

How Do Middle School Teachers Perceive Their Familiarity With the Physical, Cognitive, Emotional, and Psychosocial Development of Middle School Students?

by

Lynn Miller Byers

Elementary Education, Slippery Rock University, 1992

Master of Education, University of Pittsburgh, 2008

Submitted to the Graduate Faculty of
University of Pittsburgh in partial fulfillment
of the requirements for the degree of
Doctor of Education

University of Pittsburgh

2014

UNIVERSITY OF PITTSBURGH

School of Education

This dissertation was presented

by

Lynn Miller Byers

It was defended on

April 7, 2014

and approved by

Dr. William Bickel, Professor, Administration and Policy Studies

Dr. Sean Hughes, Associate Professor Emeritus, Administration and Policy Studies

Dr. Diane Kirk, Clinical Associate Professor, Administration and Policy Studies

Dissertation Advisor: Dr. Mary Margaret Kerr, Professor, Administration and Policy Studies

Copyright © by Lynn Miller Byers

2014

How Do Middle School Teachers Perceive Their Familiarity With the Physical, Cognitive, Emotional, and Psychosocial Development of Middle School Students?

Lynn Miller Byers, Ed.D.

University of Pittsburgh, 2014

Every day thousands of students ages 10 through 15 walk through the halls of middle schools with a panoply of challenges: new emotions, developing relationships with self and others, and tumultuous physical transformation. Early middle school models called for professional development programs that focused on the unique developmental processes and needs of middle school students. Yet, an underlying theme emerged from this literature review: educators' lack of understanding of adolescent students. Accordingly, the first aim of this study was to investigate how full-time middle teachers perceived their familiarity with the physical, cognitive, emotional and psychosocial developmental processes of middle school students. A second aim was to identify where teachers became familiar with these processes. Lastly, this study sought to identify how certification (areas and location) might affect perceived familiarity with developmental constructs.

A sample of 90 full-time middle school teachers in Pennsylvania provided responses to a survey comprised of self-report scales that identified a) perceived familiarity with physical, cognitive, emotional, and psychosocial development; b) what contributed most to one's familiarity (i.e., undergraduate and graduate courses, professional development, and experience), and c) where and in what content area(s) the teacher was certified. Neither personal nor professional experiences within relevant domains were found to be associated with significantly higher familiarity scores. Graduate coursework, followed by undergraduate coursework experience, primarily dictated increased familiarity with various domains of middle school student development. No significant correlations were found between either of the two

coursework experience, primarily dictated increased familiarity with various domains of middle school student development. No significant correlations were found between either of the two experience variables (years as a school teacher and years as a middle school teacher) with respect to physical, cognitive, or emotional development. With respect to specialization, teachers reporting physical or health education specializations not only had higher overall familiarity scores as compared to their counterparts, but also scored higher in the physical, cognitive and emotional domains, perhaps as a function of teaching about development to their pupils. Implications for teacher preparation, professional development, and future research are offered.

TABLE OF CONTENTS

PREFACE.....	XII
1.0 INTRODUCTION.....	1
1.1 ORGANIZATION OF LITERATURE REVIEW	2
2.0 REVIEW OF THE LITERATURE	7
2.1 DEFINITION OF TERMS	9
2.2 ORIGINS OF THE MIDDLE SCHOOL	14
2.2.1 The Junior High School Emerges	17
2.2.2 The Middle School Emerges.....	22
2.2.3 The Reformatting of Junior High Schools into Middle Schools	27
2.2.4 Summary	29
2.3 THE UNIQUE CHARACTERISTICS OF MIDDLE SCHOOL STUDENTS: PHYSICAL, COGNITIVE, EMOTIONAL AND PSYCHOSOCIAL	30
2.3.1 Physical Development of Adolescents.....	32
2.3.2 Cognitive Development of Adolescents	34
2.3.3 Emotional Development of Adolescents	38
2.3.4 Psychosocial Development of Adolescents	39
2.3.5 Curriculum	41
2.3.6 Instruction.....	44

2.3.7 Summary	47
2.4 WHAT IS THE NATURE OF MIDDLE SCHOOLS THAT ARE ABLE TO FOLLOW THE MIDDLE SCHOOL TENETS AND THOSE THAT ARE NOT?	49
2.4.1 Studies That Explore Full Implementation of Middle School Components and the Effects of High Stakes-Testing/Accountability on Middle School Components	51
2.4.2 Summary	64
3.0 METHODS	67
3.1 STATEMENT OF THE PROBLEM AND INTRODUCTION	67
3.2 IMPORTANCE OF THE STUDY	68
3.3 RESEARCH QUESTIONS.....	69
3.4 FRAMEWORK FOR THE STUDY	70
3.5 SAMPLING.....	72
3.6 MEASURES	73
3.7 SURVEY INSTRUMENT.....	74
3.8 DATA COLLECTION PROCEDURES	77
3.9 ANALYSIS	78
3.9.1 Data Cleaning and Score Calculations	78
3.9.2 Sample and Demographics	79
3.9.3 Quantitative Analysis Plan	79
3.9.4 Qualitative Analysis	83
4.0 FINDINGS	84
4.1 SURVEY PARTICIPATION	85

4.2 HOW DO FULL-TIME MIDDLE SCHOOL TEACHERS PERCEIVE THEIR FAMILIARITY WITH THE PHYSICAL, COGNITIVE, EMOTIONAL AND PSYCHOSOCIAL DEVELOPMENT OF MIDDLE SCHOOL STUDENTS?.....	86
4.2.1 Relationships between Teaching in Schools and Teaching in Middle Schools Concerning Self-Reported Familiarity in the Physical, Cognitive, Emotional and Psychosocial Development of Middle School Students.....	88
4.2.2 How Do Certified Teachers Working in Middle Schools Describe <i>Where</i> They Became Familiar with These Four Constructs (e.g., through undergraduate course work, graduate coursework, professional development programs, or personal experience)?.....	89
4.2.3 Mean Comparisons of Self-Reported Physical, Cognitive, Emotional, and Psychosocial Familiarity by Types of Experiences Contributing Most to Familiarity	90
4.2.4 Courses Focusing on the Development of Middle School Students.....	93
4.2.5 Relationship between Years of Teaching in Schools and Teaching in Middle Schools.....	96
4.3 ARE THERE DIFFERENCES BY CERTIFICATION IN PARTICIPANTS REPORTING THEIR FAMILIARITY WITH THESE FOUR CONSTRUCTS?.....	97
4.4 ARE THERE DIFFERENCES BETWEEN PARTICIPANTS CERTIFIED IN PA AND THOSE NOT CERTIFIED IN PA WITH RESPECT TO SELF-REPORTED FAMILIARITY WITH THESE FOUR CONSTRUCTS (PHYSICAL, COGNITIVE, EMOTIONAL, AND PSYCHOSOCIAL)?.....	99
4.5 QUALITATIVE ANALYSIS	100

4.6 LIMITATIONS OF THIS STUDY.....	103
5.0 INTRODUCTION.....	104
5.1 DISCUSSION.....	106
5.1.1 How Are Teachers Learning About Middle School Students?.....	106
5.1.2 Does Certification Make a Difference?	110
5.1.3 Do Teachers Understand Cognitive Development in the Middle School Years?.....	111
5.2 IMPLICATIONS AND QUESTIONS FOR FUTURE RESEARCH.....	112
5.2.1 Teacher Preparation and Professional Development	113
5.2.2 Local and State Policies	114
Subsection 1of Appendix A	125
Subsection 2 of Appendix A	126
APPENDIX B	127
APPENDIX C	128
BIBLIOGRAPHY	129

LIST OF TABLES

Table 1 Educational Change/Reform.....	4
Table 2 Definitions of Terms.....	9
Table 3 Highly Successful and Randomly Selected Middle Schools.....	57
Table 4 Percent of HSMS and RSMS That Highly Implement These Middle School Components	58
Table 5 State Standardized Test Scores For HSMS and RSMS Report of Respondents' Opinions Concerning the Effects of Standardized Testing Has on Selected Middle School Components..	59
Table 6 Comparison of the Percent of Selected Highly Implemented Middle School Components of McEwin and Greene's (2010, 2011) Responses From Principals and Huss and Eastep's (2011) Responses From Teachers.....	61
Table 7 McEwin and Greene's Responses from Principals Huss and Eastep Responses from Teachers Based on Their Perceptions as to the Positive (PI) and Negative (NEG) Impact That High Stakes Testing Has on Their Schools.....	63
Table 8 County Wide Middle School Table	73
Table 9 Percent of Responses for Each Familiarity Item	87
Table 10 Non-Significant Correlations (trends) Between Domain Scores and Years of Teaching Experience.....	89
Table 11 Frequency Counts and Percentage of Responses Within Categories	90

