.66</td>
<td>4.75</td>
<td>.77</td>
</tr>
<tr>
<td>Educational Attitudes</td>
<td>22</td>
<td>3.81</td>
<td>0.45</td>
<td>2.57</td>
<td>5.00</td>
<td>.84</td>
</tr>
<tr>
<td>Faculty Fidelity</td>
<td>21</td>
<td>3.62</td>
<td>0.57</td>
<td>2.18</td>
<td>4.90</td>
<td>.92</td>
</tr>
<tr>
<td>Leadership Potential</td>
<td>27</td>
<td>3.69</td>
<td>0.59</td>
<td>1.81</td>
<td>4.97</td>
<td>.95</td>
</tr>
<tr>
<td>School Climate</td>
<td>23</td>
<td>2.95</td>
<td>0.47</td>
<td>1.38</td>
<td>4.06</td>
<td>.82</td>
</tr>
</tbody>
</table>

*Note.* Ratings based on a 5-point metric scale: 1 = *Strongly Disagree* to 5 = *Strongly Agree.*

**Results**

A total of 317 people began the study. The number of missing answers for each respondent was calculated and the values ranged from zero missing answers up to 98 missing answers. Based on an examination of the distribution of the number of missing answers, a decision was made to retain those respondents who had either zero missing answers \(n = 265, 83.6\%\) or one missing answer \(n = 21, 6.6\%\). The single missing answer for each respondent was imputed based on either mean or mode substitution depending on whether the level of measurement for the missing answer was continuous or categorical. Based on frequency histograms and boxplots, 13 other respondents were removed from the study for TCAP outliers and five others were removed for having multi-educational assessment outliers. In addition, based on the results of the Mahalanobis distance test, three other respondents with multivariate outliers were removed. This left the final sample at \(N = 265\).

A regression model was used to examine the TCAP score based on the seven multi-dimension assessment scales. The full 7-variable model was statistically significant where \(F(7, 257) = 5.47, p = .001, R^2 = .13\), which accounted for 13.0\% of the
variance in the TCAP scores. No multicollinearity was evident based on inspection of VIF and tolerance scores. Based on this model, the following nulls were examined.

**Null Hypothesis One**

**Assumption tests.** This study addressed the research hypothesis pertaining to the relationship between the student’s end of year achievement scores and the community engagement dimension from the Multi-Dimensional Assessment. In order to test the null hypothesis, a multiple regression analysis was performed. Such analysis obliges that three assumptions are met: linearity, homoscedasticity, and extreme bivariate outliers (Warner, 2013). Box and whisker plots, histogram, and scatterplot were used to determine there were no violations (See appendix H).

**Results of the statistical analysis.** A multiple regression analysis was used to examine the null hypothesis; a .05 alpha level was used in the analysis. A negative correlation of $r = -.13$ was determined for the community engagement dimension (Tables 4.2 and 4.3). The findings rejected the null hypothesis for community engagement ($p = .001$).

**Null Hypothesis Two**

**Assumption tests.** This study addressed the research hypothesis pertaining to the relationship between the student’s end of year achievement scores and curriculum expectations dimension from the Multi-Dimensional Assessment. In order to test the null hypothesis, a multiple regression analysis was performed. Such analysis obliges that three assumptions are met: linearity, homoscedasticity, and extreme bivariate outliers (Warner, 2013). Box and whisker plots, histogram, and scatterplot were used to determine there were no violations (See appendix H).
Results of the statistical analysis. A multiple regression analysis was used to examine the null hypothesis; a .05 alpha level was used in the analysis. No significant correlation was found for the curriculum expectation dimension (Tables 4.2 and 4.3). The findings failed to reject the null hypothesis for this dimension \((p = .90)\).

Null Hypothesis Three

Assumption tests. This study addressed the research hypothesis pertaining to the relationship between the student’s end of year achievement scores and the developmental perspectives dimension from the Multi-Dimensional Assessment. In order to test the null hypothesis, a multiple regression analysis was performed. Such analysis obliges that three assumptions are met: linearity, homoscedasticity, and extreme bivariate outliers (Warner, 2013). Box and whisker plots, histogram, and scatterplot were used to determine there were no violations (See appendix H).

