

St. John Fisher College

Fisher Digital Publications

Education Doctoral

Ralph C. Wilson, Jr. School of Education

8-2013

The Keystone Grade: Successful Sixth Grades in Westchester County, NY

Jonathan Brown
St. John Fisher College

Follow this and additional works at: https://fisherpub.sjfc.edu/education_etd



Part of the Education Commons

[How has open access to Fisher Digital Publications benefited you?](#)

Recommended Citation

Brown, Jonathan, "The Keystone Grade: Successful Sixth Grades in Westchester County, NY" (2013). *Education Doctoral*. Paper 140.

Please note that the Recommended Citation provides general citation information and may not be appropriate for your discipline. To receive help in creating a citation based on your discipline, please visit <http://libguides.sjfc.edu/citations>.

This document is posted at https://fisherpub.sjfc.edu/education_etd/140 and is brought to you for free and open access by Fisher Digital Publications at St. John Fisher College. For more information, please contact fisherpub@sjfc.edu.

The Keystone Grade: Successful Sixth Grades in Westchester County, NY

Abstract

Public schools face significant challenges in ensuring that students enter adulthood ready for the challenges of careers or college. Part of that challenge is in ensuring students enter the second half of their school careers well prepared to handle the rigors of studying multiple subjects while balancing changes to their minds and bodies. This study closely examined sixth grades in Westchester County, NY to identify the impact of the Association for Middle Level Education's 16 characteristics of Successful Schools for Young Adolescents on student achievement. The purpose of this research was to identify differences in achievement and the most valuable combination of characteristics in supporting student achievement. Multiple research methodologies, including descriptive statistics, correlation matrices, Kendall's tau-b, Kendall's W, and single regression analysis utilized led to positive findings. The characteristics of Successful schools were found to be dependent rather than independent factors. As such, the characteristics clustered as Curriculum, Instruction, and Assessment had a statistically significant impact on student achievement.

Document Type

Dissertation

Degree Name

Doctor of Education (EdD)

Department

Executive Leadership

First Supervisor

Jerry Willis

Second Supervisor

Mark Villanti

Subject Categories

Education

The Keystone Grade: Successful Sixth Grades in Westchester County, NY

By

Jonathan A. Brown

Submitted in partial fulfillment
of the requirements for the degree
Ed.D. in Executive Leadership

Supervised by

Jerry Willis, Ph.D.

Committee Member

Mark Villanti, Ed.D.

Ralph C. Wilson, Jr. School of Education

St. John Fisher College

August 2013

Biographical Sketch

Jonathan Alfred Brown is the principal of Longfellow Middle School in the Mount Vernon City School District. Mr. Brown attended The Lincoln University; the nation's oldest Historically Black College/University, from 1995 to 1999 and graduated with a B.A. in Chinese. He attended the College of New Rochelle from 2005 to 2007 and graduated with a Master of Arts degree in Educational Leadership. He came to St. John Fisher College in the spring of 2011 and began doctoral studies in the Ed.D. Program in Executive Leadership. Mr. Brown pursued research on middle level education and the characteristics of successful sixth grades in Westchester County, NY.

Abstract

Public schools face significant challenges in ensuring that students enter adulthood ready for the challenges of careers or college. Part of that challenge is in ensuring students enter the second half of their school careers well prepared to handle the rigors of studying multiple subjects while balancing changes to their minds and bodies. This study closely examined sixth grades in Westchester County, NY to identify the impact of the Association for Middle Level Education's 16 characteristics of Successful Schools for Young Adolescents on student achievement. The purpose of this research was to identify differences in achievement and the most valuable combination of characteristics in supporting student achievement. Multiple research methodologies, including descriptive statistics, correlation matrices, Kendall's tau-b, Kendall's W, and single regression analysis utilized led to positive findings. The characteristics of Successful schools were found to be dependent rather than independent factors. As such, the characteristics clustered as Curriculum, Instruction, and Assessment had a statistically significant impact on student achievement.

Table of Contents

Biographical Sketch.....	ii
Abstract.....	iii
Table of Contents.....	iv
List of Tables	vi
List of Figures.....	viii
Chapter 1: Introduction.....	1
Introduction.....	1
Problem Statement.....	1
Theoretical Rationale.....	3
Statement of Purpose.....	4
Research Questions.....	5
Potential Significance of Study.....	5
Definition of Terms.....	6
Chapter Summary.....	7
Chapter 2: Review of the Literature.....	9
Introduction and Purpose.....	9
Topic Analysis.....	9
Summary and Conclusion.....	19
Chapter 3: Research Design Methodology.....	20
General Perspective.....	20

Research Context.....	21
Research Participants.....	21
Data Collection Instruments.....	22
Data Analysis.....	25
Summary of the Methodology.....	28
Chapter 4: Research Results.....	30
Data Analysis and Findings.....	30
Summary of Results.....	59
Chapter 5: Discussion.....	62
Introduction.....	62
Implications of Findings.....	62
Limitations.....	64
Recommendations.....	66
Conclusions.....	68
References.....	70
Appendix A.....	74
Appendix B.....	77

List of Tables

Item	Title	Page
Table 2.1	Characteristics of Successful Schools for Young Adolescents	12
Table 3.1	Similar School Groups	26
Table 4.1	Grouped Frequency Distribution: Characteristics of Successful Schools for Young Adolescents	35
Table 4.2	Performance Index Ranges and School Performance Levels	37
Table 4.3	Group A – Performance Index ELA and Mathematics	38
Table 4.4	Group B – Performance Index ELA and Mathematics	39
Table 4.5	Group C – Performance Index ELA and Mathematics	41
Table 4.6	Group D – Performance Index ELA and Mathematics	43
Table 4.7	Correlation Matrix – Characteristics of Successful Schools for Young Adolescents	45
Table 4.8	Correlation Matrix – Curriculum, Instruction, and Assessment Characteristics	46
Table 4.9	Correlation Matrix – Leadership and Organization Characteristics	47
Table 4.10	Correlation Matrix – Culture and Community Characteristics	48

Table 4.11	t-Tests Comparing Correlations Between In-Cluster and Other Cluster Characteristics for CIA Characteristics	50
Table 4.12	t-Tests Comparing Correlations Between In-Cluster and Other Cluster Characteristics for LO Characteristics	51
Table 4.13	t-Tests Comparing Correlations Between In-Cluster and Other Cluster Characteristics for CC Characteristics	52
Table 4.14	Implementation Index by Cluster, Overall Implementation Index and Performance Index for All Schools in the Study	56
Table 4.15	Simple Linear Regression Analysis – OIX and ELA and Math PI	58
Table 4.16	Simple Regression Analysis ELA and Mathematics	59

List of Figures

Item	Title	Page
Figure 4.1	Implementation of Characteristics of Successful Schools for Young Adolescents	32
Figure 4.2	Comparison of Implementation Level by Cluster	34
Figure 4.3	Performance Index for Each School in Group A	38
Figure 4.4	Performance Index for Each School in Group B	40
Figure 4.5	Performance Index for Each School in Group C	42
Figure 4.6	Performance Index for Each School in Group D	43
Figure 4.7	Overall Implementation Index – All Schools	57

Chapter 1: Introduction

Introduction

Nearly 200,000 students completed assessments in English language arts and mathematics in New York State during the 2011-2012 school year. More than 11,000 of those students were residents of Westchester County, an affluent county located in the Lower Hudson Valley (New York State Education Department [NYSED], 2012d). Combined with the increased demand for improved student achievement and dwindling resources, public schools are under significant pressure to have students achieve at higher rates of proficiency. This study examined achievement of students in the absolute center of their public school career, sixth grade, and identified the approaches that best prepared students to meet ever-increasing expectations in the form of College and Career Readiness aspirational performance measures.

Problem Statement

Public schools are under scrutiny from a demanding public that has been dissatisfied with the fact that nations around the world have surpassed the students of the United States in achievement (United States Department of Education, 2010). In 2011, 74% of four-year high school students graduated in New York State (NYS). However, only 31% of those students met the Aspirational Performance Measure (APM) (NYSED, 2012a). In response to the Race to the Top Program (RTTP) established by President Barack Obama's administration to close the achievement gap between the United States

and other nations, NYS developed the APM criteria to determine the readiness of students to enter college or the workplace without the need for remediation.

These circumstances coupled with the dwindling financial resources caused by the recent economic downturn and tax levy cap in NYS have forced school districts to meet increased demands for performance with less resources. While the public often focuses on students exiting public schools, their academic fates have been determined in the absolute middle of their public school experience, sixth grade. Neild, Balfanz, and Herzog (2007) wrote that as early as sixth grade, students that are likely to drop out of high school are identifiable. Even with this fact, the United States Secretary of Education, Arne Duncan stated that there is little research to guide decision making about educating students in the middle of their public education careers (United States Department of Education, 2011). Even though there is little research, NYS in partnership with the National Forum to Accelerate Middle Grades Reform, established criteria to identify successful middle level schools (NYSED, 2012a).

In 2012, of the 2,337 NYS public schools that contain a sixth grade, 17 met the criteria developed for identifying successful middle level schools (NYSED, 2012b). Ten of these schools earned the distinction more than once. The lack of recognition earned by NYS schools indicated a need for a new method to identify what works in middle level schools.

With the increased demand to improve student achievement there was a need to determine best practices for educating young adolescents. The National Middle School Association (2003a) recommended a study that would, “examine multiple components and how they are interrelated to one another within a school” (p. 70). Being that the

majority of middle level schools in NYS begin in sixth grade, this study will identify the characteristics of the most successful sixth grades in Westchester County, New York.

Theoretical Rationale

William Alexander is widely considered the father of the middle school philosophy (National Middle School Association [NMSA], 2003b). He introduced the concept of the middle school at Cornell University where he was to speak about the junior high school. His theory was born from the idea that young adolescents had unique developmental needs that needed unique attention (Armstrong, 2006). Born in the early 1960s, the middle school philosophy moved to replace junior high schools that became prevalent around 1909 (Goldin, 1999). The middle school philosophy stated that young adolescents, students ages 10 to 14, required a focus on social and emotional needs in order for students to achieve academically (Stevenson, 2002). This approach was a departure from the junior high school model. Wiles, Bondi, and Wiles (2006) wrote that the junior high school did not meet the needs of young adolescents as the schools contained ninth graders, which were developmentally different from students in grades 7 and 8.

The National Middle School Association has supported the work of William Alexander over the last several decades. In the position paper, *This We Believe*, the NMSA (2003b) outlined the tenets of the middle school philosophy. In 2010, the NMSA renamed as the Association for Middle Level Education (AMLE) expanded on these points resulting in 16 characteristics of Successful School for Young Adolescents (2010). Identified as essential attributes, AMLE wrote that successful schools are developmentally responsive, challenging, empowering, and equitable. The clusters of

these attributes are curriculum, instruction, and assessment (CIA), leadership and organization (LO), and culture and community (CC). While AMLE is a prominent purveyor of the middle school philosophy, this organization is not alone in identifying characteristics of developmentally appropriate middle level schools.

The National Association of Secondary School Principals (NASSP) had developed an approach to meeting the needs of young adolescents. Similar to the work of AMLE, *Breaking Ranks* identified cornerstone strategies to address the needs of young adolescents (NASSP, 2006). These strategies overlapped AMLE's middle school philosophy in a number of ways including curricular design and the need for adult advocates for students. NASSP also states that meeting the needs of middle level learners can occur in any grade configuration.

Statement of Purpose

The purpose of this study was to identify which characteristic or combination of characteristics of Successful Schools for Young Adolescents had the greatest impact on student achievement in sixth grades throughout Westchester County, New York in the 2011-2012 school year. *Student achievement* refers to how students performed on NYS sixth grade assessments in English language arts and mathematics in the spring of 2012. The results of this study met a recommendation of NMSA (2003a) when they wrote, "we need more studies that examine more than one middle school reform recommendation, practice, or design element" (p. 70). The results of this study may work to influence educational policy in NYS and nationally.

Research Questions

This study answered four research questions inspired by the work of AMLE. Student achievement data and data generated by school principals will provide the necessary information to answer the following research questions:

1. To what degree are the 16 characteristics of Successful Schools for Young Adolescents implemented in each school in this study (AMLE, 2010b)?
2. How does the achievement of each school compare to similar schools?
3. What is the relationship between the presence of the characteristics of the Successful Schools for Young Adolescents and student achievement?
4. Which combination of characteristics produced the highest level of student achievement within each group of similar schools?

Potential Significance of Study

New York State Education Department (NYSED) developed new criteria to measure the success of its schools. Traditionally, graduation rates measured the success of a school system. However, the revelation that a large number of students in New York colleges and universities are enrolled in remedial courses became a concern (NYSED, 2011b). Senior Deputy Commissioner John B. King, the current commissioner, said, "Every aspect of the Regents reform agenda is aimed at ensuring that more New York State students graduate College and Career Ready" (NYSED, 2011a).

NYSED defined College and Career Readiness by a number of criteria that far exceed the current requirements for a high school diploma. Meeting all established high school graduation requirements along with a scale score greater than or equal to 75 on the English Regents standardized exam and a scale score of greater than or equal to 80 on a

mathematics Regents standardized exam deems a student College and Career Ready (NYSED, 2012a). Earning college credit while in high school, procuring an International Baccalaureate diploma, or completing Advanced Placement courses would also make a student College and Career Ready. In June 2010, less than 40% of high school graduates in New York met the APM (NYSED, 2011a).