Table 12 Mean Comparisons for Self-Reported Understanding of Domains by Experience Type	91
Table 13 Frequency Counts and Percentages Table for Survey Item 12	94
Table 14 Descriptive Statistics for Overall Domain Scores Within Non-Exclusive Categories ..	97
Table 15 Mean Comparison for Self-Reported Understanding of Domains by Specialization....	98
Table 16 Open-Ended Survey Item #13 Please tell us about any coursework or personal experience that made a significant impact on your ability to work with middle school students.	101
Table 17 Open-Ended Survey Item #14 Please feel free to share any thoughts about how middle school teachers should be prepared to address the developmental needs of their students	102

PREFACE

I would first like to thank my Lord and Savior Jesus Christ, without whom my doctoral coursework and dissertation would never have happened. I would also like to thank and dedicate this work to my beloved husband, David, and daughter, Kate who selflessly gave up their time to take over my “duties” as housekeeper, but more importantly gave me their shoulders to cry on and rejoiced with me in every milestone I successfully accomplished. To my dear son, Matthew, and daughter-in-law, Paula, who have taught me the true meaning of courage when faced with a daunting adversary and have been my inspiration to keep on going. To my precious, sweet grandchildren, Cameron and Elena who have given me joy and laughter when I felt like the weight of the world was on my shoulders, hope when I felt there was none, and love ... so much love. To my future son-in-law Ali, who gave me his support and many boxes of chocolate each time I was successful and not so successful. To my sister-in-law, Terry Miller, who was one of my biggest cheerleaders, to Linda Acon who helped keep me grounded, and to Kim Williams my perpetual prayer warrior.

I would also like to extend a special thank you to my research advisor extraordinaire, Dr. Mary Margaret Kerr. Your care, concern, expertise, and unending support have been an incredible blessing for me. I honestly don't know how you keep on going; I don't think you ever sleep! In addition, I would like to thank the other members of my dissertation committee: Dr. Sean Hughes who came out of retirement “to see me through to the end,” Dr. Bill Bickel, who

added his expertise and sense of humor at all of our meetings, and Dr. Diane Kirk, whose careful reading of each draft made this a better document. I will be forever grateful to all of you.

I acknowledge with gratitude the following individuals who provided expert editorial or statistical consultation: Laurel Chiappetta, Jason Colditz, Margaret Hannan, and Christina Scanlon.

Lastly, I would like to thank all of my eighth grade students who I have been privileged to know and teach over these past 21 years. You have enriched my life, and I am truly blessed.

1.0 INTRODUCTION

**“You don’t have to suffer to be a poet; adolescence is enough suffering for anyone.”
-John Ciardi-**

In 1992, when I was hired as a middle school language arts teacher, I was a new graduate with an area of certification in elementary education (K-6). The administrators who hired me explained that middle schools were hiring elementary teachers because they are certified in all content areas. Middle school administrators would then have more latitude when placing elementary teachers in various core classrooms. However, as I became acquainted with my colleagues, I learned that many of the administrators in this school district viewed this middle school as a holding area for teachers who wanted elementary or secondary teaching assignments; as positions opened, these teachers were reassigned. In addition, my colleagues explained that many of these administrators also considered this middle school a disciplinary dumping ground. If elementary or secondary teachers did not get along with building level or central office administrators, they were reassigned to the middle school. Consequently, my middle school career began with some dubious anticipation. I was anxious to meet my eighth grade students to find out what was so appalling about being a middle school teacher.

In the days that followed, I quickly became acquainted with the idiosyncrasies of my eighth grade students and realized how unprepared I was to work with them. I never had any

undergraduate courses that addressed the developmental processes of middle school students, or the reasons for their quirky behaviors and attitudes. I realized that I needed information about my charges so that I could familiarize myself with them and their needs. Through my personal research and ongoing experience, I began to learn about and better understand my middle school students. Little did I know then that middle school practices and adolescent behavior would be the focus of my doctoral dissertation 21 years later.

1.1 ORGANIZATION OF LITERATURE REVIEW

Every day thousands of students ages 10 through 15 walk through the halls of middle schools with a panoply of challenges: new emotions, developing relationships with self and others, and tumultuous physical transformations. In the midst of these personal metamorphoses, students are expected to actively engage in learning and strive for academic excellence. In spite of this, in 21 years of teaching middle school students and working with four different building principals, my colleagues and I have never been offered any in-service programs or professional development programs that focus on the unique developmental processes and needs of middle school students. Consequently, I began to wonder if any other middle school teachers in my geographic area had the same experiences. Due to these concerns and questions, the framing of my literature review began.

I started my literature review with a basic question: Do we need middle schools? In order to explore this broad question, I needed to have an in-depth understanding of several more specific concepts: the historical progression of the middle school movement, the tenets of the middle

school, and the physical, cognitive, emotional and psychosocial development of adolescence (ages 10-15). Therefore, my literature review examined three questions:

1. What are the historical progression and the rationale of the middle school movement from inception to present day?
2. Does research support the position that children between the ages of 10 to 15 years have unique developmental needs that require different instruction from any other age group?
3. What is the nature of middle schools that are able to follow the middle school tenets and those that are not?

Question one covers educational reforms, changes, and the reconfiguration of grades in the United States. A rich history underpins this process of grade reconfiguration, increased attention to student needs, and curriculum development that helps students thrive in an ever-changing world. While there seems to be little consensus concerning the exact definition of educational reform or educational changes Horn's (2002) definition provides a useful conceptual framework for this portion of the project.

Educational reform implies that the reform initiative is attempting to correct a deficiency in the current educational system without changing the essential elements of a system. Educational change connotes a transformative change that leaves the educational system significantly different than before the change initiative (Horn, 2002, p. 2).

According to Horn (Horn, 2002), educational reform is easier to initiate than educational change. Reform is easier to explain to the public, and more readily accepted because of widespread familiarity with initiatives like back-to-the-basics or standardized testing. However, educational change is more difficult, because it may demand radical restructuring; entire areas of curriculum, student schedules and facilities may need to be revamped in order for transformation

to occur. Portfolio assessment, the open classroom concept, and open campuses comprise a few examples of well-known educational changes. In addition, the public needs to learn new things in order to understand these proposed changes, and the insecurities that accompany the unknown may thwart this process.

Likewise, Horn (Horn, 2002) states that educational reform requires the support of the public; therefore, they are political in nature. On the other hand, educational change is less concerned with politics, and instead focuses on the comprehensive and structural changes needed in the current system. Table 1 highlights some of the educational reforms and changes examined here in order to answer question one of this literature review.

Table 1 Educational Change/Reform

<u>Components of Educational Change/Reform</u>	<u>Brief Summary</u>	<u>References</u>
Eight-Four Model- educational grade configuration until changed by the Committee of Ten in 1893	The grade configuration- that included grades one through eight, elementary; grades nine through 12, high school.	(United States Bureau of Education, 1893) -Educational Reform
Six-Six Model- New grade configuration set by the Committee of Ten in 1893	The educational grade configuration that included grades one through six, elementary, and grades seven through nine, high school.	(MacKenzie, 1894; Tyler, 1894; United States Bureau of Education, 1893) -Educational Reform
G. Stanley Hall publishes <i>Adolescence</i> (1904) <i>The 1906 Report of the Massachusetts Commission on Industrial and Technical Education and the National Society for the Promotion of Industrial Education.</i>	Hall’s publication stated that adolescence was a unique period of rapid growth and development. The necessity for a vocational education component to be included in the school’s curriculum.	(Hall, 1904) -Encouraged Educational Reform (Cohen, 1968) - Educational Reform