Results of the statistical analysis. A multiple regression analysis was used to examine the null hypothesis; a .05 alpha level was used in the analysis. A positive correlation of \(r = .25\) was determined for the developmental perspective dimension (Tables 4.2 and 4.3). These findings rejected the null hypothesis for the developmental perspectives dimension \((p = .001)\).

Null Hypothesis Four

Assumption tests. This study addressed the research hypothesis pertaining to the relationship between the student’s end of year achievement scores and educational attitudes dimension from the Multi-Dimensional Assessment. In order to test the null hypothesis, a multiple regression analysis was performed. Such analysis obliges that three assumptions are met: linearity, homoscedasticity, and extreme bivariate outliers
(Warner, 2013). Box and whisker plots, histogram, and scatterplot were used to
determine there were no violations (See appendix H).

**Results of the statistical analysis.** A multiple regression analysis was used to
examine the null hypothesis; a .05 alpha level was used in the analysis. A positive
correlation of $r = .17$ was determined for the educational attitudes dimension (Tables 4.2
and 4.3). These findings rejected the null hypothesis for the educational attitudes ($p = .04$).

**Null Hypothesis Five**

**Assumption tests.** This study addressed the research hypothesis pertaining to the
relationship between the student’s end of year achievement scores and faculty fidelity
dimension from the Multi-Dimensional Assessment. In order to test the null hypothesis,
a multiple regression analysis was performed. Such analysis obliges that three
assumptions are met: linearity, homoscedasticity, and extreme bivariate outliers (Warner,
2013). Box and whisker plots, histogram, and scatterplot were used to determine there
were no violations (See appendix H).

**Results of the statistical analysis.** A multiple regression analysis was used to
examine the null hypothesis; a .05 alpha level was used in the analysis. No significant
correlation was found for the faculty fidelity dimension (Tables 4.2 and 4.3). The
findings failed to reject the null hypothesis for this dimension ($p = .52$).

**Null Hypothesis Six**

**Assumption tests.** This study addressed the research hypothesis pertaining to the
relationship between the student’s end of year achievement scores and leadership
potential dimension from the Multi-Dimensional Assessment. In order to test the null
hypothesis, a multiple regression analysis was performed. Such analysis obliges that three assumptions are met: linearity, homoscedasticity, and extreme bivariate outliers (Warner, 2013). Box and whisker plots, histogram, and scatterplot were used to determine there were no violations (See appendix H).

**Results of the statistical analysis.** A multiple regression analysis was used to examine the null hypothesis; a .05 alpha level was used in the analysis. No significant correlation was found for the leadership potential dimension (Tables 4.2 and 4.3). The findings failed to reject the null hypothesis for leadership potential ($p = .67$).

**Null Hypothesis Seven**

**Assumption tests.** This study addressed the research hypothesis pertaining to the relationship between the student’s end of year achievement scores and school climate dimension from the Multi-Dimensional Assessment. In order to test the null hypothesis, a multiple regression analysis was performed. Such analysis obliges that three assumptions are met: linearity, homoscedasticity, and extreme bivariate outliers (Warner, 2013). Box and whisker plots, histogram, and scatterplot were used to determine there were no violations (See appendix H).

**Results of the statistical analysis.** A multiple regression analysis was used to examine the null hypothesis; a .05 alpha level was used in the analysis. No significant correlation was found for the school climate dimension (Tables 4.2 and 4.3). The findings failed to reject the null hypothesis for this dimension ($p = .25$).
Table 4.2

_Correlations for Scale Scores with TCAP Scores (N = 265)_

<table>
<thead>
<tr>
<th>Scale</th>
<th>TCAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Engagement</td>
<td>-0.13 *</td>
</tr>
<tr>
<td>Curriculum Expectations</td>
<td>0.01</td>
</tr>
<tr>
<td>Developmental Perspectives</td>
<td>0.25 ***</td>
</tr>
<tr>
<td>Educational Attitudes</td>
<td>0.17 **</td>
</tr>
<tr>
<td>Faculty Fidelity</td>
<td>0.02</td>
</tr>
<tr>
<td>Leadership Potential</td>
<td>-0.02</td>
</tr>
<tr>
<td>School Climate</td>
<td>-0.05</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05. ** *p* < .01. *** *p* < .001.
Table 4.3