While the public may perceive graduation rates and college readiness as high school challenges, this is not accurate. ACT (Williams et al., 2005), the company best known for its college aptitude test, produced a policy report titled, *College Readiness Begins in Middle School*. One of the report's recommendations was that planning for college should begin in middle school. Researchers have concluded that students decide to drop out while in middle school even if they wait until high school to do so (Neild et al., 2007). Increasing the importance of middle level grades, Balfanz, Herzog, & Mac Iver (2007) wrote that in as early as sixth grade, there are indicators that permit educators to identify 60% of high school dropouts. Middle level schools play a direct role in producing students that are College and Career Ready.

Definition of Terms

Aspirational Performance Measure (APM). NYS criteria that indicates a student is College and Career Ready. The criteria include student performance in literacy and mathematics.

College and Career Ready. Criteria that indicates that a student would not require remediation upon entering a four year college or post-secondary training when entering the work place.

Performance Index (PI). NYS performance measure of school achievement that ranges from zero to 200 based on standardized assessments in literacy and mathematics. A score of 200 indicates that all tested students demonstrated proficiency on the corresponding assessment.

Similar schools. Schools that have similar economic and academic needs along with available resources are grouped together in similar school groups.

Successful Schools for Young Adolescents. These schools possess the essential attributes and 16 characteristics identified by AMLE as keys to educating young adolescents (2010).

Young adolescents. Students ages 10 to 14 in grades five through nine.

Chapter Summary

Student achievement in middle level grades has a direct impact on a student's ability to be College and Career Ready. The increased focus on public schools has brought to light that a significant number of students are not prepared for post-secondary education or meaningful careers at the time of their graduation from high school. While there is a great deal of research about the value of the middle school philosophy, there is little research about which characteristic or combination of characteristics best prepare students to be College and Career Ready.

Chapter 2 will review the literature that dealt with the middle grades. Chapter 3 presents the research design methodology which is based on multiple quantitative approaches. The responses to the four research questions are listed in Chapter 4. Chapter 5 discusses the findings, along with the implications and limitations. The author's

perspective and recommendations are also present in Chapter 5 along with the conclusion.

Chapter 2: Review of the Literature

Introduction and Purpose

In 2003, NYS developed a statement on middle level education and most recently updated it in 2009 (NYSED, 2009). The policy reflected research based elements of effective middle level schools most of which are included in the middle school philosophy (AMLE, 2010; NMSA, 2003b). Even with this focus on middle level education, public discourse on education focused on APM, high school graduation rates, declining resources, standardized assessment results, and faculty evaluations.

There is a great deal of literature focused on the middle school and the unique needs of young adolescents, ages 10 to 14. The literature focused on grade configurations, transitions, and the role of the middle level school in preparing students to be College and Career Ready. While there is literature that covered many aspects of middle level education, gaps exist. There is a dearth of specific research on the specific impact of the characteristics of Successful Schools for Young Adolescents on student achievement as measured by standardized assessments.

Topic Analysis

This literature review illustrated the importance of middle school philosophy characteristics in successful middle level schools. By focusing on the developmental needs of young adolescents, the literature will reveal a need for specific academic settings to support adolescent achievement.

Young adolescents. The typical sixth grader is 11 years old for the majority of the school year. Successful middle level schools should focus on the needs, interests and readiness to learn of its students (NMSA, 2003b; AMLE, 2010). Students in the sixth grade are in the developmental stage where they are developing an awareness of themselves in a larger context (Stevenson, 2002). Erikson's stage theory places 11 year olds at the end of the industry versus inferiority stage. It is during this stage that an 11 year old would either develop a positive attitude towards school because they have experienced success or develop a sense of inferiority because what they know and can do are not valued in the school setting (Erikson, 1968). This age also marks the end of Piaget's concrete stage (Wiles, Bondi, & Wiles, 2006). The concrete operations stage is where young adolescents begin to make the transition from collecting knowledge to exercising logic though not very successfully (Piaget & Inhelder, 1969). Navigating this tumultuous time in life, educators need to be skilled at understanding this unique developmental period (Wiles et al., 2006).

Students between 10 and 14 years old are entering and then exiting puberty. This manifests itself in a number of physical ways including: growth spurts, fatigue, poor coordination, and a pause in brain growth (Schurr & Forte, 2009). These physical changes have a direct impact on the other changes students experience at this age (Orford, 1997). Developments in other areas that affect students accompany physical changes.

Intellectual, social, and emotional needs are factors in young adolescents' development. Chemical changes in the body trigger certain emotions that impact their ability or readiness to learn (Wiles et al., 2006). Not meeting these emotional needs by

the school may lead to problems in concentration (Orford, 1997). These specific needs include protection from emotional vulnerability, independence from authority, assistance in promoting a positive image, evidence of social justice, and relationships with adults (AMLE, 2010b; NMSA, 2003b; Schurr & Forte, 2009; Wiles et al., 2006). The recognition of these physical and emotional needs are reflected in the middle school philosophy.

The development of the middle school philosophy centered on the fact that young adolescents have unique developmental needs. NMSA (2003b) called for the development of middle level schools that develop a culture that provides for these needs. NAASP also argued for the development of schools focused on meeting the needs of young adolescents (2006). AMLE developed 16 characteristics in support of Successful School for Young Adolescents (Table 2.1).

One recommendation made by both NASSP (2006) and AMLE (2010) was the development of advisories. Advisories provide adult advocates for each student. The advisors would work with small groups of students to ensure that they are on track for success academically, socially, and emotionally. Stevenson (2002) wrote that advisories orient students to the new organizational structure of middle school and engage families in the school process. The development of advisories works to support the expectation of NYSED (2009) that middle level schools should provide adult role models and mentors. Advisories are not the only method that supports relationship development between adults and student.

Table 2.1

Characteristics of Successful Schools for Young Adolescents

Curriculum, Instruction, and Assessment

Educators value young adolescents and are prepared to teach them

(Value Young Adolescents)

Students and teachers are engaged in active, purposeful learning.

(Active Learning)

Curriculum is challenging, exploratory, integrative, and relevant.

(Challenging Curriculum)

Educators use multiple learning and teaching approaches.

(Multiple Learning Approaches)

Varied and ongoing assessments advance learning as well as measure it.

(Varied Assessments)

Leadership and Organization

A shared vision developed by all stakeholders guides every decision.

(Shared Vision)

Leaders are committed to and knowledgeable about this age group, educational research, and best practices.

(Committed Leaders)

Leaders demonstrate courage and collaboration.

(Courageous & Collaborative Leaders)

Ongoing professional development reflects best educational practices.

(Professional Development)

Organizational structures foster purposeful learning and meaningful relationships.

(Organizational Structures)

Culture and Community

The school environment is inviting, safe, inclusive, and supportive of all.

(School Environment)

Every student's academic and personal development is guided by an adult advocate.

(Adult Advocate)

Comprehensive guidance and support services meet the needs of young adolescents.

(Guidance Services)

Health and wellness are supported in curricula, school-wide programs, and related policies.

(Health & Wellness)

The school actively involves families in the education of their children.

(Family Involvement)

The school includes community and business partners.

(Community & Business)

Note. Adapted from "This We Believe: Keys to Educating Young Adolescents," by Association for Middle

Level Education, 2010, p. 14

Interdisciplinary teams provide advantages for students and teachers. Schurr and Forte (2009) wrote that teaming permits flexibility for teachers to best meet the diverse needs of their learners. By working with a consistent set of students and colleagues, teachers are able to develop a climate conducive to meeting the needs of young adolescents (Wiles et al., 2006). Four adults, one for each of the core academic subjects (English, math, social studies, and science) would generally share 100 students on an academic team. Brown and Knowles (2007) wrote that teaming affords opportunities for students to develop relationships with adults and their peers. This allows teachers and students to focus on developing relationships and sharing common expectations for conduct and achievement. This consistency is what young adolescents need at this stage of their development (Stevenson, 2002). Stevenson goes on to write that teams afford opportunities for collegiality and problem solving. The unique needs of adolescents requires strategic organizational designs including interdisciplinary teams. These characteristics of the middle school philosophy led Erb (2006) to conclude that the middle school philosophy is the most effective method of educating young adolescents. Though the middle school philosophy supports middle level schools, there is a debate about the best grade configuration for educating young adolescents.

Grade configurations. In Westchester County, NY there were six different grade configurations that housed the more than 11,000 students enrolled in 6th grade in 2012 (NYSED, 2012c). The most common of these configurations is the 6-8 school. Twenty nine of the 55 schools in Westchester that include a sixth grade are configured as 6-8 schools. Other school configurations that have sixth grade in Westchester included K-6, K-8, 5-8, 6-12 and 4-6 (New York State Education Department, 2012c). This was

not a trend that aligned with grade configuration practices nationwide. Nationally, 41.5% of schools with a sixth grade are included in K-6 schools. The 6-8 configuration makes up 25.3% of schools that include a sixth grade throughout the United States (Coladarci & Hancock, 2002). In the recent past, many pieces of research focused on grade configuration. There is no consensus about grade configuration's impact on student achievement (Cullen & Robles-Pina, 2009; Rockoff & Lockwood, 2010 Weiss, 2008; Williams et al., 2010).

New York State (2009) wrote that "organizational effectiveness and school success are not contingent upon a particular grade or school configuration" (p.4). This statement is supported by a number of researchers. Williams et al. (2010) completed an empirical study of middle level schools in California. Utilizing cross sectional analyses, longitudinal analyses, and accounting for individual school characteristics, it was concluded that, "no single grade configuration was consistently associated with higher performance" (p.3). The National Forum to Accelerate Middle-Grades Reform (2008) recounts the history of middle level grade configurations and its impact on student achievement. The researchers concluded that "excellent teaching and learning can take place in all types of middle-grades schools regardless of their configuration" (p.5). Erb (2006) wrote that K-8 schools have been successful "but grade configuration is a weak factor in determining successful schools" (p.5). Even with this information, there are arguments for the development of K-8 models as a way to cure struggling middle level schools.

In the recent past, school districts have explored the K-8 grade configuration as an alternative to middle schools. Rockoff and Lockwood (2010) argue that the middle

school has exacerbated the difficult conditions of young adolescents by placing them in middle schools. Their study of New York City schools concluded that students that enter a middle school do not meet expected performance levels whereas their counterparts in K-8 schools do. The researchers utilized a statistical method with each student serving as their own control group. Byrnes and Ruby (2007) conducted an empirical study to compare the K-8 configuration to middle schools. They concluded that K-8 schools outperform middle schools when comparing standardized test results. Conducting a longitudinal study of the Philadelphia K-8 schools led to the conclusion that there is little difference in student outcomes (Weiss & Kipnes, 2006). Despite the evidence that indicates little to no difference in the impact of K-8 versus a traditional middle school, the K-8 model is preferred by some researchers.

Critique of the middle school philosophy. The middle school has been criticized for less than stellar academic performance for America's young adolescents. The following quote (Yecke, 2006) embodies the sentiments of many authors, "In far too many cases, U.S. middle schools are where student achievement goes to die" (p.20). Citing student performance on the international standardized assessment, Trends in International Mathematics and Science Study (TIMSS), Yecke asserted that middle school performance plummets. Yecke's claim is based on data that was eight years old at the time of her study. Called the "Bermuda Triangle" of education by both United States Secretary of Education Arne Duncan and former Louisiana superintendent Cecil Picard (Duncan,2011; Meyer,2011) the American middle school was identified as having several shortcomings.

Bedard and Do (2005) write that the middle school can decrease on time high school graduation rates by 1% to 3%. Citing a study conducted by McEwin, Dickinson and Jenkins in 1996, the authors assert that the middle school is less rigorous than elementary school. This research is qualitative in nature and runs contradictory to several other studies that suggest that discipline is handled very differently at the middle school level as compared to the elementary school (Cook, MacCoun, Muschkin, & Vigdor, 2007)

Cook et al. (2007) wrote that sixth graders see a decline in academic performance and an increase in discipline issues. After conducting a pseudo-longitudinal study, the authors concluded that 6th graders in middle school saw a decline in both literacy and mathematics standardized test scores in North Carolina. They also concluded that the negative impact of middle school has lifelong effects for students. Rockoff and Lockwood (2010) wrote that a student that enters middle school would have test results that drop significantly and their achievement would continue to decline while enrolled in a middle school. They wrote that a student that attends a middle school will see a standard deviation decline between .14 and .18 in English and mathematics achievement, respectively. Similar to other studies, students that attend a middle school will miss more days of school than students in other settings. Many research studies have been written that the mostly commonly used model of 5/6-8 is having a negative impact on students academically and socially. Former first lady, Laura Bush is quoted as saying, “we know now from research that a lot of kids that drop out in high school really drop out in middle school-they just leave in high school” (Duncan, 2011; p.2)

Emotional well being has an impact on student achievement. Lower self esteem is a characteristic of students that attend middle school as well as a decline in a feeling of safety (Rubenstein, Schwartz, Steifel, & Zabel, 2009; Weiss 2008). Rockoff and Lockwood (2010) continue that students that attend a middle school miss two more days per year than students that attend those same grades in the K-8 configurations. In a study of middle schools in Westchester County, NY, Rosenberg (2003) wrote that mood directly impacts a student's academic achievement.

While these studies and reports make arguments against the middle school, there are shortcomings in their studies. Yecke (2006) makes a number of assertions without statistical support. Terms such as plummet was used by the author to describe young adolescent performance on the TIMSS. The United States scored above average in both the fourth and eighth grades in 2007. The U.S. actually ranked 11th in the world in fourth grade while ranking 9th in grade 8. As written by Meyer (2011) a 1997 issue of the noted educational journal, *Phi Delta Kappan*, stated that there was little quantitative data to determine the success or failings of the middle school. The lack of timely data utilized by Yecke also weakens her report. She cites data from the 1995 TIMSS, which is 16 years old and prior to the implementation of federal regulations aimed at increasing student performance known as No Child Left Behind. Besides the factors mentioned by these researchers, transitions has been identified as another shortcoming of the middle school.