<u>Components of Educational Change/Reform</u>	<u>Brief Summary</u>	<u>References</u>
<i>The Report of the Committee of the National Council of Education of Economy of Time in Education</i> (1910)	This committee recommended that elementary school be grades one through six, and grades seven through 12 could be one of two configurations. Either grades seven through nine-the junior high school or grades seven through 12.	(United States Bureau of Education, 1913) -Educational Change
<i>Principles of Secondary Education</i> (1917)	Publication based on secondary education and the developmental needs of the adolescent.	(Inglis, 1917) - Educational Change
<i>Principles of Secondary Education</i> (1917)	Publication based on the organization of secondary education and the developmental needs of the adolescent.	(Inglis, 1917) - Educational Change
<i>The Junior High</i> (1920)	Grades seven through nine (the junior high school). Create a space and curriculum to address unique needs of these students.	(Briggs, 1920) - Educational Change
<i>The Modern Junior High School</i> (1947)	Gruhn and Douglas propose six functions to try and save the floundering junior high school.	(Gruhn & Douglas, 1947) -Educational Reform
<i>National Education Association</i> (1965)	Defines the middle school.	(National Education Association (1965)
Donald Eichhorn (1966) William Alexander (1968)	Incorporate five of the six functions Gruhn and Douglas proposed for the junior high school into the foundation for the middle school.	(Eichhorn, 1966) (Alexander, et al., 1968) -Educational Change
Alexander and Keally's comprehensive study (1968)	Schools reorganizing into middle schools-1. Eliminate crowded conditions 2. Provide programs specifically designed for students ages 10-14.	(Alexander, 1968) -Survey Reporting Educational Change
Brooks and Edwards comprehensive study (1977)	Schools reorganizing into middle schools 1. Provide programs specifically designed for students ages 10-14.	(Brooks & Edwards, 1978) -Survey Reporting Educational Change
<i>Turning Points: Preparing American Youth for the 21st Century</i> (1989)	Publication stating gross mismatch between curriculum and organization of middle schools.	(Carnegie Council of Adolescent Development, 1989) - Educational Reform

<u>Components of Educational Change/Reform</u>	<u>Brief Summary</u>	<u>References</u>
<i>Turning Points 2000: Educating Adolescents in the 21st Century</i> (2000)	Updated publication of <i>Turning Points: Preparing American Youth for the 21st Century</i> .	Jackson & Davis, 2000) - Educational Reform
<i>This We Believe: Successful Schools for Young Adolescents</i> (2003)	Publication describing 14 characteristics that provide the best education for students ages 10-15.	(NMSA, 2003, 2007, 2009) - Educational Reform
<i>This We Believe: Successful Schools for Young Adolescents</i> (2010)	Publication describing 16 characteristics for students ages 10-15.	(AMLE, 2010 formally known as NMSA). - Educational Reform

Following the historical progression of the middle school, question two examines the physical, cognitive, emotional and psychosocial developmental processes of middle school students, curriculum and instruction strategies for this age group, and the middle school tenets. Lastly, question three investigates middle schools that can, cannot or will not implement the middle school tenets. An underlying theme emerged from this literature review: the lack of educators' understanding of adolescent students (Hall, 1904; Baker, 1913; Alexander et al., 1968; Eichhorn, 1966; Gruhn, 1956; Lounsbury, 2009, 1992; Melton, 1984). This underlying theme is in direct correlation with my concerns and questions mentioned earlier: the lack of in-service and professional development programs that focus on the developmental processes of middle students for middle school teachers. As such, the purpose of my research is to investigate how familiar full time middle school teachers are with the physical, cognitive, emotional and psychosocial developmental processes of middle school students.

2.0 REVIEW OF THE LITERATURE

Thomas Jefferson believed the way to eliminate ignorance and increase knowledge was to educate the general population of the United States. This would provide the foundation for preserving the United States' freedom and happiness (Arrowood & Jefferson, 1930). During the 1800s, most areas of the United States had established elementary and secondary school systems; thereby, bringing Thomas Jefferson's educational beliefs closer to fruition (Arrowood & Jefferson, 1930). These schools followed the eight-four pattern; eight years of elementary school education then four years of high school education (United States Bureau of Education, 1893). As time progressed, the first junior high school opened in 1910, thus began the new educational trend of the six-three-three pattern. Grades one through six constituted the elementary school years, grades seven through nine were junior high school years, and grades nine through 12 represented senior high or high school years (Lounsbury, 2009). By 1946, the predominant format for schools in the United States was the six-three-three pattern, elementary, junior high, and senior high. However, by 1963 the beginning of the middle school movement began. Since then the most common educational model is the five-three-four model, five years of elementary school, three years of middle school and four years of high school (Lounsbury, 2009; Lounsbury & Vars, 2003).

How and why did the grade configuration in the United States progress from the eight-four model to the current five-three-four model? What was the rationale behind this reconfiguration of grades? What was the student population targeted and why were these changes made? This literature review investigates a portion of the historical progression and rationale of the educational format in the United States. It begins with the eight-four model (United States Bureau of Education, 1893) and ends with the five-three-four model (Lounsbury, 2009; Lounsbury & Vars, 2003). Next, this review addresses the population of students targeted when these changes were emerging, focusing on middle school students. It addresses the unique physical, cognitive, emotional, and psychosocial aspects of the middle school student, and finally, concludes with the middle school tenets. Three questions have led this literature review and they are:

1. What are the historical progression and the rationale of the middle school movement from inception to present day?
2. Does research support the position that children between the ages of 10 to 15 years have unique developmental needs that require different instruction from any other age group?
3. What is the nature of middle schools that are able to follow the middle school tenets and those that are not?

These three questions framed this literature review, and the following sections contain the results. However, before the literature review begins, a section of definitions of concepts and terms is provided for the reader.

2.1 DEFINITION OF TERMS

Prior to the review of literature, an alphabetical list of terms and definitions is provided to help the reader better understand concepts and initializations contained in this review.

Table 2 Definitions of Terms

Terms	Definitions	References
Adolescence	The second decade in an individual's life that is a transitional period of maturation, development and growth that ends childhood and begins adulthood.	Dahl, 2004; Paus, 2005; Pratt, 2005; Yurgelun-Todd, 2007; Steinberg, 2006.
Advisory Groups	Teachers and other middle school staff members who meet regularly with a group a small group of students to build positive relationships between students and adults, promote social and emotional development and encourage a sense of belonging.	Akos, 2007
Adequate Yearly Progress (AYP)	“Adequate yearly progress (AYP) is the measure by which schools, districts, and states are held accountable for student performance under Title I of the No Child Left Behind Act of 2001 (NCLB) ” (Education Week, 2011, p. 1).	Education Week, 2011
Amygdala	The portion of the brain that is responsible for emotional learning and is primarily focused on experiences within the context of fear.	Caskey & Ruben, 2007

Terms	Definitions	References
Differentiated Instruction	Instruction that centers on individual students' interests, aptitudes, and abilities.	Gruhn & Douglas, 1947
Eight-Four Model	Educational grade configuration-grades one through eight, elementary; grades nine through 12, high school.	MacKenzie, 1894; Tyler, 1894
Enrichment Activities	Activities that focus on the interests of students.	Alexander, et al, 1968; AMLE, 2010; Eichhorn, 1966; Manning, 2002
Exploratory Programs	Programs that focus on the Interests of students.	Alexander, et al, 1968; AMLE, 2010; Eichhorn, 1966; Manning, 2002
Flexible or Block Scheduling	When extra time is needed to focus on a particular area of study, the middle school schedule is flexible so that extra blocks of time can be provided.	Alexander, et al., 1968; Eichhorn, 1966
Hippocampus	The area of the brain that is instrumental in the functions of emotions, memory, and learning.	Caskey & Ruben, 2007
In-Between-Agers	Individuals, ages 10-14, who are in various stages and rates of developing physically, cognitively, psychosocially and emotionally.	Alexander, et al., 1968
Interdisciplinary Teaming	A group of teachers from different subject areas who design a curriculum that encompasses all areas of the core subject areas, and who share the same group of students.	Alexander, et al., 1968; Carnegie Corporation of New York, 1989; Flowers, Mertens, & Mulhall, 2000; George & Alexander, 1993; Jackson & Davis, 2000; Manning, 2000

Terms	Definitions	References
Junior High School	Grades 9-12: Would provide an easier transition from elementary to high school, it would become the bridge between the elementary and high school, and it would adapt curriculum based on individual differences, needs, interests and abilities.	Inglis, 1918
Limbic System	The area of the brain that is responsible for the processing of emotions, rewards and punishments, and social information.	Casey, Jones & Hare, 2008; Casey, Tottenham, Liston & Dursto 2005; Giedd, 2004; Steinberg, 2011
Middle School	Grades six through eight, the most common middle school grade configuration. However, the premise of the middle school movement was never about grade configuration, but to meet the unique characteristics and needs of middle school students to provide challenging and engaging curriculum for them, to help develop strong support systems, and to find ways to reach out to families and community members to help middle school students.	Alexander, et al., 1968; Beane & Lipka, 2006; Eichhorn, 1968, 1969b, 1984; George, 2009; George & Alexander, 1993; Jackson, 2009; Jackson & Davis, 2009; Lounsbury, 2011; Lounsbury & Vars, 2003; Manning, 2000; Manning, 2009
Magnetic Resonance Imaging (MRI)	Non-invasive method used to view brain activity and growth.	Casey, Tottenham, Liston & Dursto 2005; Giedd, 2004; Giedd, 2006; Dahl, 2004; Paus, 2005; Steinberg, 2011
Myelination	White matter of the brain that is responsible for increasing the speed of neural impulses that improve information transmission.	Steinberg, 2011
Neurons	Cells that transmit information from the body to the brain and back again.	Steinberg, 2011