*Prediction of TCAP Scores Based on Scale Scores (N = 265)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>726.66</td>
<td>15.76</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Community Engagement</td>
<td>-11.44</td>
<td>3.29</td>
<td>-.24</td>
<td>.001</td>
</tr>
<tr>
<td>Curriculum Expectations</td>
<td>-0.66</td>
<td>5.02</td>
<td>-.01</td>
<td>.90</td>
</tr>
<tr>
<td>Developmental Perspectives</td>
<td>15.30</td>
<td>4.21</td>
<td>.26</td>
<td>.001</td>
</tr>
<tr>
<td>Educational Attitudes</td>
<td>9.52</td>
<td>4.49</td>
<td>.17</td>
<td>.04</td>
</tr>
<tr>
<td>Faculty Fidelity</td>
<td>2.71</td>
<td>4.21</td>
<td>.06</td>
<td>.52</td>
</tr>
<tr>
<td>Leadership Potential</td>
<td>-2.02</td>
<td>4.67</td>
<td>-.05</td>
<td>.67</td>
</tr>
<tr>
<td>School Climate</td>
<td>-5.23</td>
<td>4.57</td>
<td>-.09</td>
<td>.25</td>
</tr>
</tbody>
</table>

*Note.* Full Model: $F(7, 257) = 5.47, p = .001$. $R^2 = .130$. 
CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

The purpose of this quantitative correlational research study was to investigate if any of the seven dimensions of the Multi-Dimensional Assessment can best predict academic achievement of seventh grade students as indicated by test scores on the language arts component of the state mandated test, TCAP. An overview of the research study, along with a summary and discussion of the findings are included in Chapter Five. This chapter also includes implications of the findings to today’s classroom, limitations of the current study, and recommendations to continue this study in the future.

With accountability and improvement at the forefront of the public education debate, school administrators are struggling to lead classroom teachers to high impact change. According to Marzano, Waters, and McNulty (2005), “Each school day more than 53.6 million students walk in to more than 94,000 K-12 schools in hopes that the 13 years of schooling they will experience will dramatically enhance their chances of success in the modern world” (p. 3). Hattie’s (2009) research shows that “students spend about 15,000 hours in school over a lifetime: or about 30 percent of their waking time is spent in the hands of those who legislated to teach them” (p. 39). The pressure to produce graduates that can compete globally can be felt all the way to the kindergarten classroom these days. During this chapter, the researcher will compare the study results to the literature, draw conclusions and implications, and make a series of recommendations for future research.

The purpose of this quantitative study was to determine how accurately academic achievement can be predicted using student responses on the Multi-Dimensional
Assessment (MDA). The student responses of the MDA were correlated to their individual language arts Tennessee Comprehensive Achievement Program (TCAP) results to determine the predictability measure of the seven dimensions. Corrigan et al. (2012) conducted research through federal grants to identify seven key dimensions of education that impact student achievement: community engagement, curriculum expectations, developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and school climate.

As identified in the previous chapter, two dimensions, developmental perspectives and educational attitudes, were found to have a positive correlation with academic achievement. Community engagement was found to have a negative impact on the ability to predict language arts achievement scores. Four other dimensions: curriculum expectations, faculty fidelity, leadership potential, and school climate, were found to have no significant correlation.

A negative predictive relationship was found between the criterion variable, end of the year language arts achievement scores, and the predictor variable, community engagement, of the MDA. This is not consistent with the research regarding the impact of the Social Development Theory (SDT). Vygotsky’s research showed that the community plays an essential role in the development of an adolescent (Gredler, 2011). This study’s findings were also not consistent with the research of Corrigan et al. (2011), which found that parental and community involvement are paramount in the success of students. In Hattie’s (2009) research of 11 meta-analyses and 716 studies, he reported that parental involvement, including encouragement and expectations, had a high impact on academic achievement. These findings were consistent with the meta-analysis
findings of Henderson and Mapp (2002) who cite multiple studies that were found community engagement to have a negative impact on academic achievement. Shumow and Miller as cited by Henderson and Map (2002) “found that at-home involvement is related to students’ positive attitudes toward school but negatively related to grades and test scores” (p. 25).