The unique needs of young adolescents are identified as factors in why transitioning to a middle school is detrimental to middle level students. Gootman (2007) quoted the director of the Philadelphia school system, Paul Vallas as saying, "the fifth to

sixth grade transition is just too traumatic” (p.1). Combining different students from a variety of elementary schools into a middle school leads to the middle school problem as well (Rockoff & Lockwood, 2010). These problems exacerbate the need to develop relationships for young adolescents. The transition to a middle school takes students that would have been the oldest in a tradition elementary school and makes them the youngest in a middle school (Bedard & Do, 2005; Byrnes & Ruby, 2007). The transition may also impact the ability of students to make friends, increase their social concerns, and negatively impact their achievement (Cullen & Robles-Pina, 2009). For these reasons, researchers argued that an extra transition to a middle level school is another mark against the middle school, especially for its youngest students.

The 6-8 middle school is the most common configuration for middle level schools in Westchester County, NY. However, there are questions about the appropriateness of sixth grade in a middle school. In New York State, the sixth grade is part of the elementary continuum. Conversely, in Westchester County, the majority of six grades are housed in secondary, middle level schools. College readiness may be identified as early as sixth grade making it a key turning point (Balfanz et al., 2007). Williams et al. (2010) wrote that the middle school is the last best chance educators have of impacting student achievement. Cook, MacCoun, Muschkin, & Vigdor (2008) wrote that sixth graders face several challenges when placed in the middle school setting that might be avoided if students were placed in a different configuration. Yecke (2006) wrote that sixth grade should be a transition year where students continue to be exposed to many factors of the elementary experience, having sixth grade serve as a bridge. This new concept is one that has resulted in the creation of sixth grade academies throughout the

United States. These are schools that house one grade, the sixth. The sixth grade is too early for students to transition according to Rockoff and Lockwood (2010). They advocate for this transition to take place in seventh grade if it must occur at all. Cook et. al (2008) argue that exposing sixth graders to older students has long term negative impacts on their academic achievement.

Summary and Conclusion

Sixth grade is the keystone grade of public education. Connecting elementary to secondary, the sixth grade is where students must begin to develop the skills necessary to be College and Career Ready. Most sixth grades in Westchester are housed in middle schools. The middle school philosophy has dominated the approach to middle level education throughout the past five decades. Recent research has challenged this approach to educating young adolescents as grade configuration has become a prevalent topic. With all eyes in education focused on reaching the rigorous Common Core Standards, getting students ready for high school has become a focus of middle level educators. With College and Career Ready indicators visible as early as sixth grade, what happens in grade six is becoming a focal point. This study identified the characteristics of successful sixth grades in Westchester County with the purpose of aiding school districts in making decisions about grade configuration and school characteristics. New York State report cards provided data on student achievement. A survey that measures each of the characteristics of the middle school philosophy was completed by each principal of twenty-one different schools that included sixth grade in Westchester to determine the presence of middle school approaches. This research will lead to better decision making in the organization of middle level schools that include sixth grade.

Chapter 3: Research Methodology

General Perspective

Student achievement has remained a controversial topic as many levels of government increase accountability oversight of schools and their leaders. While many pundits regularly offer opinions about public education, few have focused on what role middle school plays in student achievement. Neild et al. (2007) wrote that as early as sixth grade, students who are likely to drop out of high school are identifiable. With such high stakes, there has been a surprising lack of attention placed on students in sixth grade. NMSA (2003a) recommended a study that would, “examine multiple components and how they are interrelated to one another within a school” (p. 70).

To address the recommendation of the NMSA, this study has several research questions:

1. To what degree are the 16 characteristics of Successful Schools for Young Adolescents (AMLE, 2010b) implemented in each school in this study?
2. How does the achievement of each school compare to similar schools?
3. What is the relationship between the presence of the characteristics of Successful Schools for Young Adolescents and student achievement?
4. Which combination of characteristics produces the highest level of student achievement within each group of similar schools?

To address these questions this study employed a quantitative research model. One set of data for this study included the performance index (PI) for each school in

English language arts and mathematics. Another set of data was obtained from a Likert scale survey, given to principals of the schools in this study. Analysis of the data made use of several approaches including descriptive statistics, Kendall's tau-b, Kendall's W, and regression analysis.

Research Context

The potential population of schools for this study was any school with a sixth grade located in the county of Westchester, New York. That county is just north of New York City and is contains both well-to-do cities and villages as well as some areas where the schools primarily serve poor and minority students including many students for whom English is a second language. Because of its status as a major city, the only one in Westchester, Yonkers is defined by New York state as a Big Five district. Other Big Five districts include Rochester, Syracuse, Buffalo, and New York City (New York State Education Department, 2012d). All Yonkers schools were excluded from this study because characteristics of Big Five districts are different from other districts. The sample of schools included in this study is described in the next section, but Yonkers schools were not considered for inclusion. The configuration of schools in this study included fifth through eighth grade schools and sixth through eighth grade schools.

Research Participants

In Westchester County, excluding Yonkers, 54 schools contain sixth grade. This study examined 21 of these schools. This was after schools that were part of similar school groups of three schools or less were excluded. The schools studied were quite varied in student need and district economic resources. To more precisely study the research questions schools were organized into groups where student needs and economic

resources were similar. In addition, school groups that contained schools exclusively from one district were excluded. That left 21 schools organized into four groups.

Principals who oversaw schools that included a sixth grade in the 2011-2012 school year, served as the participants in the survey portion of the study. In total, the survey included reports from 21 participants. Principals of schools in Westchester County that contained a sixth grade and belonged to a similar school group that contained at least four schools received invitations to participate. Each participant completed a 19 item electronic survey, which is in Appendix A. The participants were part of the Westchester Putnam Principals Association, a professional organization that included the researcher.

Data Collection Instruments

Analyses of two sources of data were used in this research study; sixth grade Performance Index (PI) data in English language arts and mathematics for each of the participating schools and survey data.

Performance Index (PI) data is available for all schools in the state of New York from the New York State Department of Education. PI is an overall indicator of school success in a content field. NYSED reports PI for an entire school for accountability purposes. For this study, the researcher generated PI data specifically for the sixth grade of each of the participating schools.

Each student that completes an assessment earns a scale score that is converted into a performance level from 1 to 4 (New York State Education Department, 2012). The lowest level of achievement, level one, is defined as below standard. Students that have earned a level two have met the basic standard. Proficient students earned a level three.

Level four students have exceeded the standard for proficiency (New York State Education Department, 2012c). Successful students are those that earned a level three or four.

Based on student performance levels, a PI is generated for each school. NYSED used the following formula to generate a performance index:

$$\frac{([\text{number of students that earned a level 1} \times 0] + [\text{number of students that earned a level 2} \times 100] + [\text{number of students that earned a level 3} \times 200] + [\text{number of students that earned a level 4} \times 200])}{\text{Total number of students tested}} = \text{performance index.}$$

The number of students for each performance level is found in the New York State Education Department database (New York State Education Department, 2012c).

The independent variable in this study was the presence of characteristics of successful schools. To obtain data on this variable, the creation of a survey permitted principals to provide data for their respective schools. The survey asked principals to indicate the level of implementation of the 16 characteristics of Successful Schools for Young Adolescents (AMLE, 2010). School principals responded electronically. The survey, which used Likert-style items, is in Appendix A. Using the survey, principals provided their perspective on the presence of the 16 characteristics. Each question permitted the respondent to also give an open-ended response in addition to the Likert scale response. This survey is an original data collection instrument that was developed for this study.

The survey asked principals to judge the degree of implementation in their school of the 16 characteristics of Successful Schools for Young Adolescents. There are 19 items in total organized into three sections. The first of these sections, which is named,

curriculum, instruction, and assessment (CIA), included five items. The second, *leadership and organization* (LO), had five items. The final section, *culture and community* (CC) included six items. In sections two and three of the survey, a Likert scale with four choices was used. The choices from least to greatest were *disagree*, *somewhat disagree*, *agree*, and *strongly agree*. Section one used a Likert scale with four choices. Labeled *few classrooms*, *many classrooms*, *most classrooms*, and *all classrooms*, these choices ranged from one to four. A respondent could also have provided an open-ended comment after each item on the survey.

In the interest of obtaining precise and accurate data from the respondents, some items in the survey use different response choices. For example, item seven in the second section followed a different format than other items in that section. Its choices from one to four are labeled *rarely*, *occasionally*, *most of the time*, and *always*. Finally, items 1, 8, and 10 did not ask specific questions about characteristics. Item 1 asked participants to identify their school and their title. Items 8 and 10 asked about the length of time the school's mission and principal had been in place. Using a Likert scale, respondents may reply *less than one year*, *one to three years*, *three to five years*, or *more than five years*.

In an effort to enhance the reliability and validity of the survey, several evaluations were undertaken. One of the issues was content validity. Taken directly from the Association for Middle Level Education (2010b) publication on the 16 characteristics of Successful Schools for Young Adolescents, the language in the survey describes those characteristics verbatim. To further support the content validity, eight educators in Westchester and Putnam counties in New York completed draft surveys in part to ascertain its content validity. Huck (2012) wrote that researchers need expert feedback to

enhance an instruments' validity. The draft survey participants, one superintendent, two principals, and five assistant principals, completed the survey to provide feedback for improving it. All participants had experience working with middle level schools that include a sixth grade. The constructive feedback of educators who completed the draft survey allowed the researcher to alter the survey to its current form.

Finally, two experienced researchers with expertise in education also reviewed the survey and made recommendations to enhance validity and reliability. The researchers, who were also members of the dissertation committee, judged the final draft of the survey to be an appropriate and effective method for collecting data on the characteristics of middle schools.

Data Analysis

Research question one. *To what degree are the 16 characteristics of Successful Schools for Young Adolescents implemented in each school in this study (AMLE, 2010b)?* Addressing this question called for an overall measure of the degree to which the 16 characteristics have been implemented in a school. Therefore, an Implementation Index (IX) was developed. The principal ratings from each item on the survey produced a score from 1 to 4. The IX was calculated by summing the scores from each survey item with the exception of items 1, 8, and 10, which were not part of the 16 characteristics. The IX has a range of 16 to 64. This information was used to address research questions 3 and 4 as well as question 1. For question 1 the data was used to produce table and graphical depictions as well as descriptive statistics for each similar school group and aggregate scores for all 21 schools in the study.

Labels describing the level of implementation were developed. These labels examined all 16 characteristics. A label of *minimal implementation* was placed on schools that reported an IX of 16-39. *Beginning* schools reported an IX of 40-49. Reported IX of 50-59 identified a school as *progressing*. *Fully implemented* schools reported IX in excess of 59. These findings were reported graphically and descriptively in tables.

Research question two. *How does the achievement of each school compare to others in their similar school group?* This question asked whether the academic performance of schools within a group was similar or dissimilar to that of other schools in the same group. Labels provided context for each school’s performance. The labels, below expectations, met, expectations, exceeded expectation, and far exceeded expectations reflected a school’s PI in relation to the state developed benchmark for achievement, Effective Annual Measurable Objective (E-AMO). The labels and corresponding PI are indicated in Table 3.1.

Table 3.1

Performance Index Ranges and School Performance Levels

Assessment	Target E-AMO	Below Expectations	Met Expectations	Exceeded Expectations	Far Exceed Expectations
ELA	145	<145	145-155	156-175	>175
Mathematics	160	<160	160-174	175-190	>190

Note. The E-AMO varies for each school based on its population. The target E-AMO reflects the mean E-AMO for the schools in this study.

With only one data point for PI ELA and PI Math from each school in a group, it is not possible to do statistical comparisons such as a t-test or ANOVA to determine if PI differences between schools are statistically significant. Instead, the patterns of school-based PI score were graphically depicted. The conclusions are tentative.

Research question three. *What is the relationship between the presence of the characteristics of the Successful Schools for Young Adolescents and student achievement?* To identify the impact of the presence of each characteristic on a school's achievement, a comparison of IX for each item to the PI for each school, generated a correlation (Kendall's tau-b). It contains a correction for tied ranks (Huck, 2012) in the dependent variable (PI). A correlation matrix was used to display the results with statistical significance at the .01 level appearing boldfaced. This level, as opposed to the more lenient .05 level, was selected because the calculation of multiple coefficients inflates the likelihood of Type I errors (e.g., the null hypothesis is rejected when it is actually true). Four correlation matrices are presented in Chapter 4. One represented all 16 characteristics. The other three focused on each cluster and are presented using tables. A further analysis of the achievement data using Kendall's W or the Coefficient of Concordance permitted the development of a clearer picture of the findings of the study.

Research question four. *Which combination of characteristics produces the highest level of student achievement within each similar school group?* This question asks not only whether each of the 16 characteristics are associated with the dependent variables (PI for ELA and mathematics) but what is the magnitude of the relationships between each characteristic or combination of characteristics and the dependent variables. There are a number of parametric multiple regression procedures for addressing this research

question but they are based on the assumption that the data or derivatives from the data are at least interval quality and normally distributed. The dependent variable data may meet those criteria but the independent variable will probably not meet those criteria. For each characteristic the data will range from 1 to 4 and is based on responses to Likert-scale items. To ensure an accurate representation of the data, an analysis that utilized a multiple linear regression was to be utilized. However, after answering research question three, it was learned that the characteristics, which were treated as 16 independent factors were statistically interdependent and therefore unfit for a multiple regression analysis (Huck, 2012).