Terms	Definitions	References
Neurotransmitters	The chemical that enables the transmission of information from the body to the brain and back again.	Steinberg, 2011
No Child Left Behind Act (NCLB) 2002	The new act that reauthorized and expanded the Elementary and Secondary Education Act of 1966. Title I focus.	Brown, 2002
Prefrontal Cortex	The area of the brain that takes care of executive functions that include making decisions, controlling impulses, sustaining attention, planning, thinking ahead, reasoning, and anticipating consequences	Giedd, 2004; Steinberg, 2011
Psychosocial	“A function of the interaction of physical and intellectual development with the communities in which the young adolescent lives (Manning & Bucher 2009, p. 42	Manning & Bucher, 2009
Puberty	The time during adolescence when biological changes occur and an individual is capable of reproduction.	Alsaker & Flammer, 2006; Alexander, et. al, 1968; Alexander & George, 1993; Carnegie Corporation of New York, 1989; Dahl, 2004; Eichhorn, 1966; Eichhorn, 1967; Jackson & Davis, 2000; Knowles & Brown, 2000; Manning, 1993; National Middle School Association, 2003; Salkind, 2006; Steinberg, 2011; Susman & Rogol, 2004; Swanson & Spencer, 2010; Tanner, 1962; Thornburg, 1980
Six-Three-Three Model	Educational grade configuration-grades one through six, elementary; grades seven through nine, junior high school; grades 10-12, high school.	Baker, 1913

Terms	Definitions	References
Synapsis	Gaps between neurons of the brain whereby information is passed.	Steinberg, 2011
Synaptic Pruning	As a person develops, information no longer needed or necessary is eliminated.	Blakemore & Choudhury, 2006; Giedd, 2004; Giedd, et al., 2006; Steinberg, 2011; Spear, 2010
Title I	Main focus of NCLB Act that provides federal money to students in areas of high poverty.	Brown, 2002
Transescence	Individuals, ages 10-14, who are in various stages and rates of developing physically, cognitively, psychosocially and emotionally.	Eichhorn 1966, 1967, 1968, 1969a, 1969b

2.2 ORIGINS OF THE MIDDLE SCHOOL

The first question of this literature review is: What are the historical progression and the rationale of the middle school movement from inception to present day?

Education and the rationales behind specific grade configurations have changed many times in the United States. In order to get a better foundation for and understanding of the middle school movement and its rationale, a portion of the historical progression of education in the United States follows. This historical progression begins with the Committee of Ten.

A major change in American public education took place at the end of the 19th century when Charles W. Eliot, then president of Harvard University, was appointed by members of the National Council of Education as the chair of the Committee of Ten on Secondary School Studies (United States Bureau of Education, 1893). The committee consisted of 10 members whose goal was to unify secondary school courses with college admission requirements (Taylor, 1894; United States Bureau of Education, 1893). Although only a small percentage of public and private high school students at that time were preparing for college, the Committee of Ten proposed changing the grade level configuration from grades one through eight and grades nine through 12, known as the eight-four model; to grades one through six and grades seven through 12, or the six-six model. As a result, algebra, geometry and foreign languages could be introduced to students in the upper grades of grammar school - an intermediate school between elementary and high school (MacKenzie, 1894; Tyler, 1894; United States Bureau of Education, 1893). This would provide more students with the opportunity to take higher-level courses. The Committee of Ten believed that education would thus be more equitable. Both the rich and the poor would receive the same educational experience; therefore, all students who completed the secondary school requirements for college admission would be eligible to attend an institution of

higher learning (MacKenzie, 1894; United States Bureau of Education, 1893). While the Committee of Ten urged for support of their proposed changes in grade configuration and academics as a way to make education more equitable, the Industrial Revolution was changing the way the United States manufactured goods and recruited employees. Not only was the Industrial Revolution changing America's commercial way of life, but also America's system of education.

The beginning of the 20th century found the United States immersed in the Industrial Revolution. The nation was reaping the benefits of inventions that would expedite the production of manufactured items, thereby raising the standard of living and the "wants" of the American people (Mehl, 1960). The 1906 *Report of the Massachusetts Commission on Industrial and Technical Education and the National Society for the Promotion of Industrial Education* became catalysts for businessmen, industrialists, and philanthropists to become involved with vocational education (Cohen, 1968, p.96). It was up to local schools to provide the education that would enable students to enter factories and the manual trades. In addition, child labor was being scrutinized in industry. Children hired as cheap laborers experienced injuries and premature deaths. Children's presence in the labor force also depressed the wages of adults (Cohen, 1968, p. 96). By 1910, many child labor reformers were looking to compulsory education as the solution to child labor (Cohen, 1968, p. 97).

Student enrollment in public elementary schools in the United States increased by 3,500,000 from 1900 until 1910 due to child labor laws and compulsory education. However, if education was to help diminish child labor, increase child welfare and educate the increasing immigrant population, the problem was not with enrollment but with keeping students in school. The dropout rate was epidemic in proportion. Forty to fifty per cent of the student population

never completed eight grades of education, and more than 50 % of students ages 13 to 15 dropped out of school many of them in grade six. Educators began to realize that something needed to be done with our country's educational curriculum; it needed to be practical, interesting, and appropriate for the needs of students. Most students who were attending school at this time would go on to pursue careers in the manual trades; therefore, a vocational component was necessary in the school's curriculum (Cohen, 1968, pp. 97-99). As curriculum was being re-evaluated in order to keep students in school, so too, was the amount of time students spent in school.

The amount of time students spent in school became the focus of *The Report of the Committee of the National Council of Education of Economy of Time in Education* (United States Bureau of Education, 1913). This report addressed the comprehensive view of American education in hopes of increasing academic effectiveness. The committee members agreed that the period of general education be shortened by two years. Consequently, vocational training could begin earlier, more students would stay in school longer, and students would be able to choose between an academic or vocational career (United States Bureau of Education, 1913, p. 9). Therefore, the committee recommended that fundamental elementary education be complete in six years or by age 12. Secondary education would include students between the ages of 12 to 18 with two types of grade configuration: grades seven through nine - the junior high school, and grades nine through 12 - the senior high school, or grades seven through 12. College would begin at ages 16 to 20, or 18 to 20, and graduate/professional schools would begin at ages 20 to 24 (United States Bureau of Education, 1913, p. 10). The committee provided the American education system with specific ages along with grade configurations that marked the progression of students in their educational sojourn. At the same time these changes were implemented, Hall

published his two-volume work *Adolescence* in 1904 that stated “adolescence” was a separate stage of growth and development; therefore, educators needed to acknowledge and understand this separate stage of growth and development.

Hall developed the cultural epoch theory, which states that the future of mankind lies in the type of education adolescents receive (Hall, 1904). He designated the period of adolescence as a time of stress, anxiety, and uncertainty, and the onset of puberty (the developmental process of primary sexual characteristics, secondary sexual characteristics and the ability to reproduce) was its catalyst (Hall, 1904). Furthermore, adolescence was marked as a time when rapid physical growth occurred followed by an equally rapid deceleration in physical growth. Hall’s study of adolescents along with Suzzallo’s comprehensive study of adolescents linked educational principles to developing adolescents and enabled educators to realize that curriculum and school culture should be grounded in the psychology that best met students’ needs (Anfara, 2001; United States Bureau of Education, 1913).

2.2.1 The Junior High School Emerges

The comprehensive study done by Suzzallo that linked educational principles and the development of adolescents was one of the most comprehensive studies of its time (United States Bureau of Education, 1913, p. 20-35). Suzzallo agreed that education should follow six years of elementary education and six years of secondary education; however, he believed that the six years of secondary education should be broken into two equal parts: three years of junior high school education and three years of high school education (United States Bureau of Education, 1913, p. 26-27). It was Suzzallo’s premise that the junior high school would provide a greater number of students with a relevant education that met the developmental needs of the students as

well as the needs of the ever-changing industrial society. Consequently, more students would stay in school for more years before terminating their education (United States Bureau of Education, 1913, p. 27). Suzzallo provided the rationale for the configuration of the junior high school as well as the rationale for education based on the development of adolescents. Four years later, another publication provided more information concerning the development of adolescents and education.