No significant relationship was found between the criterion variable, end of the year language arts achievement scores, and the predictor variable, curriculum expectations, of the MDA. The findings of this study are not consistent with Corrigan et al. (2011), who define this dimension as the use of “theory-based practices to create, prepare, and deliver a rigorous and challenging education” (p. 33). Hattie’s (2009) research looked at curricula in a broader sense and then focused on specific strategies’ impact on academic achievement. His research demonstrated “the importance of gaining a set of learning strategies to construct meaning from text” (p.129). The data gleaned from this study were also in opposition to the theoretical framework provided through the Experiential Learning Theory (ELT). Research on ELT supports academic achievement when its holistic approach to learning is followed by the classroom teacher (Anderman & Anderman, 2009; Linnenbrink & Pintrich, 2002).

A positive predictive relationship was found between the criterion variable, end of the year language arts achievement scores, and the predictor variable, developmental perspectives, of the MDA. Developmental perspectives had a significant impact on the ability to predict language arts achievement scores. This is consistent with the findings of Corrigan et al.’s (2011) research that showed, “how students view their character has a direct positive relationship to their achievement” (p. 34). This dimension includes such
factors as: “student success traits, school misconduct, compassion for others, and good deeds” (Corrigan et al., 2011, p. 34). This relationship is also consistent with the research of Lawrence Kohlberg and Jean Piaget and the Moral Development Theory as reported through the research of Fleming (2005), Myyry (2003), Nucci (1998), and Wright (1995). A little less consistent with the results of this study, Hattie (2009) found that developmental perspectives ranks 94th out of 138 influences of academic achievement.

A positive predictive relationship was found between the criterion variable, end of the year language arts achievement scores, and the predictor variable, educational attitudes, of the MDA. Educational attitude was also found to have a significant impact on the ability to predict language arts achievement scores. This is consistent with Corrigan et al. (2011) who found that educational attitude or motivation was an impacting factor to increased academic achievement. Consistent with these results, Hattie (2009) found that educational attitude ranks 51st out of 138 influences of academic achievement. This correlation was supported with the attribution theory research of Anderman and Anderman (2009), Linnenbrink and Pintrich (2002), and Royal (2012). Repka’s (2015) research supports this study and found that “students with positive perceptions of their own abilities achieved more and were emotionally better off than those who felt they had no control” (p. 2)

No significant relationship was found between the criterion variable, end of the year language arts achievement scores, and the predictor variable, faculty fidelity, of the MDA. According to Corrigan et al. (2011), this dimension examines the impact of teacher trust, satisfaction of a teacher, and perceptions of students on how much they recognize their teachers believe in them. Faculty fidelity is related to the reflective
observation realm of ELT. The research of Corrigan et al. (2011), Hedin (2010), McCarthy (2010), Miettinen (2010), Passarelli and Kolb (2011), and Roberts (2006) are in direct opposition to the findings of this study.

No significant relationship was found between the criterion variable, end of the year language arts achievement scores, and the predictor variable, leadership potential, of the MDA. This finding is in direct disagreement to most research on educational leadership. Marzano et al. (2005) found through a meta-analysis that “principals can have a profound effect on the achievement of students in their schools” (p. 38). Hattie’s (2009) research of previous studies and meta-analyses concurs with Marzano et al. (2005) that principals/school leaders have a positive effect on achievement, although Hattie’s research classifies the effect as medium. Walumbwa et al.’s (2008) research around authentic leadership theory also showed positive correlations between success of a school’s academic progress and leadership potential.

No significant relationship was found between the criterion variable, end of the year language arts achievement scores, and the predictor variable, school climate, of the MDA. Corrigan et al. (2009) noted that practices of school climate: “leadership, teacher-student relationships, a safe and orderly environment, parent involvement, motivation to learn, and a positive physical environment” all have positive impact on academic achievement (p. 184). Likewise, General Systems Theory (GST) does not support the findings of this study. Research on GST states that school climate would have an impact on the effectiveness of a school suggesting that it would impact academic achievement (Buhl, 2010).
Conclusion

Since the beginning of the 21st century, the educational process in the United States has faced significant scrutiny. According to data from the Center of Educational Policy (2011), “Nearly half of the nation’s public schools (48%) did not make AYP [Adequate Yearly Progress] in 2011. This marks an increase from 39% in 2010 and is the highest percentage since NCLB took effect in 2002” (p. 2). With standardized test scores showing clear shortfalls, national discussion and debate regarding the development of students who are able to compete globally has led to the most recent educational reform, the Common Core State Standards (Common Core State Standards Initiative, 2010c).