To address this shortcoming in the data, single regression analysis was run on each of the three clusters. This method, treating each cluster as independent factors, sought to answer the original question by treating each cluster as a combination of characteristics.

Summary of the Methodology

To complete this quantitative study a plan of action was developed. The process to develop the reliability and validity of the survey instrument occurred in December 2012. This process included having educators with middle level education experience take the survey and provide feedback to the researcher with recommendations for improvement. Emails sent to educators with the appropriate expertise generated 21 responses of a possible 32. In addition, the researcher developed a host website with a link to the survey. The draft survey participants previewed the researcher's webpage to share with others to assist in the process of developing the reliability and validity of this original research tool. Finally, established scholars on middle level education examined the survey and provided feedback to the researcher.

The PI data for this study was generated and organized in October 2012. This included obtaining the achievement data for each school from NYSED. The researcher converted the school specific data to a sixth grade specific PI. The coding of each similar school group and each school permitted each school to retain autonomy for the purposes of this study. Master lists containing the identity of each school is maintained by the researcher and will not be included in the study.

The surveying of the participating school principals occurred in March 2013 and conclude in April 2013. This process began with an email from the researcher to the participating principal and was followed up with an email and/or phone call from the researcher to promote a higher return rate.

The collected survey data permitted the researcher to complete the analysis of the data. The researcher maintained, in electric and paper form, a master list of participants and information received.

Chapter 4: Results

This study was designed to identify successful sixth grades in Westchester County, NY and their relationship between them and the presence of the characteristics of successful schools for young adolescents (AMLE, 2010). This study evaluated archival student achievement data in English language arts and mathematics. School principals generated survey data for this study, which measured the presence of the characteristics of successful schools for young adolescents in the 21 participating schools. Separating the schools into similar schools groups helped to reduce the impact of confounding variables such as differences in student need and district resources. With concerns raised about the readiness of students entering college and the workplace after high school, there is a need to identify best practices for educating students. United States Education Secretary Arne Duncan stated his concern about the lack of research to guide decision making for students in middle level grades (United States Department of Education, 2011). In response to a call from the National Middle School Association (2003b) to develop a study that measures the impact of middle school characteristics to guide policy, this quantitative study addressed four research questions aimed at increasing the depth of knowledge about practices that benefit students in middle level grades.

Data Analysis and Findings

This study addressed four research questions:

1. To what degree are the 16 characteristics of Successful Schools for Young Adolescents implemented in each school in this study?

2. How does the achievement of each school compare to similar schools?
3. What is the relationship between the presence of the characteristics of the Successful Schools for Young Adolescents and student achievement?
4. Which combination of characteristics produces the highest level of student achievement within each group of similar schools?

Research question one. *To what degree are the 16 characteristics of Successful Schools for Young Adolescents implemented in each school in this study?* The survey for this study used a Likert-scale to measure responses about the degree to which each school in the survey implemented the characteristics of Successful Schools for Young Adolescents. The survey is available in Appendix B (AMLE, 2010). The characteristics were grouped into three clusters. The first five characteristics were grouped into the *curriculum, instruction, and assessment* (CIA) cluster. The second five characteristics were grouped in the *leadership and organization* (LO) cluster. The final six characteristics were clustered as *culture and community* (CC). Responses to the first six characteristic questions in the survey were: few classrooms (1), many classrooms (2), most classrooms (3), and all classrooms (4). Characteristic seven used the following responses: rarely (1), occasionally (2), most times (3), and always (4). For characteristic questions eight through 16, possible responses were: disagree (1), somewhat disagree (2), agree (3), and strongly agree (4).

Principals that participated in the study provided a wide variety of responses. The survey responses were separated into four frequency bands to better explain the findings. Schools that replied with an implementation score of less than 30 were labeled as *Minimal Implementation*. Schools with an Implementation Index of 40 to 49 were

labeled as *Beginning*. *Progressing* schools reported an Implementation Index of 50 to 59. *Fully implemented* schools reported an Implementation Index of 60 to 64. Figure 4.1 illustrates how schools were categorized. Full Implementation Indices for all schools in the study are listed in Appendix C.

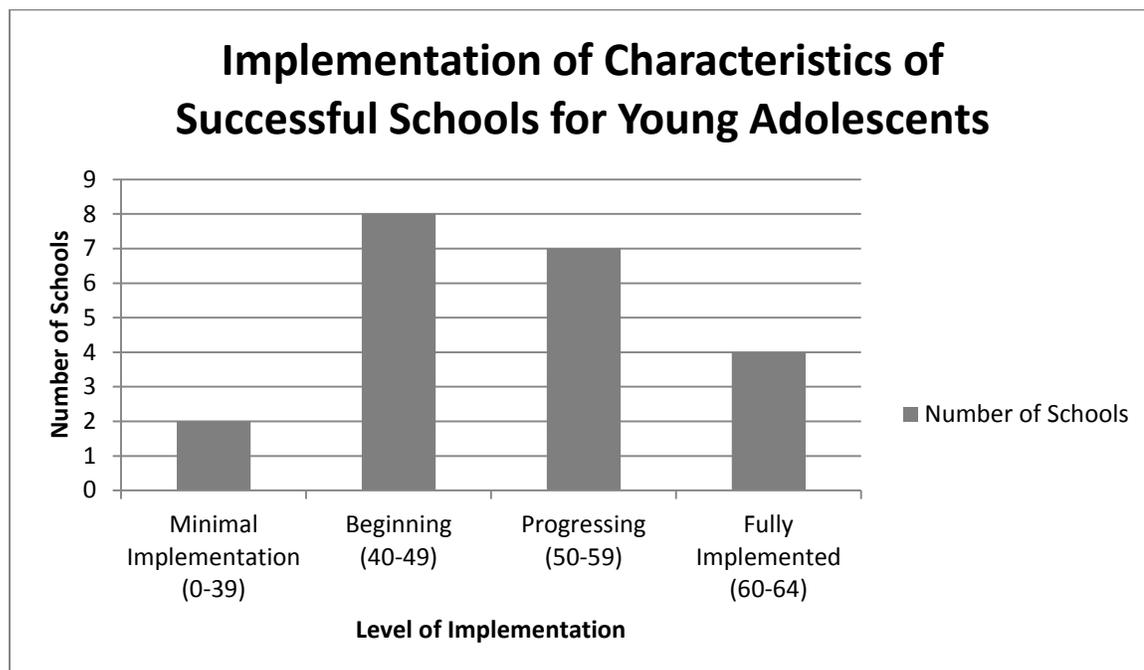


Figure 4.1. Frequency table. This table illustrates the principals’ responses to the survey that measured the degree of implementation of the 16 characteristics of successful schools for young adolescents.

Figure 4.1 illustrates the IX for each school in this study. However, to develop a better understanding of the presence of the characteristics in the schools in this study, a breakdown of how the schools reported by each of the three clusters was conducted. The first five characteristics were clustered as curriculum, instruction, and assessment (CIA). The next five were clustered as leadership and organization (LO). The final six were

clustered as culture and community (CC). Differences were found in the level of implementation by cluster as compared to the 16 characteristics as a group.

In examining the level of implementation of all 16 characteristics, there were two schools identified as minimal implementation schools. This compares to four schools that minimally implemented the CIA characteristics, two that minimally implemented LO characteristics, and four that minimally implemented CC characteristics. The variety in the level of minimal implementation further states the differences between the schools in this study.

Eight schools were found to have implemented the 16 characteristics of Successful Schools for Young Adolescents at a beginning level. In implementing the CIA characteristics, nine schools were identified as beginning. Three schools implemented that CC characteristics at the beginning level. Two schools implemented the LO characteristics at the progressing level.

Seven schools were found to have implemented the 16 characteristics at the progressing level. In more closely examining the results, most schools were found at the progressing level for the LO cluster, with 15. This was closely followed by the CC cluster with eight schools. CIA was the cluster with the least schools at the progressing level with four schools.

Overall, four schools of the 21 in this study were found to have fully implemented the 16 characteristics of Successful Schools for Young Adolescents. The CC cluster led with six schools that identified as having fully implemented these characteristics. CIA was second with four schools that fully implemented. Two school fully implemented the LO characteristics. These findings are reported in Figure 4.2

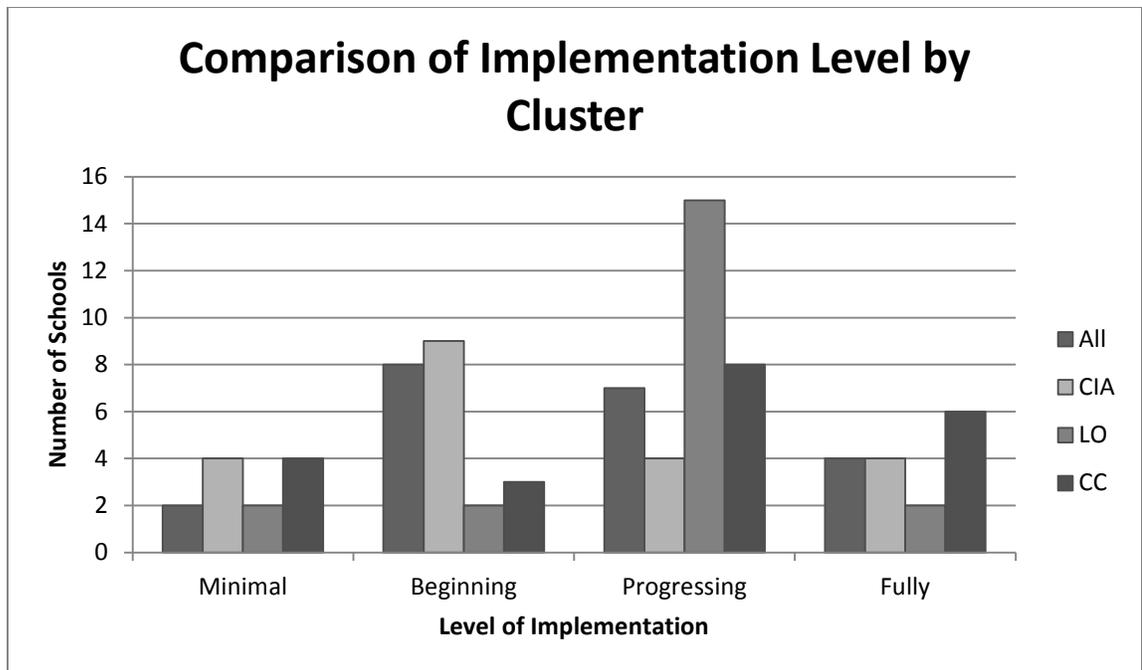


Figure 4.2. This figure illustrates the level of implementation for the characteristics of Successful Schools for Young Adolescents. For comparison, the results for all 16 characteristics are compared to level of implementation in each of the three clusters: Curriculum, Instruction, and Assessment (CIA), Leadership and Organization (LO), and Culture and Community (CC).

The level of implementation varied significantly as indicated by results of an analysis by cluster. While the study revealed that most schools are categorized as beginning (8 schools), more than half of the schools identified as either progressing or fully implemented (11 schools). When a more thorough analysis of the level of implementation occurred, it showed results that were different between the three clusters. For curriculum, instruction, and assessment, the majority of schools (13) have minimally implemented or are at the beginning stages of implementation. Leadership and organization was the cluster that had the most responses which resulted in either progressing or fully implemented designation with 17 schools. 13 schools identified as

progressing or fully implemented for the third and final cluster, Culture and Community.

These findings, which are listed in Table 4.1, were more closely examined with the fourth research question which correlated each cluster with student achievement.

Table 4.1

Grouped Frequency Distribution: Characteristics of Successful Schools for Young Adolescents

	All Characteristics	Curriculum, Instruction, and Assessment	Leadership and Organization	Culture and Community
Minimally Implemented	2	4	2	4
Beginning	8	9	2	3
Progressing	7	4	15	8
Fully Implemented	4	4	2	6

Note. 21 schools participated in this study. This grouped frequency depicts how their responses were organized for all 16 Characteristics and for each of the three clusters.

Research question two. *How does the achievement of each school compare to similar schools?* All the data in this section is descriptive rather than inferential. That is because there were only two performance measures for each school (ELA and Math) and without additional data points it was impossible to make inferences about whether there are statistically significant differences between the academic performance across schools. In addition, the schools were divided into groups that ranged in size from four to eight

schools. Statistical comparisons across groups were not legitimate because the schools in each group differed in several meaningful ways from the schools in other groups such as student need and district resources. Statistical comparisons within groups were not viable because of the small number of schools in each group and the availability of only one performance score for ELA and another for Math. Had individual scores, rather than school scores, been available an analysis of variance could have been run to identify differences between schools in each group, using the scores of all the students in the sixth grade at that school. Those scores were not available, however, and this section presents only descriptive data.

For the purposes of accountability reporting, the New York State Education Department (NYSED) uses a performance index (PI) for standardized assessments at the middle school level. The PI was developed by assigning a score to each student dependent upon their level of performance on each assessment. The following formula was used to generate the PI for each school:
$$\frac{[\text{number of students that earned a level 1} \times 0] + [\text{number of students that earned a level 2} \times 100] + [\text{number of students that earned a level 3} \times 200] + [\text{number of students that earned a level 4} \times 200]}{\text{Total number of students tested}} = \text{performance index (NYSED, 2012d)}$$
. The highest PI a school might have earned would be 200. The lowest would have been zero.