The publication of the *Principles of Secondary Education* in 1918, focused on the organization of secondary education and the developmental needs of students. This book, written by numerous specialists in education and psychology, devoted an entire chapter to the *Psychology and Hygiene of Adolescence* (Whipple, 1914, Chapter 7). Dr. G. M. Whipple, the author of chapter 7, stated that secondary education coincided with the developmental process of children ages 12 to 14 known as adolescence. Adolescents were entering into puberty, the point at which they would be able to reproduce (Whipple, 1914, p. 246). “Adolescence is, then, to be regarded as a period of marked and significant developmental growth--a growth both of body and of mind” (Whipple, 1914, p. 246). This developmental period had as many changes as did the period of development during gestation and early infancy, and the onset of puberty did not occur at the same chronological age for all individuals but was varied (Whipple, 1914, p. 247). The period of adolescence was in the forefront for educators, and this focus continued throughout the *Principles of Secondary Education* (Inglis, 1918).

The *Principles of Secondary Education* (Inglis, 1918), stated “The distinction between elementary education and secondary education has been based on stages in the physiological and psychological development of children more frequently and more persistently than on any other one factor” (Inglis, 1918, p. 262). Students in early elementary grades, one through five or six

were considered prepubescent; students in grades seven through nine were at various stages of adolescence; and students in grades 10 through 12 were adolescents (Inglis, 1918, pp. 262-263). Consequently, there should not be a rapid transition between the elementary and high school; instead, a more gradual transition was needed for students ages 13 to 15 - the junior high school (Inglis, 1918, p. 285, 295). The junior high school would provide an easier transition from elementary to high school, it would become the bridge between elementary and high school, and it would adapt curriculum based on students' individual differences, needs, interests and abilities (Inglis, 1918, pp. 293-294). Inglis provided educators with a specific distinction and name for students in various grade levels as well as the rationale behind the junior high school movement. Thomas Briggs, considered one of the primary developers of the junior high school further developed Inglis' work.

In 1920 Thomas Briggs stated that one of the purposes of the junior high school was to provide students ages 12 to 16 a segregated area from younger elementary students and older high school students. Briggs stated that young adolescents needed education in social control; therefore, separating these students would be conducive for their social development (Briggs, 1920, p.5). Other basic concepts underlying the junior high school were to provide better educational opportunities for grades seven, eight, and nine, to be bridges between the elementary and high school, to use old high school buildings, to help alleviate congestion, and to increase student attendance (Briggs, 1920). The basic concepts that Briggs outlined seemed attainable; however, among the more than 400 junior high schools spanning the United States in 1920 (Briggs, 1920; Melton, 1984; Regan, 1967), many of them were junior high schools in name only and were simply an extension of the senior high school (Briggs, 1920).

One of the reasons for this problem was that many states did not recognize the junior high school movement. Consequently, they were not providing teacher and administrative preparation for this middle level age group (Lounsbury, 1992; Melton, 1984). Another problem of the junior high school was that the majority of these schools organized for administrative purposes instead of focusing on the needs of early adolescents. Furthermore, student enrollment was in a state of flux; and staffing, budgetary, and building utilization problems were challenging. In addition, the ninth grade year began the Carnegie unit of credits toward graduation requirements (Melton, 1984). This meant that the junior high school never really broke away from the high school format; it became a mini-high school (Lounsbury, 1992). Finally, many people did not like or understand early adolescents. The thought was that if these students and their problems could be ignored, then they and their problems would just disappear (Gruhn, 1956; Lounsbury, 1992; Melton, 1984).

Despite the ongoing problems of the junior high school, many educators and administrators still believed in the rationale and philosophy behind the junior high school. Unfortunately, by the late 1940s the junior high school was in serious trouble (Lounsbury, 1992). In the hopes saving this educational institution, Gruhn and Douglas (1947) proposed six functions of the junior high school:

1. *Integration*- to synthesize past and present learning experiences that would encourage socially acceptable student behavior.
2. *Exploration*- to provide learning opportunities that would enable students to explore individual interests.
3. *Guidance*- to provide guidance for students who were discovering personal interests, and lead them toward a vocation.

4. *Differentiation*- to provide differentiated instruction and experiences for students that focused on students' interests, aptitudes and abilities.

5. *Socialization* – to provide students with experiences that would prepare them to be contributing and productive members of society.

6. *Articulation* – to provide an education that would help with the transition from early adolescence to adolescence (pp. 31-32).

The hope was that these six functions would provide a standardized format for the struggling junior high school. However, when Lounsbury and Marani (1964) conducted a “shadow study” concerning the junior high school, they found that the learning environment was mundane, instructors did not differentiate or individualize curriculum, and exploratory programs were almost non-existent. The junior high school curriculum and instructional practices mirrored the high school. In the majority of cases, the junior high school had become a miniature version of the high school. In addition, the junior high school hosted interscholastic sports, competitions for “best dressed,” and “most popular,” along with formal dances and other sophisticated activities that contradicted the proposed functions of the junior high school (Lounsbury & Vars, 1978). Despite the effort to establish a standardize format, the junior high school did not thrive. However, it did not fail because of its stated goals and functions, but rather because it did not successfully achieve these goals and functions (DeVita, Pumerantz, & Wilklow, 1970). Consequently, the middle school movement emerged.

2.2.2 The Middle School Emerges

When William M. Alexander (Hodge, 2011) was asked to be the keynote speaker at Cornell University in 1963, his speech was entitled “The Dynamic Junior High School”. However, when Alexander tried to find junior high schools that were dynamic, he discovered that they were simply scaled-down versions of the senior high school. Consequently, he restructured his efforts and focused on a school that would be the bridge between the elementary and high school, the middle school (Hodge, 2011, para. 4). “History teaches that it is easier to create a new institution than to change a well-established one, so the proposal of a middle school, a seemingly fresh idea and with a new name, seemed more acceptable” (Lounsbury, 1992, p. 10).

The middle school was defined as, “The school which stands academically between elementary and high school, is housed separately ideally in a building especially designed for this purpose, and offers at least three years of schooling beginning with either grade five or six” (National Education Association 1965, p. 5). However, Samuel H. Popper (1967) stated that in spite of this new grade configuration the junior high school was the new middle school, and that the six functions that Gruhn and Douglas (1947) proposed for the junior high school were just as valid and relevant to the middle school as they were for the junior high school. Popper’s concern was that this new middle school and its grade configuration would not adhere to these junior high functions that were embedded in the foundation of educating young adolescents according to their unique developmental needs (Popper, 1967). Two major developers of the middle school, Donald Eichhorn (1966) and William Alexander (Alexander et al., 1968) did not plan to let this happen.

When Donald Eichhorn (1966) and William Alexander (Alexander et al., 1968) were developing the middle school, they incorporated five of Gruhn and Douglas' (1947) functions of the junior high school into their rationale. Both addressed the unique characteristics of the developing adolescent and the need for a specific curriculum that would focus on these unique characteristics, or as defined by Gruhn and Douglas (1947): articulation- providing an education that would help with the transition from early adolescence to adolescence (p. 31).

Alexander (Alexander et al., 1968) and Eichhorn (1966, 1967, 1969a, 1969b) presented a more descriptive identity of middle school students by re-naming this student population. Eichhorn (1966, 1967, 1969a, 1969b) called this 10 to 14 year age group of students, transescence and Alexander (Alexander et al., 1968) referred to these individuals as in-between-agers. This transescence (Eichhorn, 1966, 1967, 1969a, 1969b) and in-between-agers (Alexander, et al., 1968) population were unique due to the various stages and rates at which they were developing physically, cognitively, psychosocially, and emotionally.

Transescence (Eichhorn, 1966, 1967, 1969a, 1969b) and in-between-agers (Alexander et al., 1968) were at various stages of physical growth and development. Some students, ages 10 to 14, were beginning puberty, others were in the midst of puberty, and other students had not begun puberty. Furthermore, this population of students was learning how to adjust to their rapidly changing bodies as well as their changing cognitive processes. Some middle school students were still in the concrete developmental stage, others were in the formal operations stage, while others were somewhere in between (Alexander et al., 1968; Eichhorn, 1966, 1969a; 1984). Along with the physical and cognitive changes, middle school students were developing psychosocially. They looked to their peers for acceptance and approval instead of their parents; yet, they still wanted parents to be involved in their lives (Alexander et al., 1968; Eichhorn,

1966, 1967). These young people were striving to become more independent, they were beginning to have feelings of attraction for the opposite sex, and they were learning social skills (wearing the right clothes, learning to dance, applying make-up) in order for the interaction between the opposite sexes to develop (Alexander et al., 1968).

In addition to the developmental processes of physical, cognitive, and psychosocial change, middle school students were also developing emotionally. Middle school students were beginning to entertain questions about the purpose of their existence and their identity. These students were also beginning to re-define what was right and wrong (Alexander et al., 1968). Consequently, the middle school was designed to provide guidance for these students to help them through their tumultuous times (Alexander et al., 1968; Eichhorn, 1966). Due to the unique characteristics of the middle school student, curriculum and instruction needed to meet these needs for the middle school student to be successful. This curriculum and instruction also formulated its foundation from the functions of the junior high school.