Increased accountability and expectations have forced teachers and educational leaders to reflect on which classroom practices influence academic achievement the most. As pressure continues to mount on classroom priorities, the focus on high impact strategies and their effect on academic achievement have certainly surfaced. If teachers are going to devote classroom time to developing their students’ affective dimensions, they must be assured their non-content based classroom time will show through standardized test scores (Brimi, 2009; Corrigan et al., 2011).

Based on the results of this study, it is clear there are multiple influences on the ability to predict academic achievement in light of the seven dimensions of the MDA. Community engagement, developmental perspectives, and educational attitudes are three dimensions that are in formational stages for students during their middle school years (Corrigan et al., 2011). Educational research supports the notion that developmental perspective and educational attitudes dimensions play a positive role in a student’s
success in high school and beyond (Corrigan et al., 2011; Repka, 2015). The findings of this research do not correlate to previous research focused on the impact community engagement has on student achievement.

Corrigan et al. (2011) cited multiple researchers that provided data to support a positive impact of community engagement on student achievement, however, this study found this dimension to have a negative impact on its ability to predict seventh grade language arts achievement scores. The findings are also inconsistent with the Social Development Theory, which Vygotsky’s research showed that community involvement plays an imperative role in adolescent development (Gredler, 2011). Hattie’s (2009) research of multiple meta-analyses found that research conducted in 1984 by Casto and Lewis did not show to be a significant factor in academic achievement; however, more recent research has shown otherwise. The researcher believed the discrepancy of this research study and previous studies can be found in the fact that the MDA is based on student perceptions of community engagement.

During adolescent years, students tend to gravitate more toward their peers than their parents or community leaders (Armstrong, 2006). Often times parental/child relationships are strained. Therefore, their perception of community engagement may be skewed. Previous research is grounded in documented data to show an amount of community engagement, not perception of middle school students. Even though student voice showed that community engagement might have a negative impact on academic achievement in this study, the researcher felt that additional research is very much needed in this area. Despite the findings of this study, the researcher believed that community
engagement is an essential component to a student’s academic success during their tenure in K-12 education and beyond.

Developmental perspectives, more commonly known as character education, have been a staple in public education since its beginnings. In the year circa 1406 B.C., Moses challenged the children of Israel to teach and educate their young in Deuteronomy 6:6-7:

And these words that I command you today shall be on your heart. You shall teach them diligently to your children, and shall talk of them when you sit in your house, and when you walk by the way, and when you lie down, and when you rise.

(English Standard Version)

In Old Testament times, teaching and modeling character traits to one’s children was very important in the role of a parent: a child’s first teacher.

Much debate and controversy has been centered on the school’s role in developing the character of its students. In his book, Kingdom Education, Glen Shultz (2006) states,

Horace Mann, the father of American public schools, once said that society should leave the teaching of faith and values to the home and church and the teaching of facts to the schools. However, Hirst noted in 1967 that “whether we like it or not, the whole enterprise of education, from top to bottom, is value-ridden” (p. 109).

If Hirst’s idea of a “value-ridden” educational system is true, then the impact that developmental perspectives have on predicting academic achievement found in this study should catch the attention of school leaders. Developmental perspectives have a direct link on a student’s potential performance on standardized testing because the
ethical molding that is taken place in the inner being of adolescent students. Those values that create moral and productive citizens also predict their academic achievement and overall educational success.

From the beginning of this research project, the researcher believed that developmental perspectives is among the most important of the seven dimensions and the results of this study confirm this notion. As an educator, the researcher strongly felt that the educational community has a moral responsibility to model and teach students to become ethical residents of society. Developmental perspectives is the vehicle that allows a high achieving student to be set apart from other students as they enter life beyond K-12 education.