To aid the reader in understanding the presentation of the performance of each school in this study, a series of labels were developed. In developing accountability for schools, NYSED developed the Effective Annual Measurable Objective (E-AMO). The E-AMO is the benchmark a school must meet in order to be considered as a school that made Adequate Yearly Progress (AYP) or satisfactory achievement growth. In

determining the level of achievement, an interpretation of each school’s performance and its relationship to the E-AMO earned each school a label. These labels are depicted in Table 4.2.

Table 4.2

Performance Index Ranges and School Performance Levels

Assessment	Target E-AMO	Below Expectations	Met Expectations	Exceeded Expectations	Far Exceed Expectations
ELA	145	<145	145-155	156-175	>175
Mathematics	160	<160	160-174	175-190	>190

Note. The E-AMO varies for each school based on its population. The target E-AMO reflects the mean E-AMO for the schools in this study.

School Group A contained four schools whose performance was very similar to other schools in the group. All four schools far exceeded the expectations for performance on the ELA assessment. The target E-AMO of 145 was cleared by no less than 33 PI points by the lowest performing school in the group. In mathematics, the lowest performing school in mathematics met the expectations for student performance. The other three schools, with PI in excess of 175 exceeded expectations. The results for each school were presented numerically in Table 4.3. A graphical depiction that highlights each school’s performance in comparison with others in the group is displayed in Figure 4.3.

Table 4.3

Group A – Performance Index ELA and Mathematics

School	ELA	Mathematics
	PI	PI
1	178	186
2	188	174
3	178	187
4	183	188

Note. PI = Performance Index.

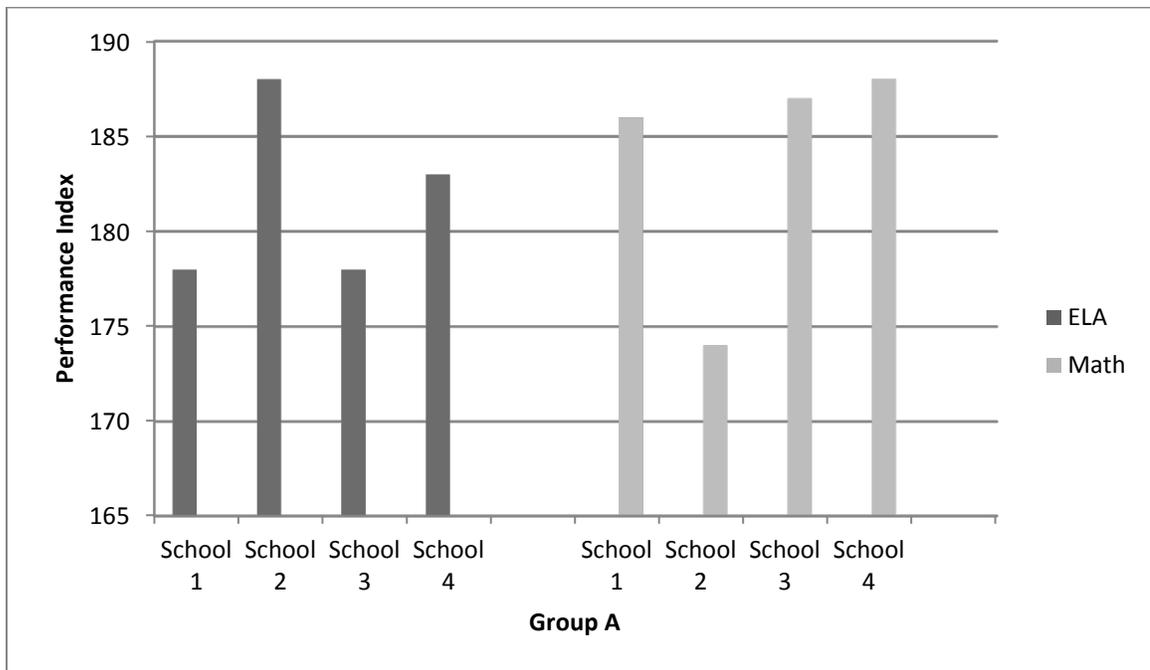


Figure 4.3. Performance index for each school in group A. Two sets of bars are included to allow a comparison of each school’s performance in both ELA and mathematics against the group.

The performance of schools within Group B varied more than those in Group A. On the ELA assessment, schools B1 and B3 far exceeded the expectations. Schools B2, B4, and B5 exceeded the expectations for the group. In mathematics the schools did not perform as consistently. While no schools fell below expectations, school B4 only met expectations. Schools B2, B3, and B5 exceeded expectations. School B1 was the sole school to earn the far exceeds expectation label. The results for the schools in this group were depicted in Table 4.4 and Figure 4.4.

Table 4.4

Group B – Performance Index ELA and Mathematics

School	ELA PI	Mathematics PI
1	189	192
2	165	180
3	183	187
4	169	174
5	174	189

Note. PI = Performance Index.

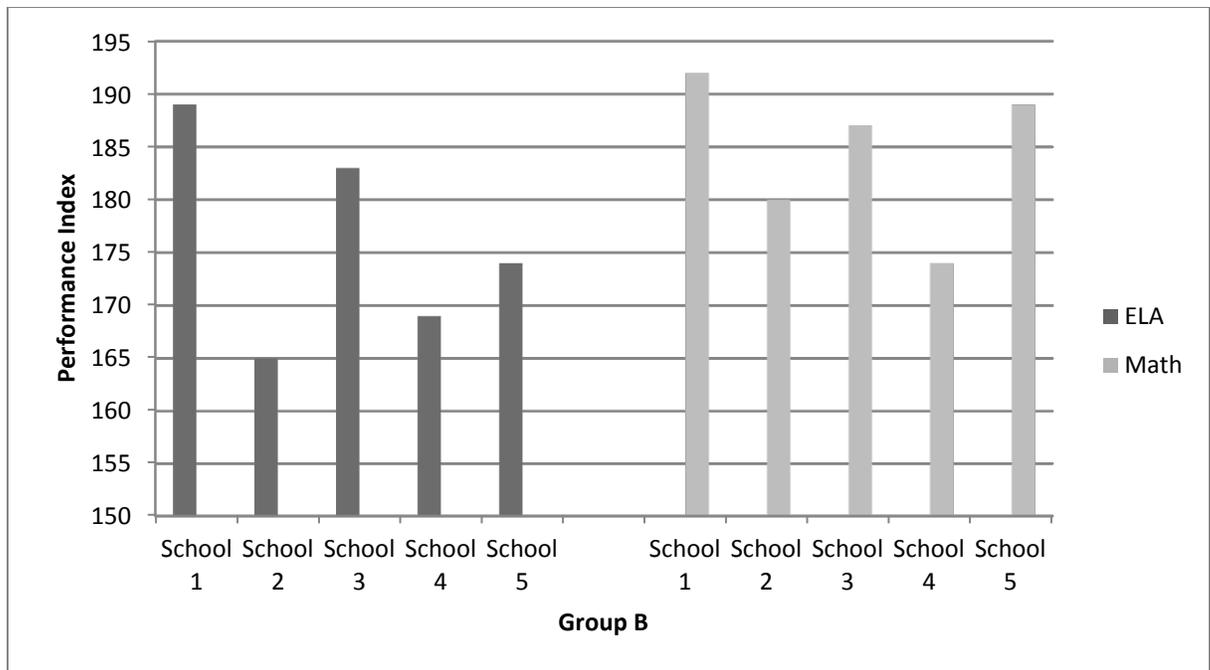


Figure 4.4. Performance index for each school in group B. Two sets of bars are included to allow a comparison of each school’s performance in both ELA and mathematics against the group.

The performance of Group C, the largest group in this study, was similar to the performance of Group A. All of the schools in this group earned no less than exceeded expectations for both assessments. Schools C1, C4, and C8, far exceeded expectations in both ELA and mathematics. The other five schools in the group far exceeded expectations in mathematics and exceeded expectations in mathematics. The results for this group were presented in Table 4.5 and Figure 4.5.

Table 4.5

Group C – Performance Index ELA and Mathematics

School	ELA	Mathematics
	PI	PI
1	187	192
2	187	187
3	180	185
4	183	199
5	182	182
6	188	189
7	177	182
8	179	193

Note. PI= Performance Index.

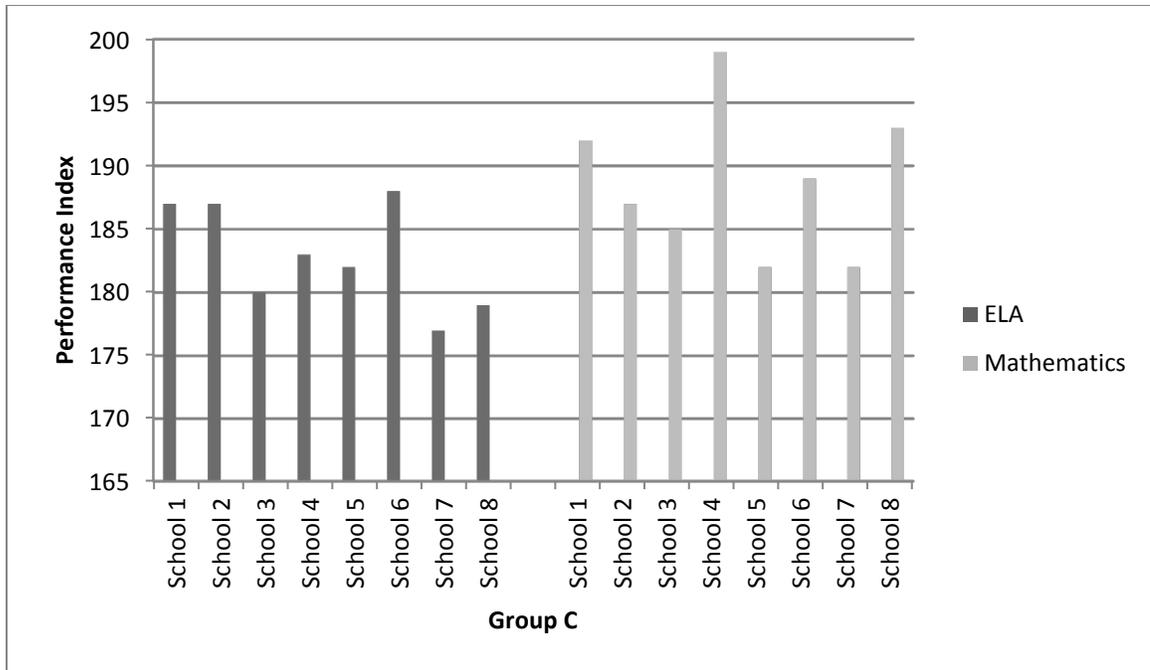


Figure 4.5. Performance index for each school in group C. Two sets of bars are included to allow a comparison of each school’s performance in both ELA and mathematics against the group.

Group D consisted of four schools for the purpose of this study. Schools D1 and D2 met expectations on the both the ELA and mathematics assessments. Schools D3 and D4 were below expectations on both the ELA and mathematics assessment. The results for this group were illustrated in Table 4.6 and Figure 4.6.

Table 4.6

Group D – Performance Index ELA and Mathematics

School	ELA	Mathematics
	PI	PI
1	148	163
2	145	172
3	142	159
4	139	158

Note. PI= Performance Index.

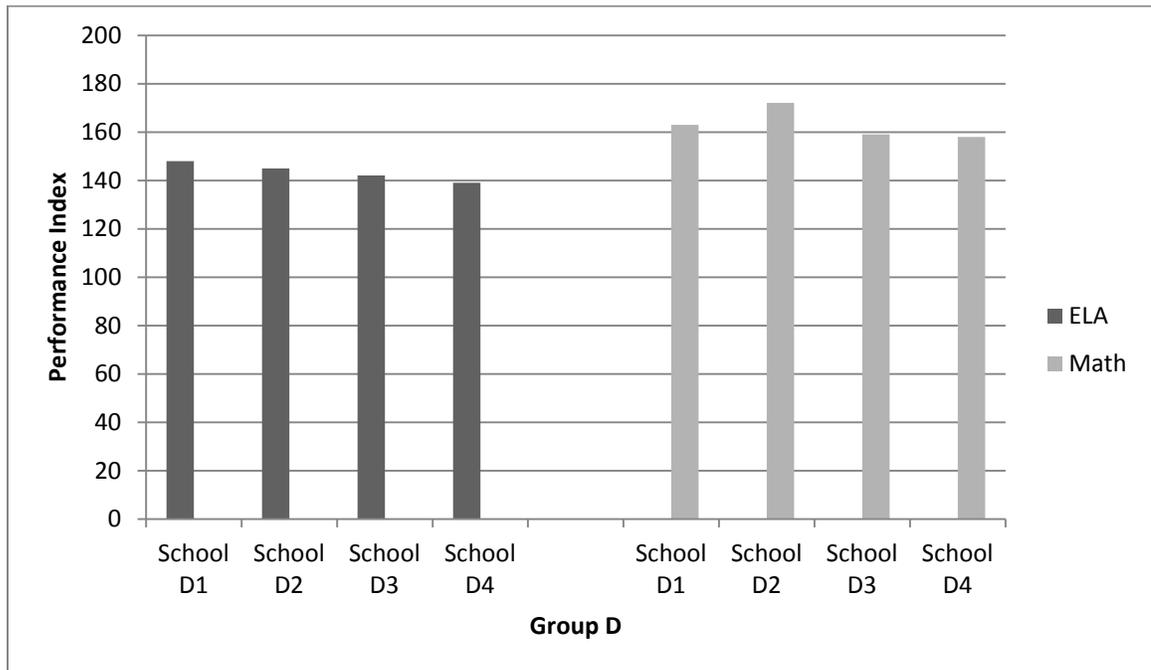


Figure 4.6. Performance index for each school in group D. Two sets of bars are included to allow a comparison of each school’s performance in both ELA and mathematics against the group.