The middle school curriculum mirrored the junior high function of integration that synthesized past and present learning experiences and would encourage socially acceptable student behavior (Gruhn & Douglas, 1947). The middle school curriculum would focus on a planned sequence and progression in general education, provide programs that would initiate students' personal development and values and incorporate a smooth and continuous transition during the entire middle school experience (Alexander et al., 1968; Eichhorn, 1966). Therefore, the middle school curriculum would provide students with a focus on a developmentally appropriate educational aspect, as well as, a developmentally appropriate social aspect.

Not only were the junior high functions of articulation and integration evident in the new middle school, but also a function known as exploration. Gruhn and Douglas (1947) defined

exploration as providing learning opportunities that enabled students to explore individual interests. Curriculum developed for middle schools was to provide balanced exploratory programs for middle school students in order that personal interests, personal curiosities, skills, and values were expanded upon. These exploratory programs were part of the middle school's flexible environment. This flexible environment would enable additional blocks of time in order that an aspect of instruction could continue without interruption (Alexander et al., 1968, Eichhorn, 1966). Along with exploration, articulation and integration the new middle school also incorporated two more functions of the junior high school. These functions were differentiation and socialization.

Gruhn & Douglas (1947) defined differentiation as providing differentiated instruction and experiences for students. Instruction would center on individual student interests, aptitudes and abilities. Eichhorn (1966, 1967, 1969b, 1984) and Alexander (Alexander et al., 1968) believed that the individual needs of the middle school student was the driving force behind this system, and differentiated instruction was paramount to middle school student's success. Eichhorn (1966, 1967, 1969b, 1984) and Alexander (Alexander et al., 1968) also believed that students be grouped homogeneously according to individual aptitudes and abilities and not according to chronological age. In this way, students would be able to interact, discover and provide help for others most like themselves.

The final aspect of the five functions of the junior high school used in the progressive development of the middle school was socialization. Socialization also correlates with the function of differentiation. Socialization as defined by Gruhn and Douglas (1947) was to provide students with experiences that would prepare them to be contributing and productive members of society. Eichhorn (1966) believed that by providing group activities, students would

be involved in a learning climate that promoted democracy. With five of the six functions becoming a major component for the emerging middle school, districts did not have any specific guidelines to follow when considering changing from a junior high school model to a middle school model. Therefore, James DiVirgilio, (1969) proposed points that districts should consider before they began this process.

Di Virgilio (1969) asserted that districts should provide in-service training for personnel using an outside consultant/supervisor to conduct this training. The purpose of this outside consultant was to provide objective assessments and improvement plans; otherwise, the middle school might take on the characteristics of a mini-high school or extended elementary school. This outside consultant would make frequent visits to the middle school and speak with students, teachers, and administrators concerning their attitudes about this new academic model (Di Virgilio, 1969, p. 224).

Some additional items that districts needed to consider when contemplating this transition were providing a budget that could support renovations to existing school buildings or building new ones. Furthermore, the budget should include funds for the purchasing of supplies, materials, in-service programs and travel expenses for administration and staff to visit other middle schools (Di Virgilio, 1969, pp. 224-225). Not only should budgetary items come under consideration, but also the best environment for middle school students as well.

Di Virgilio (1969, p. 225) claimed that the best environment for middle school students should be one that did not conduct any interscholastic athletics, or offer marching bands, formal dances, final exams or formal clubs. In light of all of the points to consider when a school district was transitioning from a junior high school to a middle school, the emphasis should be on a place

where young adolescents could thrive, feel safe, and be understood (Di Virgilio, 1969). Due to these reasons, school districts began reformatting junior high schools into middle schools.

2.2.3 The Reformatting of Junior High Schools into Middle Schools

As the middle school movement gained momentum, Alexander (1968) and Kealy conducted one of the most comprehensive surveys of its time. This survey asked school districts what reasons they cited when reorganizing junior high schools into middle schools; Brooks and Edwards repeated this identical survey again in 1977 (Brooks & Edwards, 1978). Data collected in 1967-68 and 1976-77 from 1,101 schools met the following definition of a middle school, “A school which combines into one organization and facility certain school years (usually grades 5-8 or 6-8) which have in the past usually been separated into elementary and secondary schools under such plans as the 6-3-3, 6-2-4, and 6-6” (Alexander, 1968, p. 114). Survey data was obtained from a 10 % random sample of schools stratified by the United States Office of Education (USOE). One hundred and ten schools were part of this survey. Of these 110 schools, 60 % had middle schools that followed the six through eight grade configuration; 27.3 % followed the five through eight grade configuration; and 12.7 % followed the four through eight, five through seven, six through nine or four through seven grade configuration (Alexander, 1968, p. 114). Principals of these schools were to check all applicable reasons that their districts cited for reorganizing into middle schools (Alexander, 1968, p.115).

Of the middle school principals surveyed in 1967 and 1977, 58% and 47% respectively reported that the reason their schools were reorganizing into middle schools was to eliminate crowded conditions. Another reason cited was to provide programs that were specifically designed for students’ ages 10 to 14, with 44% and 68% of middle school principals in 1967 and

1977 respectively pointing to that as another factor in their decision to reorganize (Alexander, 1968, p. 117; Brooks & Edwards, 1978, p. 5). Alexander argued that unless these schools had a deliberate and comprehensive plan that was different from the junior high school, middle schools could fall into the same pattern as did the junior high schools - a school that followed the same model as the high school but for a younger population of students (Alexander, 1968, p.117). Becoming a mini-high school was a concern for middle school developers, and as middle schools began to infiltrate the educational format in the United States, other studies were conducted to provide empirical data to support this phenomenon.

A study conducted by Alexander and McEwin (1989) reported that the number of middle schools whose grade configuration consisted of grades six through eight had increased from 1,663 in 1970-71 to 4,329 in 1986-87. In 1995, there were 9,573 middle level schools in operation - almost three times as many as junior high schools (Department of Education Statistics, 1995), and the latest report compiled by the Department of Education Statistics, 2010 (Snyder & Dillow, 2011) states that in 2008-09 there were 13,100 middle level schools opposed to 3,000 junior high schools. According to these statistics, the middle school configuration overtook and almost eradicated the junior high school format in less than 29 years. Also, the most common middle school grade configuration of grades six through eight has made the five-three- four educational format the most common model in the United States (Lounsbury, 2009; Lounsbury & Vars, 2003; McEwin & Greene, 2010).

Although grades six through eight are the most common middle school grade configuration, the premise of the middle school movement was never about grade configuration. The middle school was designed to meet the unique characteristics and needs of middle school students (Alexander et al., 1968; Eichhorn, 1968, 1969b, 1984; George, 2009; Lounsbury, 2011;

Lounsbury & Vars, 2003; Manning, 2000; Manning, 2009). It was to provide challenging and engaging curriculum for students, to help develop strong support systems, and to find ways to reach out to families and community members to help middle school students (Beane & Lipka, 2006; Jackson, 2009; Jackson & Davis, 2000; Lounsbury, 2011).

2.2.4 Summary

This section of the literature review responded to the question: What are the historical progression and the rationale of the middle school movement from inception to present day? As the education system in the United States evolved, so did research concerning human development. The publication of Hall's *Adolescence* (1904) and Suzzallo's (Baker, 1913) comprehensive study linked the educational principles with the developmental processes of these young people. From Suzzallo's study, the junior high school emerged changing the grade configuration in the United States from the eight-four model, eight years of elementary and four years of high school; to the six-three-three model, six years of elementary school, three years of junior high school, and three years of high school.

The premise of the junior high school was to provide adolescents ages 10 to 14 with a relevant education that met their developmental needs. In addition, the junior high school would become the bridge between the elementary and high schools. Unfortunately, the junior high school was plagued by a myriad of problems. Staff and administrators were not being trained or prepared to work with this adolescent population. Furthermore, the curriculum was not differentiated or individualized, exploratory programs were used in meager ways, and the most critical aspect was the failure to address the unique developmental characteristics and needs of the adolescent student; consequently, the middle school model emerged.

As the middle school began to develop, two pioneers of the middle school movement, Alexander and Eichhorn incorporated five functions of the junior high school into their rationale. These five functions were exploration, articulation, integration, differentiation, and socialization. Consequently, these five functions became the foundation of the new middle school. In addition, this school would become the bridge between the elementary school and the high school, and would provide a curriculum designed to meet the unique characteristics and developmental needs of its student population.