This study also showed a direct connection between student perceptions of educational attitudes and the predictability of academic achievement. Another recent study out of Stanford University confirmed that a relationship exists between academic achievement and the educational attitudes of middle school students (Repka, 2015). These two bodies of research show that middle school students’ self-perception and awareness factor greatly into their academic success. Repka (2015) suggests that interventions in the educational attitudes of middle school students could “yield big impacts” in academic advancements (p. 3).

As a student enters middle school, many changes, both internal and external, occur. Due to these changes, middle school students often find themselves in a time of discontent (Repka, 2015). Since this time during their lives significantly impacts the formation of their educational attitudes, the positive impact of teachers and adult mentors in the school setting is tremendous (Corrigan et al., 2009; Repka, 2015). Corrigan et al.
(2009) suggest that educational attitudes include developing positive work ethics and instilling a sense of striving for excellence in all school activities. Such development must be “taught, practiced, and modeled by the adults” in the school setting (Corrigan et al., 2009, p. 209).

It is the belief of the researcher that the results of this study, in regards to educational attitudes of adolescent students, spoke directly to the importance of educators taking time to develop and cultivate positive relationships with students. Those teachers who take the foundational step of forming positive relationships afford students the opportunity to grow academically as well as intrinsically. Adolescent students thrive on attentions, be it positive or negative, and attention gained is often a strong indicator of their educational attitudes (Repka, 2015; Hattie, 2009). The researcher strongly believed that educational attitudes is an essential underlying current every teacher must seek to positively impact in his or her classroom.

**Implication**

The study of middle school student’s academic success is a multi-faceted phenomenon. The factors, both external and internal, that influence increased academic achievement are almost infinite. However, the implications of this study are significant in prioritizing seven factors that research has said to be among the most influential in a middle school student’s academic development (Corrigan et al., 2011).

Previous research into the seven dimensions assessed by the Multi-Dimensional Assessment (MDA) failed to correlate actual student achievement scores to the student responses on the assessment. Therefore, increased academic achievement was defined in broad terms by comparing blind survey results to total school academic achievement
results. The researcher provided authentic research, which determines the predictability of the seven dimensions and language arts academic achievement.

In this study, the researcher directly correlated the students’ responses on the MDA with language arts achievement scores. By doing so, a predictability measure was determined for each of the seven dimensions: community engagement, curriculum expectations, developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and school climate. The implication that was gleaned is if middle schools can determine a student’s developmental perspectives and educational attitude with an assessed value and put strategies in place to improve and grow these areas of a student’s development, academic progress can be made.

**Limitations**

Limitations exist in all quantitative studies. When discussing the impact of internal limitations, one must consider the convenience sample that was selected. The results of the Multi-Dimensional Assessment were taken from a single school system in southeastern Tennessee. This school system is composed of approximately 42,000 students. It currently has 76 schools; 26 of those house middle school students. Three of the 21 schools that house seventh graders were chosen for this study. Another internal limitation in regards to the sample is that the research in this study is limited to seventh grade students in language arts classes. Other content areas were not considered.

There are many external limitations in a study of design. One limitation is the upbringing of the student and its impact on his or her perception to the seven dimensions. Ryan and Bohlin (1999) suggest, “the people with whom we enter in this human web play a key part in our learning” (p. 12). The bricks of a sound developmental foundation
are first laid through the upbringing of a child; however, there is a rising concern that “young people in general...have been adversely affected by poor parenting (in intact as well as broken families); the wrong kind of adult role models; the sex, violence, and materialism portrayed in the mass media; and the pressures of the peer group” (Lickona, 1993, p. 8). When students enter the middle school, each is instilled with a vast uniqueness of personal development. All these factors and more impact how they perceive the seven dimensions of the MDA and how they rate these dimensions on the Likert scale. Lastly, the Multi-Dimension Assessment is a written document that is given to students independently. Students read the selection and respond to the selection using a Lickert Scale. A student’s ability to read and comprehend becomes a factor in his or her answers to the assessment.

**Recommendations for Future Research**

There are few studies that research direct correlations between actual achievement scores and individual responses to give a predictability measure to dimensions of academic success. Most research uses general achievement scores in comparison to a few of the dimensions included on the MDA. Due to the limited research, it is suggested that future research be conducted in other subject areas. Following a similar research process, are the results similar or different when analyzing the predictability of academic achievement when compared to student responses on the MDA and other subject areas (math, science, and/or social studies)?