Research question three. What is the relationship between the presence of the characteristics of the Successful Schools for Young Adolescents and student achievement? In the available literature the 16 characteristics are often treated as independent of each other. In other words, it may be assumed a school would possess characteristic CIA1 but not characteristic CIA4. Independence also implies that the presence of a characteristic does not determine or influence whether a school has one or more of the other characteristics. AMLE (2010) identified three clusters of characteristics; curriculum, instruction, & assessment, leadership & organization, and community and culture. Clustering the characteristics suggests that the characteristics are associated or related in some way. While individual characteristics correlate to characteristics outside of their respective clusters, there is a trend with items correlating with multiple characteristics within their respective clusters. A Kendall's tau-b analysis of the results reported by the 21 principals in this study found many correlations between the 16 characteristics, as indicated in Table 4.7.

Table 4.7

Correlation Matrix – Characteristics of Successful Schools for Young Adolescents

	CIA 1	CIA 2	CIA 3	CIA 4	CIA 5	LO 6	LO 7	LO 8	LO 9	LO 10	CC 11	CC 12	CC 13	CC 14	CC 15	CC 16
CIA 1	-	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○
CIA 2		-	●	●	●	●	○	●	○	●	○	○	○	●	○	○
CIA 3			-	●	●	○	○	○	○	○	○	○	○	●	○	○
CIA 4				-	●	○	○	●	○	○	○	○	○	●	○	○
CIA 5					-	○	○	○	○	○	○	○	○	●	○	○
LO 6						-	○	○	○	○	○	○	○	○	○	●
LO 7							-	●	○	○	○	○	○	○	○	○
LO 8								-	○	○	○	○	○	○	○	○
LO 9									-	●	○	○	○	○	●	●
LO 10										-	○	●	○	○	○	○
CC 11											-	●	○	○	○	○
CC 12												-	●	●	●	○
CC 13													-	●	●	○
CC 14														-	●	●
CC 15															-	●
CC 16																-

Note. Statistically significant findings at the .05 level (two-tailed) are boldfaced.

This finding led to a series of analyses that determined whether it was appropriate or not to treat the 16 characteristics as independent or related measures. Tables 4.8 through 4.10 illustrate the correlations, the same as reported in Table 4.7, found utilizing Kendall’s tau-b for the level of implementation of each characteristic against one another. The tables were separated by cluster to better illustrate the intra-cluster relationship between the characteristics.

Table 4.8

Correlation Matrix – Curriculum, Instruction, and Assessment Characteristics

	CIA	CIA	CIA	CIA	CIA	LO	LO	LO	LO	LO	CC	CC	CC	CC	CC	CC
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CIA 1	-	.735	.631	.784	.601	.254	.565	.629	.130	.270	.241	.271	.340	.527	.097	.129
CIA 2	-	-	.701	.747	.688	.565	.463	.637	.425	.572	.180	.344	.394	.708	.275	.463
CIA 3	-	-	-	.606	.574	.268	.386	.367	.116	.419	.041	.229	.340	.596	.029	.195
CIA 4	-	-	-	-	.664	.448	.506	.682	.349	.385	.407	.405	.334	.630	.239	.297
CIA 5	-	-	-	-	-	.365	.130	.342	.373	.389	.263	.310	.357	.680	.198	.356

Note. Statistically significant findings at the .05 level (two-tailed) are boldface.

Table 4.9

Correlation Matrix – Leadership and Organization Characteristics

	CIA	CIA	CIA	CIA	CIA	LO	LO	LO	LO	LO	CC	CC	CC	CC	CC	CC
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LO 6	.254	.565	.268	.448	.365	-	.391	.368	.394	.464	.380	.415	.184	.522	.253	.541
LO 7	.565	.463	.386	.506	.130	-	-	.716	.085	.100	.146	.229	.255	.369	.212	.364
LO 8	.629	.637	.367	.682	.342	-	-	-	.354	.380	.270	.337	.312	.393	.378	.353
LO 9	.130	.425	.116	.349	.373	-	-	-	-	.628	.455	.407	.313	.499	.553	.591
LO 10	.270	.572	.419	.385	.389	-	-	-	-	-	.228	.535	.429	.515	.466	.504

Note. Statistically significant findings at the .05 level (two-tailed) are boldface.

Table 4.10

Correlation Matrix – Culture and Community Characteristics

	CIA	CIA	CIA	CIA	CIA	LO	LO	LO	LO	LO	CC	CC	CC	CC	CC	CC
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CC 11	.241	.180	.041	.407	.263	.380	.146	.270	.455	.228	-	-	-	-	-	-
CC 12	.271	.344	.229	.405	.310	.415	.229	.337	.407	.535	.581	-	-	-	-	-
CC 13	.340	.394	.340	.334	.357	.184	.255	.312	.313	.429	.491	.647	-	-	-	-
CC 14	.527	.708	.596	.630	.680	.522	.369	.393	.499	.515	.377	.614	.745	-	-	-
CC 15	.097	.275	.029	.239	.198	.253	.212	.378	.553	.466	.302	.586	.545	.540	-	-
CC 16	.129	.463	.195	.297	.356	.541	.364	.353	.591	.504	.240	.456	.529	.649	.597	-

Note. Statistically significant findings at the .05 level (two-tailed) are boldface.

The above tables indicate that there are a number of statistically significant correlations within the CIA and CC clusters that suggest dependence rather than independence between the characteristics. This interdependence violates one of the assumptions on multiple regression procedures and the plan to analyze the characteristics data using that procedure was abandoned. An alternative was explored. The 16 characteristics were organized into three clusters by the developers of this system and the possibility they could be used as a foundation for analysis was explored. An initial question was whether these clusters were actually clusters in a statistical sense. This question was addressed by comparing the means of the intracluster correlations with the

means of the intercluster correlations. If the clusters were statistically meaningful, the intracluster correlations should be higher than the intercluster correlations. A calculated means within the This finding supported further analysis. A t-test was run. Prior to the t-test, Levene's test, which evaluates homogeneity of variance, was not statistically significant, indicating the variance of the inter- and intracorrelations could be treated as equivalent. The supported the use of a t-test for comparison.

To test whether correlations between items in the CIA cluster were higher than correlations between CIA items and non-CIA items, a series of t-tests were calculated. One set of data was the correlations between a CIA item and other CIA items. The other set of data was the correlations between that CIA item and each item that was not in the CIA cluster. The t-tests were all statistically significant which indicated there was a stronger relationship between items in the CIA cluster than between CIA items and non-CIA items. Table 4.11 shows the findings for the CIA cluster. This finding supports the use of the sum of CIA item scores as a composite measure of implementation because all five characteristics are associated with each other more than they are with characteristics from other clusters.

Table 4.11

t-tests Comparing Correlations Between In-Cluster and Other Cluster Characteristics for CIA Characteristics

CIA Characteristic	t-test	Levene test	Degrees of Freedom	One-Tailed Statistical Significance
1	3.856	Not Significant	13	<.001
2	3.220	Not Significant	13	<.001
3	3.977	Not Significant	13	<.001
4	3.774	Not Significant	13	<.001
5	4.002	Not Significant	13	<.001

While the analysis between the CIA characteristics indicated that there was a statistically significant relationship between CIA characteristics, the same was not found within the LO cluster. None of a series of t-tests like the ones calculated on the CIA items were statistically significant (see Table 4.12).

Table 4.12

t-tests Comparing Correlations Between In-Cluster and Other Cluster Characteristics for LO Characteristics

LO Characteristic	t-test	Levene test	Degrees of Freedom	One-Tailed Statistical Significance
6	.338	Not significant	13	Not Sig.
7	-.058	Not significant	13	Not Sig.
8	.303	Not significant	13	Not Sig.
9	-.175	Not significant	13	Not Sig.
10	-.427	Not significant	13	Not Sig.

The results of the t-tests for the characteristics within the CC cluster were mixed. indicated similar results of both the CIA cluster and LO cluster. Statistical significance was found for characteristics CC 12, CC 13, and CC 15, which indicate that these characteristics are more closely related to the CC cluster than to other characteristics of Successful Schools for Young Adolescents. However, as Table 4.13 shows characteristics CC 11, CC 14, and CC 16 were not more highly correlated with other CC items than with non-CC items. This finding suggests that treating the CC cluster as a meaningful unit of measure is questionable. Both LO and CC cluster scores may not be meaningfully interpreted because individual items in those clusters are not consistently correlated at a higher level with other items in the cluster than with items outside the cluster. However, the CIA cluster does seem to “hang together” as a meaningful unit of measure.

Table 4.13

t-tests Comparing Correlations Between In-Cluster and Other Cluster Characteristics for CC Characteristics

LO Characteristic	t-test	Levene test	Degrees of Freedom	One-Tailed Significance
11	.690	Not significant	13	Not Sig.
12	4.688	Not significant	13	<.0005
13	6.000	Not significant	13	<.0005
14	.623	Not significant	13	Not Sig.
15	3.000	Not significant	13	<.01
16	1.380	Not significant	13	Not Sig.

Analysis of data relating characteristics to academic performance. One of the most important questions addressed by this research focused on the prediction of academic success. Do all the 16 measures of academic quality predict academic success? Do many, but not all? Do only a few predict success? This question was addressed by a series of analyses. Many different procedures are available for addressing this research question but for many there is a long list of requirements the data must meet before the procedure can be appropriately used. The data available in this study had three major limitations that must be considered when selecting an analysis procedure. The first was that there is data from only 21 schools. The number of participating schools is too small for several types of data analyses. A further limitation in the data was that the quality measures had a limited range of one to four and should thus probably be treated as ordinal data. Many procedures require interval data. Finally, the academic data is

interval in nature and thus is not suited to analyses where frequencies at each level are used to calculate the statistic. In the case of the interval achievement data, treating it as ranked data would produce too many “empty cells” which are also called cells with “0 frequencies.”

To deal with the issues inherent in the data, the first step in answering this last research question was to:

1. Redefine the 16 measures of quality as “continuous” rather than nominal (ranked) data. Most data treated as continuous is not actually measured in such a way that a score can be obtained at any point along the range of the data. For example, a 50 item multiple choice test has a range of possible scores from 1 to 50 if each correct response earns one point. The overall score on the test is treated as interval data in many, if not most, studies, but it is not possible for a student to obtain a score of 31.2 or 45.6. Only whole number scores are possible which means this is discrete rather than continuous data. It is treated as continuous and interval data because researchers assume the underlying variable being measured (e.g., knowledge about a particular topic) is continuous and interval. even if the actual data is discrete. The same assumption was made for the quality measures in this study and the SPSS level of measurement quality was changed from ordinal to scale.

2. Categorize the achievement data into six levels so that there would be no levels of those variables with “empty fields” or “0 frequencies.” The achievement data for English language arts as well as mathematics was ranked into six levels as indicated below and the data was defined as scale in SPSS:

- | | | |
|----|---------|---|
| a. | 139-149 | 1 |
| b. | 150-159 | 2 |

c.	160-169	3
d.	170-179	4
e.	180-189	5
f.	190-199	6

Once these two transformations of the data were accomplished, a Kendall's W was calculated on the data. Kendall's W is also called the coefficient of concordance and it is a measure of the average correlation between three or more variables (Huck, 2012).

Using the six-level English-Language Arts data, a Kendall's W of .321 was obtained (with a Chi-Square of 107.9 with 16 degrees of freedom) which was a low but statistically significant coefficient of concordance ($p < .01$, two-sided). This indicates there was a relationship between the 16 characteristics of Successful Schools for Young Adolescents and ELA achievement at a school. The higher the score on implementation of the 16 characteristics, the higher the achievement ranking of the school.

Using the six-level Mathematics data, a Kendall's W of .405 was obtained (with a Chi-Square of 136.1 with 16 degrees of freedom) which was a relatively low but statistically significant coefficient of concordance ($p < .01$, two-sided).

The results indicate there was a modest but statistically significant correlation between the measures of quality and the measures of achievement in the 21 schools that participated in this study.

Research question four. *Which combination of characteristics produces the highest level of student achievement within each group of similar schools?* Originally, a multiple regression analysis was the method chosen to address this question. However, the findings of the third research question indicated the assumed independence of each characteristic did not exist, rendering a multiple regression analysis an inappropriate

method of analysis to answer this question. The correlation of the 16 characteristics which served as predictor variables violated several assumptions about the data.

“Multicollinearity exists if two or more independent variables are too highly correlated with each other. This undesirable situation causes inferences about individual predictor variables to be untrustworthy. Accordingly, regression assumes that multicollinearity does not exist” (Huck, 2012, p. 400).

Because multicollinearity in the data argued against the use of multiple regression procedures, a weaker but simpler analysis was run. That was a simple regression analysis. The analysis required the development of an overall implementation index (OIX). The OIX took the implementation index reported by each principal in the study (IX) and divided it by 16 resulting in the OIX reported in Table 4.14. A graphical representation of the OIX is found in Figure 4.7.