Thus far, this literature review has investigated the historical progression of education in the United States beginning with the Committee of Ten and ending with the middle school. In the midst of this historical overview, the adolescent has been a central focus. In an effort to better understand middle school students, the next portion of the literature review will define adolescence exploring the physical, cognitive, emotional, and psychosocial development of children ages 10 to 15. It will also investigate curriculum and instruction for these middle school students. Therefore, the second question of this literature review is: Does research support the position that children between the ages of 10 to 15 have unique developmental needs that require different instruction from any other age group?

2.3 THE UNIQUE CHARACTERISTICS OF MIDDLE SCHOOL STUDENTS: PHYSICAL, COGNITIVE, EMOTIONAL AND PSYCHOSOCIAL

Adolescence will be defined as the second decade in an individual's life (Steinberg, 2006; Paus, 2005); a transitional period of maturation, development and growth that ends childhood and begins adulthood (Dahl, 2004; Paus, 2005; Pratt, 2005; Yurgelun-Todd, 2007). Most researchers

divide adolescence into three periods: early adolescence (generally ages 10 to 13), middle adolescence (ages 14 to 17), and late adolescence (ages 18 to early 20's) (Smenta, Campione-Barr & Metzger, 2006). However, for the purpose of this study, children ages 10 to 15 will be the focus because this age group of students currently represents the middle school population (Association for Middle Level Education, 2010; Carnegie Council of Adolescent Development, 1989; Jackson & Davis, 2000; National Middle School Association, 2003).

During adolescence, the onset of puberty begins. Puberty will be defined as the time during adolescence when biological changes occur and an individual is capable of reproduction (Alsaker & Flammer, 2006; Alexander et al, 1968; Carnegie Council of Adolescent Development, 1989; Dahl, 2004; Eichhorn, 1966; Eichhorn, 1967; Jackson & Davis, 2000; Knowles & Brown, 2000; Manning, 1993; NMSA, 2003; Steinberg, 2011; Susman & Rogol, 2004; Swanson & Spencer, 2010; Tanner, 1962; Thornburg, 1980). Adolescence begins with biological changes and bodily growth and ends with the social status of an adult. It is the transition between childhood and adulthood (Dahl, 2004; Goossens, 2006; Paus, 2005; Susman & Rogol, 2004; Yurgelun-Todd, 2007). These physical changes affect an adolescent's emotional, psychosocial and cognitive development (Dahl, 2004; Mertens, Anfara, & Caskey, 2007; O'Donnell, 2007; Paus, 2005; Steinberg, 2005; Yurgelun-Todd, 2007). Although these areas interconnect, four separate successive sections will follow: physical development, cognitive development, emotional development and psychosocial development.

2.3.1 Physical Development of Adolescents

This section will examine the rapid physical development of adolescents and the challenges that ensue. With the exception of the fetal stages (Lerner, & Steinberg, 2004) and the stages of infancy (Carnegie Council of Adolescent Development, 1989; Jackson & Davis, 2000; Lounsbury, 1992; Lipsitz, 1984; Manning, 1993; Scales, 2003; Whipple, 1914), young people ages 10 to 15 go through some of the most rapid and intense times of physical growth and sexual development. However, the rates and times of change vary for each individual (Alexander et al., 1968; AMLE, 2010; Carnegie Council of Adolescent Development, 1989; Eichhorn, 1966, 1969a, 1969b; Howard & Stroumbis, 1970; Jackson & Davis, 2000; Manning, 1993; Manning, 2002; Scales, 2003; Lounsbury, 2011; Mertens, Anfara & Caskey, 2007; Smenta, Campione-Barr & Metzger, 2006; Susman & Rogol, 2004; Tanner, 1962). These rapid physical changes are due to the development of the endocrine and central nervous system. The endocrine system is responsible for the production, levels, and circulation of hormones. There are no new hormones produced during puberty just an increase in existing levels (Alsaker & Flammer, 2006; Steinberg, 2011; Susman & Rogol, 2004).

During puberty, primary sex characteristics (core changes in the reproductive system) are rapidly developing. In males, this primary sex characteristic is the maturation of testes; in females, it is the maturation of ovaries (Alsaker & Flammer, 2006; Alexander et al, 1968; Dahl, 2004; Eichhorn, 1966; Knowles & Brown, 2000; Manning, 1993; Swanson & Spencer, 2010; Tanner, 1962; Thornburg, 1980). Along with the development of primary sex characteristics, adolescents develop secondary sex characteristics (visible characteristics). Secondary sex

characteristics in males are the growth of the scrotum, growth of the testicles, penile size, and the first ejaculation. Pubic and auxiliary hair becomes visible, and the pitch of a male's voice becomes deeper. Female secondary sex characteristics include the development of breasts, the appearance of pubic hair, the onset of menarche, and the rounding of the hips (Alexander et al., 1968; Alsaker & Flammer, 2006; Dahl, 2004; Eichhorn, 1966; Knowles & Brown, 2000; Manning, 1993; Salkind, 2006; Steinberg, 2011; Susmon & Rogol, 2004; Swanson & Spencer, 2010; Tanner, 1962; Thornburg, 1980). Rapid physical growth for both males and females occur at this time. Heart size, lung capacity, weight, height, muscular strength, and body mass all experience marked increases (Alsaker & Flammer, 2006; Dahl, 2004; Eichhorn, 1966; George & Alexander, 1993; Mertens, Anafara & Caskey, 2007, Salkind, 2006; Tanner, 1962). As each individual progresses through these rapid physical changes at various times, genetics would seem to be the main component for this variance in development; however, there are other causes for the onset of puberty.

Genetics does play an important role in pubertal development. However, due to better nutrition and health care, young people are entering puberty at an earlier age. Generally, girls begin and end this transition between one and one half to two years before boys. The ages of onset and completion vary in both sexes; however, the average age for girls is between eight and 11 years, and in boys between 10 and 13 years (Alsaker & Flammer, 2006; Alexander, 1993; Alexander et al., 1968; AMLE, 2010; Carnegie Council of Adolescent Development, 1989; Dahl, 2004; Eichhorn, 1966; Eichhorn, 1967; George & Alexander, 1993; Howard & Scoumis, 1970; Irvin, 1992; Jackson & Davis, 2000; Knowles & Brown, 2000; Lerner & Steinberg, 2004; Lipsitz, 1984; Lounsbury, 2011; Manning, 1993; Manning & Bucher, 2009; Salkind, 2006; Steinberg, 2011; Tanner, 1962; Thornburg, 1980; Thornburg, 1983; Winfield & Wagner, 2005).

Adolescents' ages 10 to 15 are engaged in a myriad of rapid physical changes and these changes may evoke a variety of responses from them. These responses may be positive or negative, beneficial or detrimental.

Some adolescents may feel awkward in their bodies because they are gangly, have protruding ears, long arms, or big feet, and may be uncoordinated (AMLE, 2010; NMSA, 2003). Boys have a more positive self-image than girls, and girls tend to be more emotional than boys (Bacchini & Maliulo, 2003). Furthermore, the perceptions adolescents have about their bodies may initiate poor dietary habits or eating disorders (AMLE, 2010; Carnegie Council of Adolescent Development, 1989; NMSA, 2003; Steinberg, 2011). Adolescents' may experiment with drugs, alcohol; tobacco and risky sexual practices (AMLE, 2010; Carnegie Council of Adolescent Development, 1989; NMSA, 2003). Sleep patterns change during puberty whereby adolescents begin to stay up later at night and sleep in later in the morning (Steinberg, 2011). Body image, dietary habits, experimentation with drugs, alcohol, tobacco, sex, changes in sleep habits, and rate of maturation all take their toll on adolescents as they evolve through these physical changes. In addition, the areas of cognitive, emotional, and psychosocial development are also affected (Dahl, 2004; Mertens, Anfara, & Caskey, 2007; O'Donnell, 2007; Paus, 2005; Salkind, 2006; Steinberg, 2005; Yurgelun-Todd, 2007). Therefore, the next area of the unique characteristics of middle school students investigated is cognitive development.

2.3.2 Cognitive Development of Adolescents

This section will first define and then examine the cognitive development of adolescents. Cognitive development will be defined as the intellectual adaptation that occurs in successive levels from birth to adulthood (Lehalle, 2006), and includes thought, learning, language,

memory, decision-making, and problem solving (Dupree, 2010). For the purpose of this study, learning styles and language development will not be discussed; instead a focus on brain maturation and structural changes will be presented.

During adolescence, cognitive development becomes an important factor in the developmental process. Due to rapid changes involving hormonal activity (Yurgelun-Todd, 2007), body shape and size (Alsaker & Flammer, 2006; Dahl, 2004; Eichhorn, 1966; Mertens, Anafara & Caskey, 2007, Tanner, 1962), and peer group and social situations (Collins & Laursen, 2004; Zimmer-Gembeck, 2002), the adolescent must learn to adapt to these rapid changes, which creates a catalyst for cognitive development (Dupree, 2010). In order to better investigate cognitive development, newer non-invasive methods of obtaining information concerning brain maturation and structural change are examined.