Additionally, the researcher only correlated achievement scores and responses of seventh grade students. It would benefit future research to examine if the results found in this study are aligned when comparing other grade levels in the middle school. Following
a similar research process, are the results similar or different when analyzing the predictability of academic achievement compared to student responses on the MDA and other grade levels (6th and/or 8th)?

Furthermore, additional research is needed into specific strategies that middle school teachers can use to increase self-awareness of the seven dimensions, especially developmental perspectives and educational attitudes, the dimensions that were found to have significant predictability of achievement scores. A study with a qualitative focus on the development of adolescents centered on the seven dimensions of the MDA would also further the research in this area.
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### APPENDIX A: TCAP Scores and Multi-Dimensional Scores

**Level Key:**
- A: Advanced
- P: Proficient
- B: Basic
- BB: Below Basic

**Dimension Key:**
- EA: Educational Attitudes
- DP: Developmental Perspectives
- FF: Faculty Fidelity
- CME: Community Engagement
- LP: Leadership Potential
- SC: School Climate
- CR: Curriculum Expectations

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APPENDIX B: Agreement with MDED and Permission to use MDA

CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT

This Confidentiality and Non-Disclosure Agreement ("Agreement") is entered into by and between Multi-Dimensional Education Inc. (MDED Inc.) and the undersigned (hereafter, the "researcher").

WHEREAS, the parties wish to confirm their understandings with respect to the confidential nature of the relationship between the parties relating to the transmission, use and protection of certain confidential information, it is hereby agreed as follows:

1. Confidential Information. Researcher may be given or have access to confidential student, information as well as to certain proprietary information. Researcher agrees to hold all such Confidential Information in trust for MDED Inc.'s benefit, and shall, in addition to his/her legal obligations under the Confidentiality and Privacy Provisions, use best efforts at all times to adopt and follow procedures and practices to protect the confidentiality of the Confidential Information and prevent its disclosure to others without the express prior written consent of MDED Inc.

2. Non-Disclosure. Researcher shall not sell, release, transfer, reprint, duplicate, recreate, disclose or permit the disclosure to any other person or entity of the Confidential Information or of any file, compilation, study, report or analysis or data base containing, based on or derived from the Confidential Information without the express prior written consent of MDED Inc., and then only in full compliance with this Agreement and the Confidentiality Privacy Provisions.

3. Return of Materials. Upon request by MDED Inc., Researcher shall immediately return all or such part of the Confidential Information as MDED Inc. shall designate to be returned.

IN WITNESS WHEREOF, and intending to be legally bound, the parties have executed this Agreement.

MDED Inc.

Date: __________________

Researcher

Date: 06-11-2015

Print Name: Mary Lee Rogers
Subject: Re: Questions regarding Data for Hamilton County
Date: Wednesday, June 18, 2014 2:30:09 PM Eastern Daylight Time
From: 
To: 
CC: 

LeAngela-

That would be fine with us. Consider this e-mail verification of permission to use the MDA.

Best,

Doug

-----Original Message-----
From: 
Sent: 
To: "D" 
Cc: "T"
Subject: Re: Questions regarding Data for Hamilton County

Thank you for getting back with me Doug. Would it be possible to get permission to use the MDA with one grade level of my students in August so that I can continue my study to see if there is a relationship between their Developmental Perspectives and academic achievement? Of course, I would get all IRB approval and parental permission as required by my university.

LeAngela
January 5, 2015

To Whom It May Concern:

Mary LeAngela Rogers has permission from Hamilton County Department of Education to access five middles schools for the purpose of conducting her dissertation through Liberty University. Also, Mrs. Rogers has been given permission to give the Multi-Dimensional Assessment and access TCAP Language Arts scores once the scores are returned from the state.

Sincerely,

Assistant Superintendent
APPENDIX D: Principal Letter

Date: February 4, 2015
Principal(s) of potential schools
Mary LeAngela Rogers

Dear Principal:

As a graduate student in the Education Department at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to determine if there is a correlation between seven dimensions of a school and academic achievement. I am writing to invite your 7th grade students to participate in my study.