Table 4.14

*Implementation Index by Cluster, Overall Implementation Index and Performance Index
for All Schools in the Study*

School	Implementation Index by Cluster			OIX	Performance Index	
	CIA	LO	CC		ELA	Mathematics
A1	3.4	3.6	2.8	3.25	178	186
A2	1.4	2	1.7	1.69	188	174
A3	2.4	2.6	3.2	2.75	178	187
A4	3.6	3.2	2.5	2.75	183	188
B1	4	3.8	3.8	3.88	189	192
B2	2.6	3.2	2.8	2.88	165	180
B3	2.4	3.2	3.7	3.13	183	187
B4	2.6	3.6	3.2	3.13	169	174
B5	3	3.2	3.2	3.13	174	189
C1	3.8	3.6	3.8	3.75	187	192
C2	2.8	3.4	3.2	3.13	187	187
C3	2.8	3.8	3.5	3.38	180	185
C4	3	2.8	2.5	2.75	183	199
C5	4	3.4	3.8	3.75	182	182
C6	2.6	3	3	2.88	188	189
C7	2.6	3.2	3.7	3.19	177	182
C8	2.2	2	2	2.06	179	193
D1	2.6	3.2	3	2.94	148	163
D2	4	3.8	3.7	3.81	145	172
D3	2.2	2.8	3.5	3.06	142	159
D4	2.8	3	2.8	2.88	139	158

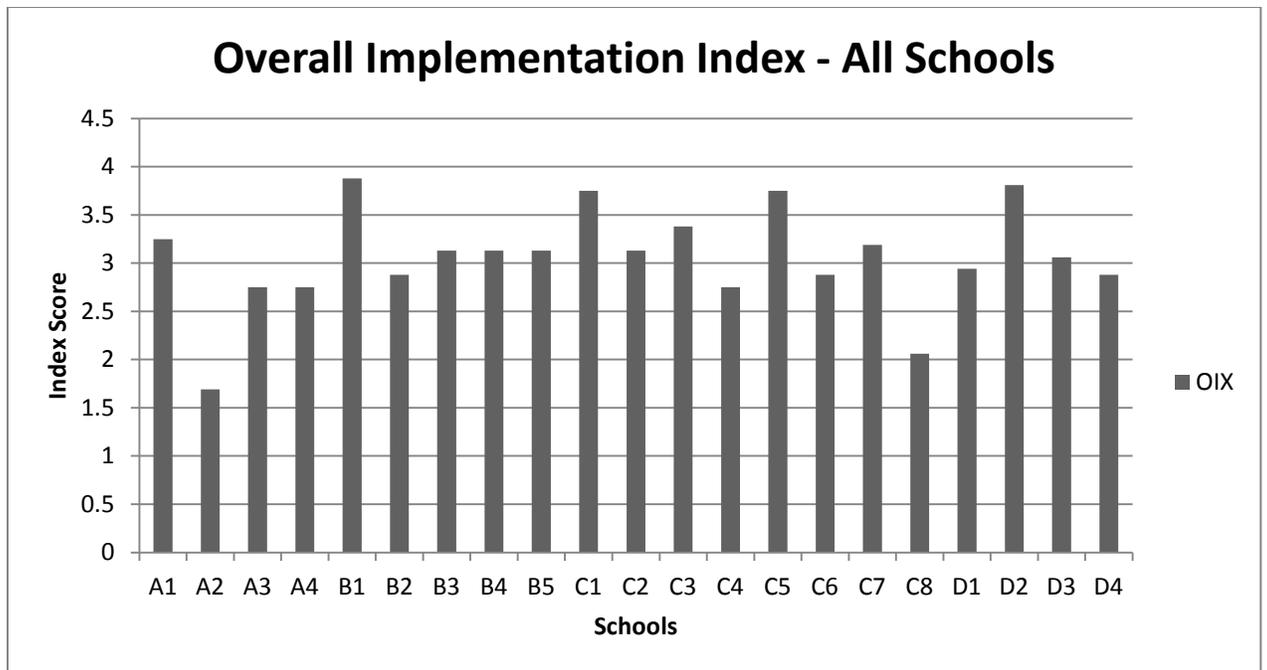


Figure 4.7. Overall Implementation Index. The graph depicts the level of implementation of the 16 characteristics for all schools in the study's.

The results of the simple linear regressions indicate the level of relationship between the implementation of the 16 characteristics and achievement in ELA or mathematics. The analysis indicated there was no statistically significant relationship between the overall implementation index and either measure of student achievement. These findings are indicated in Table 4.15. A positive but minor impact of the OIX on ELA achievement of 1.226 was found. A further analysis of the OIX using further simple regression was conducted on the three clusters.

Table 4.15

Simple Linear Regression Analysis – OIX and ELA and Math PI

	Unstandardized Coefficient	r^2
ELA	-2.345	.006
Mathematics	1.226	.003

Research question four originally sought to address which of the individual characteristics or combination of characteristics had the most significant impact on student achievement. To accurately address this question, the OIX for each of the three clusters, CIA, LO, and CC, was calculated to identify the impact of the presence of each cluster on student achievement. Please keep in mind, however, that interpreting the results on the LO and CC clusters is questionable because these two clusters did not hang together as meaningful units of measurement. A positive slope or unstandardized coefficient (5.034) for the CIA cluster indicated the presence of CIA characteristics was related to student achievement. However, the r^2 indicated only 7% of the variance in ELA performance was accounted for by CIA level of implementation. This is a very small but interesting association and suggests further research may be warranted. The r^2 for LO and CC were so low that it is difficult to interpret either finding, especially since some slopes were negative. Thus, of the six regression slopes calculated, only one supports the hypothesis that the presence of the 16 characteristics in a school is associated with higher achievement levels. That one result was between implementation of the CIA cluster and ELA. This is a disappointing result because the 16 characteristics are the best

known and most widely cited set of standards for middle schools. However, this was a small study in one county of New York. It highlights the need for more empirical study of the relationship between characteristics and academic performance.

Table 4.16

Simple Regression Analysis ELA and Mathematics

Cluster	ELA		Mathematics	
	<i>B</i>	<i>r</i> ²	<i>B</i>	<i>r</i> ²
CIA	5.034	.071	8.500	.004
LO	-3.898	.001	13.861	.002
CC	-2.999	.001	-1.923	.008

Note. Dependent variables are ELA PI and mathematics PI.

The results reported in Table 4.16 indicate that the implementation levels of the clusters were not highly correlated with either ELA or Mathematics performance. The only promising statistics were the *r* squared of .07(ELA) and .04 (Mathematics) for the CIA cluster. This final set of results indicates that if there is a strong positive relationship between the 16 characteristics and academic performance a much larger and carefully controlled study will have to be performed to statistically demonstrate its presence.

Summary of Results

The four research questions sought to answer questions about assessing student achievement and the factors that contribute to variations in achievement between similar schools. A variety of methods and tools contributed to the analyses that made up the results of this study.

The first research question utilized a survey completed by school principals to indicate the presence of the 16 characteristics of Successful School for Young Adolescents. The findings indicate that there is variety in the presence of these characteristics not only within each similar school group but throughout all of the schools in the study. Utilizing these findings, the study worked to further examine the differences in performance between each school as compared to other schools within their similar school groups and the role the implementation of the characteristics played in these differences by determining the statistical significance in the difference between the performances of the schools.

The second question explained how each school's performance in ELA and mathematics compared to other schools within the respective school groups using descriptive rather than inferential statistics. With the E-AMO as the benchmark, labels describing school performance such as below expectations, met expectations, exceeded expectations, and far exceeded expectations were used to describe the findings. The study revealed that there are differences in the level of performance between schools on both the ELA and mathematics assessments.

Question three utilized two analytical procedures to produce tentative results and final results. Because of the small number of schools in this study, there were limitations in the type of analyses that could be used. To ensure that appropriate results were reported, a tentative analysis utilizing Kendall's tau-b produced encouraging results. While there were no statistically significant correlations between the 16 characteristics and student achievement in English language arts and mathematics, the results indicated that there were positive correlations. This led to a more appropriate analysis utilizing a

coefficient of concordance. This analysis indicated that there the correlation between implementation level of the characteristics and student achievement was statistically significant. The correlation was low indicating many other factors influenced student achievement, but it was still statistically significant. This led to a further analysis utilizing t-tests. This analysis was aimed at addressing the assumption that each of the 16 characteristics were independent variables rather than dependent on each other. The findings suggested that items in the CIA cluster are highly correlated and thus dependent on each other.

The data analysis associated with the fourth question of this study sought to explore which characteristics or combination of characteristics had the most significant impact on student achievement. Originally, a multiple regression analysis was planned. However, the dependence of the characteristics required the use of single linear regression analysis. A simple regression analysis run on both dependent variables, ELA PI and mathematics PI found that the CIA cluster had the most positive impact on student achievement when compared to LO and CC clusters. However, even the results on the CIA cluster was marginal. Chapter 5 further expands on the findings of this study.

Chapter 5: Discussion

Introduction

Faced with decreasing resources, greater expectations, and mandates about the methods in which students are educated and assessed, New York State schools must make decisions about the way to best prepare students for college and career readiness at the culmination of their public school careers. This comes at a time where the United States' educational system is under significant scrutiny from those that question its effectiveness as compared to other nations throughout the world.

Sixth grade, the absolute center of the public school career, is a logical place to begin this study as there is a dearth of research focused on middle level education. Neild, Balfanz, and Herzog (2007) wrote that as early as sixth grade, students that are likely to drop out of high school are identifiable. This research addressed four questions that are important to those concerned with middle level education face.

Implication of Findings

With a focus on the level of implementation of middle school characteristics, this study revealed diverse findings. Schools were at every level of implementation from minimal levels of implementation, to beginning, progressing, or fully implemented. Based on principal reports, the overwhelming majority of schools were either beginning (38%) or progressing (33%) in their implementation of these characteristics. Though these findings are descriptive, they do raise some a concern. All of the schools in this

study had the title *middle school* in their names. With only four of the 21 schools (19%) in this study considered to have fully implemented the characteristics of a middle school that a national organization representing this aspect of education has deemed highly desirable. It suggest that many schools became “middle schools” merely by a change of name rather than a restructuring and refocusing that resulted in a substantially different school designed to meet the needs of this particular group of school children. . If the characteristics are indeed those needed in successful schools, the lack of implementation of these characteristics may contribute directly to the perceived shortcomings of public schools in preparing students for the rigors of high school and beyond.

The second research question provided context for student achievement. Using labels such as below expectations, met expectations, exceeded expectations, and far exceeded expectations, school performance was found to be largely consistent within each similar school group. That is, schools within each of the three groups created in this study had similar academic performance patterns. With the size of the population in this study, there were few statistical methods to effectively measure differences in performance, which is discussed in the limitation section. With schools separated into similar school groups largely based on student need and district resources, these findings support the notion that socio-economic factors impact student achievement. Those interested in further exploring the differences in performance would require a larger sample. However, for the purposes of this study, the labels provided the needed context to better understand differences in school performance. In competitive regions such as Westchester County, NY, small differences in each school’s performance index and subsequent rankings may continue to serve the needs of those that depend on rankings to

determine the success or shortcomings of the schools. However, the framework of expectations used in this study may provide a more meaningful manner in which to understand school achievement.

The finding that the 16 characteristics of Successful Schools for Young Adolescents were correlated with each other (dependent) suggests another another way to interpret the characteristics. Instead of treating each item on the survey as a measure of a distinct and independent characteristic, it might be more productive to think of the three clusters as “characteristics” which are represented by the survey items in that cluster. Using this approach when addressing the third research question revealed that the characteristics clustered as curriculum, instruction, and assessment (CIA) not only tended to be highly intercorrelated, the cluster was also correlated with academic performance. And, although there was not statistically significant correlation between academic performance and the culture and community cluster, that cluster did “hang together” as the CIA cluster did. This suggests at least some future research on the 16 characteristics be framed at the cluster level rather than at the individual characteristic. The individual characteristics may not be stable enough to be considered individual factors, but at least two of the clusters, CIA and CC, may.

Limitations

This study had three major limitations. The first limitation relates to the number of participating schools in the study. In Westchester County, NY, 54 schools outside of Yonkers included a 6th grade during the 2011-2012 school year. Due to a wide variety of factors, 21 schools of the 32 eligible schools participated. Some factors that led to the exclusion of 11 eligible schools were district policies that prohibit school principals from

replying to research surveys, principals that were new and could not speak to the presence of characteristics that were in place in 2011-2012, and school level factors and unexpected events that prevented principals from replying during the data collection period for this study.

This limitation affected the statistical analyses that could and could not be used to address the research questions in this study. For example, methods such as factor analysis were not appropriate in that there were only 21 schools participating in the study (Huck, 2012). Other methods analysis including ANOVA were not used because of the size of the sample .

Another limitation dealt with the period between the completion of the state assessments and the delivery of the principal surveys. Standardized assessment data for the spring of 2012 was made publically available in the fall of 2012. The distribution of the survey to school principals occurred in March of 2013, almost a full year after the tests used in this study were given to students. While the overwhelming majority of participating principals were veterans at their respective schools, the study would have potentially benefitted from having the surveys completed closer to the conclusion of the 2011-2012 school year.

The final limitation deals with the population of the study. While the structure of this study would easily be replicated in different settings, this study focused on one region in New York State. This fact should be considered by a researcher examining this study as a guide for decision making in another region of the state or the United States.

Recommendations

The findings of this study should inform the decision making of those concerned with middle level education. The design of this study was in response to a request from NMSA (2003b) to evaluate student achievement patterns and thus provide empirical research that could influence policy makers. The study did that in the area of academic performance. What it did not do is measure the impact of the presence of the characteristics of Successful Schools for Young Adolescents on the social-emotional growth of students. The researcher strongly recommends that other researchers conduct similar studies to measure the impact of the characteristics on the social-emotional development of students. In addition, this study of the relationship between presence of the 16 characteristics and academic performance bears repeating with a larger and broader sample of schools. Some of the serious limitations of this study could be removed with a larger sample.

Another recommendation for future research would include replicating this study with a mixed-methods approach (NMSA, 2003a). The survey used in this study permitted respondents to provide open-ended written responses. Many respondents gave thoughtful and detailed responses that provided the researcher with insight into their responses. This type of information would further expand the discussion this study has begun while satisfying a request of NMSA.