To participate in the study, students must be in 7th grade Language Arts class and must have a signed parent permission form. Your 7th grade language arts teachers will be asked to facilitate an assessment, the Multi-Dimensional Assessment (MDA), approximately two weeks before the Tennessee Comprehensive Assessment Program is given. It should take approximately 30 minutes for the student to complete the MDA. Your school’s participation will be completely anonymous, and no personal, identifying information will be required. In the research content your school will be given a pseudonym. All materials will be provided. A consent letter will be given to your teachers to send home. It will be requested that students return the consent document to the child’s teacher.

A parental consent document will be sent home with your students and will be given to you in March, 2015. The consent document contains additional information about my research. Parents will be requested to sign the consent document and return it to the child’s teacher.

Sincerely,

Mary LeAngela Rogers
Student
APPENDIX E: Parent Consent Form

CONSENT FORM
The Prediction Accuracy of Academic Achievement for 7th Grade Language Arts
Students Using the Seven Dimensions of the Multi-Dimensional Assessment
Mary LeAngela Rogers
Liberty University
School of Education

Dear Parent and/or Guardian,

Your student is invited to be in a research study of predictors of academic achievement. You were
selected as a possible participant because your student is a seventh grader at his or her middle
school. I 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 Mary LeAngela Rogers, doctoral candidate in the School of
Education at Liberty University.

Background Information:

The purpose of this study is to investigate what dimensions of the Multi-Dimensional Assessment
(MDA), if any, best predict academic achievement of 7th grade students enrolled in language arts.
The seven dimensions of the MDA include: community engagement, curriculum expectations,
developmental perspectives, educational attitudes, faculty fidelity, leadership potential, and
school climate. The MDA survey has 90 statements, which require the student to respond based
on a 5-point likert scale.

Procedures:
If you allow your student to participate in this study, I will ask them to:
Take the MDA in a two-week window of the Language Arts TCAP test and allow the researcher
to use his or her TCAP language arts quick score in comparison to his or her responses on the
MDA.

Risks and Benefits of being in the Study:
The risks are minimal and are no more than the participant would encounter in every day life.

There are no direct benefits to the participants.

Compensation:
Participants will not be compensated for their participation.

Confidentiality:
The records of this study will be kept private. In any sort of report I might publish, I will not
include any information that will make it possible to identify a subject. Research records will be
stored securely and only the researcher will have access to the records. All records will be kept
in a locked storage cabinet in the researcher’s personal residence. All records will be securely
disposed of three years following the date of a successful defense.
Voluntary Nature of the Study:

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

Contacts and Questions:

The researcher conducting this study is Mary LeAngela Rogers. If you have questions, you are encouraged to contact her at mrogers2@liberty.edu. Mrs. Rogers’ faculty advisor is Dr. Connie Pearson. Dr. Pearson’s email address is cpearson@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, 1971 University Blvd, Suite 1837, Lynchburg, VA 24515 or email at irb@liberty.edu.

Your student 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.

Student Name (Print): ____________________________

Student Signature: ____________________________ Date: ____________

Signature of parent or guardian: ____________________________ Date: ____________

Signature of Investigator: ____________________________ Date: ____________
APPENDIX F: Outline/ Timeline for study given to teachers

Thank you for being a part of my dissertation study.

The following is the timeline for this study:

March 23rd - 27th, 2015: Parent permission slips are handed out and returned.
(Consider a possible “dress down day” on the 27th for returning the consent form, even if permission is not granted.)

April 13th – 27th: MDA is administered to all students with signed consent.

What I will need from you:

Number of students in 7th grade to print permission slips.

A quick export from PowerSchool into an EXCEL spreadsheet: First and last name, DOB, and State ID.

Copy of 7th grade ELA Quick Scores once they are returned in May.

Committee
I will deliver permission slips to you on or before Monday, 3/23.

Once I know how many MDA copies you need, I will deliver those the week of April 6th.

You can send the consent forms and completed MDA’s on the pony to me or I am happy to pick them up.
APPENDIX G: Box and Whisker plots, Histogram, and Scatterplot for data

Correlations
Histogram
Dependent Variable: TCAP

Mean = 5.86E-15
Std. Dev. = 0.987
N = 265
Normal P-P Plot of Regression Standardized Residual
Dependent Variable: TCAP