Since the inception of this study, New York State has altered its testing system in three significant ways. The first is the manner in which results are calculated. NYSED developed a new method of tabulating the performance index for schools. In previous years, a student may have earned four performance levels for each assessment. In the

revised system, there are six performance levels and various scores associated with each performance level for each test. This change would not permit a researcher to follow the exact model presented in this study but the more fine grained measure of performance levels might improve the accuracy of further studies.

The second significant change is in how NYSED defines student achievement. In previous years, schools received a report card for each assessment. A school's performance index compared to the state defined benchmark known as the effective annual measurable objective (EAMO) determined if the school met the adequate yearly progress (AYP) target. In the revised state accountability system, NYSED reports unweighted combined ELA and mathematics performance indices. This measure is different than the single test reporting in past years (NYSED, 2013).

The third significant change deals with the construct of the state assessments. The NYSED assessments in ELA and mathematics now measure student knowledge of the Common Core Learning Standards. The method in which students are assessed has also changed. In 2013, students encountered longer and more complex tests.

As a result of the three changes, it is very desirable to conduct a new study on the relationships between the 16 characteristics and academic performance. As noted earlier, a larger and more diverse sample of schools might produce more specific results and reduce the number of limitations and complications that make it difficult to draw strong conclusions.

The finding that the curriculum, instruction, and assessment cluster had a statistically significant impact on student achievement creates a focus for schools looking to enhance its achievement. For those looking to positively impact achievement, it is

recommended that a school analyze the presence of these five characteristics. This analysis may reveal opportunities for further development of these characteristics with an expected return of improved student achievement. In addition, the low correlation between achievement and characteristics in the CIA cluster suggests there are other characteristics or factors that have an influence on academic performance. Future studies should devote time and attention to the search for those factors as well.

Conclusion

After a review of the literature on middle level education, this quantitative study contributed to the field of middle level education by identifying the quantifiable value of the presence of characteristics of Successful Schools for Young Adolescents. To arrive at this conclusion several steps were taken by the researcher.

The first of these steps required the administration of a survey. This required principals to identify the level of implementation of each of the 16 characteristics of Successful Schools for Young Adolescents. The results of this survey were used to develop descriptions of the level of implementation of the schools across the study.

Statistical analysis to measure the impact of the presence of the characteristics was dependent on the survey results and state-provided measures of academic performance. Statistical measures of the relationships between the 16 characteristics and academic performance produced mixed outcomes. Most of the analyses indicated no statistically significant relationship between the presence of a particular characteristic and higher academic performance. However, when the characteristics data were analyzed by clusters, the CIA cluster as an aggregate was statistically significantly associated with student achievement. Although the correlation was low, it was positive and indicated that

the higher the level of presence in the school the higher academic achievement in ESL and mathematics. That was not true of the other two clusters of characteristics. The findings suggest, but certainly do not prove or confirm, that efforts to improve academic performance should focus first on characteristics described in the CIA cluster. This study allowed the researcher to support the tenets of the middle school philosophy with quantitative results. The findings of this study should aid those looking to positively impact achievement in middle level schools.

References

- Association for Middle Level Education. (2010) *This we believe: Keys to educating young adolescents*. Westerville, OH: Association for Middle Level Education
- Armstrong, T. (2006). *The best schools*. Alexandria, VA: ASCD.
- Balfanz, R., Herzog, L., & Mac Iver, D. J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades schools: Early identification and effective interventions. *Educational Psychologist, 42* (4), 223-235.
- Bedard, K., & Do, C. (2005). Are middle schools more effective? The impact of school structure on student outcomes. *The Journal of Human Resources, 660-683*.
- Brown, D. F., & Knowles, T. (2007). *What every middle school teacher should know (2nd ed.)*. Portsmouth, NH: Heinemann.
- Byrnes, V., & Ruby, A. (2007). Comparing achievement between K-8 & middle schools: A large scale empirical study. *American Journal of Education, 114*, 101-135.
- Coladarci, T., & Hancock, J. (2002). Grade-span configuration. *Journal of Research in Rural Education, 17*(3), 189-192.
- Cook, P., MacCoun, R., Muschkin, C., & Vigdor, J. (2007). Should sixth grade be in elementary or middle school? An analysis of grade configuration and student behavior. Durham, NC: Duke University.
- Cook, P., MacCoun, R., Muschkin, C., & Vigdor, J. (2008). The negative impacts of starting middle school in sixth grade. *Journal of policy analysis and management, 27*(1), 104-121.
- Cullen, M., & Robles-Pina, R. (2009). Grade transitions from elementary to secondary school: What is the impact on students. *Southeastern Teacher Education Journal, 2*(1), 31-38.
- Duncan, A. (2011). United States Department of Education. Making the middle grades matter. Retrieved from: <http://ed.gov/news/speeches/making-middle-grades-matter>

- Erb, T. (2006). Middle school models are working in many grade configurations to boost student performance. *American Secondary Education*, 34(3), 4-13.
- Erikson, E. (1968). *Identity, youth, and crisis*. New York, NY: Norton.
- Goldin, C. (1999). *A brief history of education in the United States*. Cambridge, MA: National Bureau of Economic Research.
- Gootman, E. (2007). Taking middle schoolers out of the middle. New York Times. Retrieved from: <http://www.nytimes.com/2007/01/22/education/22middle.html?ref=thecriticalyears>
- Meyer, P. (2011). The middle school mess. *Education Next*, 11 (1).
- National Association of Secondary School Principals. (2006). *Breaking ranks in the middle: Strategies for leading middle level reform*. Reston: National Association of Secondary School Principals.
- National Forum to Accelerate Middle-Grades Reform. (2008). Policy Statement on Grade Configuration. Retrieved from: <http://www.middlegradesforum.org/images/stories/GradeConfiguration.pdf>
- National Middle School Association. (2003a). *Research and resources in support of this we believe*. Westerville, OH: National Middle School Association.
- National Middle School Association. (2003b). *This we believe successful schools for young adolescents*. Westerville, OH: National Middle School Association.
- Neild, R., Balfanz, R., & Herzog, L. (2007). An early warning system. *Educational Leadership*, 65(2), 28-33.
- New York State Education Department. (2009). Regents policy statement on middle-level education, supporting young adolescents. Retrieved from NYSED.Gov: <http://www.p12.nysed.gov/ciai/mle/mlepolicy.html>
- New York State Education Department. (2011a). Education department releases high school graduation rates. Retrieved from NYSED.Gov: <http://www.oms.nysed.gov/press/GraduationRates.2011.html>
- New York State Education Department. (2011b). Schools and Districts in Need of Improvement. Retrieved from NYSED.Gov: <http://www.p12.nysed.gov/irs/accountability/designations/home.htm>
- New York State Education Department (2012a). Graduation rate data. Retrieved from: <http://www.p12.nysed.gov/irs/pressRelease/20120611/>

- New York State Education Department (2012b). New York state essential elements: schools-to-watch program. Retrieved from:
<http://www.p12.nysed.gov/ciai/mle/eestw/home.html>
- New York State Education Department. (2012c). Release of data. Retrieved from
<http://www.p12.nysed.gov/irs/pressRelease/20120717/home.html>
- New York State Education Department. (2012d). School districts in Westchester county. Retrieved from:
<https://reportcards.nysed.gov/view.php?schdist=district&county=66&year=2011>
- New York State Education Department, (2013). Accountability Department FAQ. Retrieved from: <http://www.p12.nysed.gov/accountability/documents/2011-12AccountabilityDeterminationsFAQ.pdf>
- Orford, E. (1997). *Understanding your 11 year-old*. London, England: Rosendale Press.
- Piaget, J., & Inhelder, B. (1969). *The psychology of the child*. New York: Basic Books.
- Rockoff, J. E., & Lockwood, B.E. (2010). Stuck in the middle: How and why middle schools harm student achievement. Retrieved from Education Next:
<http://educationnext.org/stuck-in-middle>
- Rosenberg, M. (2003, June 22). In the schools; Middle schools that match pupil progress. Retrieved from The New York Times:
<http://www.nytimes.com/2003/06/22/nyregion/in-the-schools-middle-schools-that-match-pupil-progress.html?pagewanted=all&src=pm>
- Rubenstein, R., Schwartz, m. E., & Zabel, J. (2009). Spending, size and grade span in K-8 schools. *Education Finance and Policy*, 60-88.
- Schurr, S., & Forte, I. (2009). *The definitive middle school guide: a handbook for success* (Revised ed.). Nashville, TN: Incentive Publishing.
- Stevenson, C. (2002). *Teaching ten to fourteen year olds* (3rd ed.) . Boston, MA: Pearson.
- United States Department of Education. (2010). Secretary Arne Duncan's remarks at OECD's release of the program for international student assessment (PISA) 2009 Results. Retrieved from: <http://www.ed.gov/news/speeches/secretary-arne-duncans-remarks-oecd-release-program-international-student-assessment->
- United States Department of Education. (2011). Making the middle grades matter. Retrieved from: <http://www.ed.gov/news/speeches/making-middle-grades-matter>

- Weiss, C. (2008, January/February). Re-examining middle school effects: What the research says. Retrieved from NAESP.org: <http://naesp.org>
- Weiss, C., & Kipnes, L. (2006). Reexamining middle school effects: A comparison of middle grades students in middle schools and K-8 schools. *American Journal of Education, 112*, 239-272.
- Wiles, J., Bondi, J., & Wiles, M. T. (2006). *The essential middle school* (4th ed.). Upper Saddle River: Pearson.
- Williams, T., Rosin, M., Perry, M., Webman, B., Wilson, K., Payne, R. & Wimberly, G. L., & Noeth, R. J. (2005). College readiness begins in middle school. Retrieved from ACT.org: <http://www.act.org/research/policymakers/pdf/CollegeReadiness.pdf>
- Yecke, C. (2006, April). Mayhem in the middle: Why we should shift to K-8. *Educational Leadership, 63* (7), pp. 20-25.

Appendix A

Principal's Survey

1. Educators value young adolescents and are prepared to teach them.

Few Classrooms Many Classrooms Most Classrooms All Classrooms

2. Students and teachers are engaged in active, purposeful learning.

Few Classrooms Many Classrooms Most Classrooms All Classrooms

3. Curriculum is challenging, exploratory, integrative, and relevant.

Few Classrooms Many Classrooms Most Classrooms All Classrooms

4. Educators use multiple learning and teaching approaches.

Few Classrooms Many Classrooms Most Classrooms All Classrooms

5. Varied and ongoing assessments advance learning as well as measure it.

Few Classrooms Many Classrooms Most Classrooms All Classrooms

6. A shared vision developed by all stakeholders guides every decision.

Rarely Occasionally Most Times Always

7. How long has the current mission statement of the school/district been in place?

Less than one year One to three years Three to five years Five years or more

8. Leaders are committed to and knowledgeable about this age group, educational research, and best practices.

Disagree Somewhat disagree Agree Strongly agree

9. How long has the principal served in this capacity at your school?

Less than one year One to three years Three to five years Five years or more

10. Leaders demonstrate courage and collaboration.

Disagree Somewhat disagree Agree Strongly agree

11. Ongoing professional development reflects best educational practices.

Disagree Somewhat disagree Agree Strongly agree

12. Organizational structures foster purposeful learning and meaningful relationships.

Disagree Somewhat disagree Agree Strongly agree

13. The school environment is inviting, safe, inclusive, and supportive of all.

Disagree Somewhat disagree Agree Strongly agree

14. Every student's academic and personal development is guided by an adult advocate.

Disagree Somewhat disagree Agree Strongly agree

15. Comprehensive guidance and support services meet the needs of young adolescents.

Disagree Somewhat disagree Agree Strongly agree

16. The school actively involves families in the education of their children.

Disagree Somewhat disagree Agree Strongly agree

17. Health and wellness are supported in curricula, school-wide programs, and related policies.

Disagree Somewhat disagree Agree Strongly agree

18. The school includes community and business partners.

Disagree

Somewhat disagree

Agree

Strongly agree

Appendix B

Characteristics of Successful Schools for Young Adolescents

Characteristics of Successful Schools for Young Adolescents

Curriculum, Instruction, and Assessment

Educators value young adolescents and are prepared to teach them

(Value Young Adolescents)

Students and teachers are engaged in active, purposeful learning.

(Active Learning)

Curriculum is challenging, exploratory, integrative, and relevant.

(Challenging Curriculum)

Educators use multiple learning and teaching approaches.

(Multiple Learning Approaches)

Varied and ongoing assessments advance learning as well as measure it.

(Varied Assessments)

Leadership and Organization

A shared vision developed by all stakeholders guides every decision.

(Shared Vision)

Leaders are committed to and knowledgeable about this age group, educational research, and best practices.

(Committed Leaders)

Leaders demonstrate courage and collaboration.

(Courageous & Collaborative Leaders)

Ongoing professional development reflects best educational practices.

(Professional Development)

Organizational structures foster purposeful learning and meaningful relationships.

(Organizational Structures)

Culture and Community

The school environment is inviting, safe, inclusive, and supportive of all.

(School Environment)

Every student's academic and personal development is guided by an adult advocate.

(Adult Advocate)

Comprehensive guidance and support services meet the needs of young adolescents.

(Guidance Services)

Health and wellness are supported in curricula, school-wide programs, and related policies.

(Health & Wellness)

The school actively involves families in the education of their children.

(Family Involvement)

The school includes community and business partners.

(Community & Business)

Note. Adapted from "This We Believe: Keys to Educating Young Adolescents," by Association for Middle Level Education, 2010, p. 14