Although a relatively new process still awaiting additional empirical data, neuroscientists have been able to use Magnetic Resonance Imaging (MRI) to view brain activity, maturation and structural changes through non-invasive methods. This has given research scientists a more detailed, fluid, and thorough way to investigate the brain (Casey, Tottenham, Liston & Dursto 2005; Giedd, 2004; Giedd, et al., 2006; Dahl, 2004; Paus, 2005; Steinberg, 2011).

By age six, the human brain is 90% of its adult size; however, during ages six through 20, the gray and white matter subcomponents of the brain undergo dynamic changes (Giedd, 2004; Giedd, et al., 2006; Sowell et al., 2003) that involve neurons. The human brain has approximately 100 billion neurons. Neurons are cells that transmit information from the body to the brain and back again. They use electrical charges to complete the transmissions by means of a chemical known as neurotransmitters. Neurons never touch one another instead, the information passes between gaps between the neurons called synapsis (Steinberg, 2011, p. 69).

As a person accumulates information that is no longer needed or necessary, this information is eliminated. This process is called synaptic pruning (Blakemore & Choudhury, 2006; Giedd, 2004; Giedd, et al., 2006; Steinberg, 2011; Spear, 2010). Another development in the brain is the formation of myelination or white matter. Myelination is responsible for increasing the speed of neural impulses that improve information transmission (Steinberg, 2011, p. 71). Both myelination and synaptic pruning are changing during the period of adolescence.

During adolescence, synaptic pruning and myelination become more efficient; therefore, significant cognitive changes occur (Steinberg, 2005; Steinberg, 2011; Spear, 2010). The cognitive changes that occur include: the ability to process information expeditiously; the increase in planned and hypothetical thinking skills; and the increase in deductive reasoning and abstract thinking skills. This cognitive development is dependent upon experience and age (Dahl, 2004); consequently, it does not occur at the same time for all adolescents. Therefore, some adolescents do better than others when posed with tasks that require the above-mentioned skills (Casey, Getz & Galvan, 2008; Lounsbury & Vars, 2003; Manning, 2002; NMSA, 2003; Sowell et al. 2003; Steinberg, 2005; Steinberg, 2011; Spear, 2010; Wigfield & Wagner, 2005). At the same time, the white matter or myelination is becoming more efficient, gray matter or regions that focus on primary functions such as sensory and motor systems decrease due to synaptic pruning and the continuing development of the individual (Blakemore & Choudhury, 2006; Casey, Jones, & Hare, 2008; Steinberg, 2011). The changes in myelination, gray matter, and synaptic pruning are not the only areas of the brain that are undergoing change. The prefrontal cortex, limbic system, amygdala and the hippocampus are also in flux during an adolescent's development.

Other regions of the brain that undergo structural change yet are not fully mature during adolescence are the prefrontal cortex (Giedd, 2004; Steinberg, 2011), limbic system (Steinberg, 2011), amygdala and the hippocampus (Yurgelun-Todd, Killgore, & Young, 2003). The prefrontal cortex is the area of the brain that takes care of executive functions including making decisions, controlling impulses, sustaining attention, planning, thinking ahead, reasoning, and anticipating consequences. The limbic system is the area of the brain responsible for the processing of emotions, rewards and punishments, and social information (Casey, Jones & Hare, 2008; Casey, Tottenham, Liston & Dursto 2005; Giedd, 2004; Steinberg, 2011). The changes in the levels of the neurotransmitters of the limbic system are thought to increase emotional arousal and sensation-seeking in adolescents, thereby increasing sensitivity to emotional and social stimulation. Due to the immature development of the prefrontal cortex and the changes in the levels of neurotransmitters of the limbic system, some adolescents are more apt to experiment with risky behavior (Geiger & Luna, 2009; Steinberg, 2011). Not only are the prefrontal cortex and the limbic system developing and maturing but also the amygdala and the hippocampus.

The amygdala is the portion of the brain that is responsible for emotional learning and primarily focused on experiences within the context of fear. The hippocampus is the area of the brain that is instrumental in the functions of emotions, memory, and learning (Caskey & Ruben, 2007). During adolescence, the prefrontal cortex, limbic system, amygdala and hippocampus are in flux due to the maturation process; consequently, adolescent thought processes are different from those of their younger and older counterparts. As the physical and cognitive areas of adolescents develop, two other areas are also involved: the emotional and psychosocial development of adolescents.

2.3.3 Emotional Development of Adolescents

This section will examine the emotional development of adolescents. Adolescence is a time when the affect and cognitive processes connect (Dahl, 2004). The affective domains of the brain that undergo pubertal changes are areas in sexual and romantic interests, emotional intensity, risky behavior and reward seeking activities (Casey, Jones & Hare, 2008; Dahl, 2004; Forbes & Dahl, 2010; Steinberg, 2005; Steinberg, 2011). The changes in the affective domains of the brain occur earlier than the maturation of the cognitive areas of the brain that regulate judgment, impulse control, and decision making which may explain why adolescents often become involved in risky behaviors and reward-seeking activities (Casey, Jones, & Somerville, 2011; Dahl, 2004; Geiger & Luna, 2009; Steinberg, 2005; Steinberg, 2011). In addition, adolescence is a time when the search for identity and life-purpose is paramount (Knowels & Brown, 2000). It is a time when emotions, sensitivity, and vulnerability increase, and these young people are highly influenced by significant others in their lives (Lounsbury, 2011). It is a period that may be marked by turbulent peaks and valleys (Alexander et al., 1968; AMLE, 2011; NMSA, 2003). It can also be a time of isolation and confusion coupled with loneliness (Carnegie Council of Adolescent Development, 1989).

Furthermore, adolescence is also a time when teenagers become passionate and highly emotional about their commitments, causes, art, music, sports, literature or hobbies (Dahl, 2004, p. 17). At this time of emerging passions, the adolescent is not equipped with affective regulation and self-control; consequently, behavioral and emotional problems may arise due to the inability to govern their impulses (Dahl, 2004, p. 18). They also have a high intensity for emotional experiences and risk taking behavior to satisfy their strong urges of arousal and excitement. These passionate emotions may stop some adolescents from thinking rationally and

anticipating the consequences that may follow, and these choices can have detrimental ramifications for the rest of their lives (Dahl, 2004, p. 21). Thus far, the physical, cognitive and emotional development of adolescents has been examined. The final area of development to be examined is the psychosocial development of adolescents.

2.3.4 Psychosocial Development of Adolescents

This section will first define psychosocial and then examine the psychosocial development of adolescents. Psychosocial will be defined as “a function of the interaction of physical and intellectual development with the communities in which the young adolescent lives” (Manning & Bucher, 2009, p. 42). Due to the rapid physical changes during this period, adolescents become very self-conscious about their appearances (Sebastian & Bakemore, 2008; Scales, 2003). They are concerned about peer acceptance and belonging to a group (AMLE, 2010). Furthermore, young people are trying to understand themselves and make sense of who they are and why they are here (Alexander et al., 1968; Carnegie Council on Adolescent Development, 1989; Jackson & Davis, 2000). Their identity is in a state of unrest and is molded by their experiences and the people with whom they interact. They become more egocentric, believing that their problems are unique (Faircloth, 2009; Wigfield, Lutz, & Wagner, 2005). During this time, adolescents are beginning to form adult personalities, basic values, and attitudes (Carnegie Council on Adolescent Development, 1989; Jackson & Davis, 2000; Lounsbury, 2011). They are better able to understand people’s differences, social conventions, personal rights, and social relationships (Steinberg, 2011).

At this time of life, adolescents begin to seek autonomy and independence (Manning, 2009; Lansbury, 2011). Their primary relationships with their parents help initiate relationships

with their peers (Collins & Brett, 2004). Time spent with parents and other adults decreases, while time spent with peers increases (Collins & Laursen, 2004; Manning, 2002; Manning, 2009; Meschke, Peter, & Bartholomae, 2011; Smenta, Campione-Barr, & Metzger, 2006; Steinberg, 2011; Zimmer-Gembeck, 2002). Still these young people look to their parents for advice concerning career plans, moral issues and personal guidance whereas they consult their peers for advice on clothing and styles (Smenta, Campione-Barr, & Metzger, 2006). Arguments between parents and adolescents usually stem from mundane issues such as keeping bedrooms clean or what type of clothing to wear (Steinberg, 2011).

Social development becomes a priority for this age group (Lounsbury, 2011; Manning, 2002). Adolescents want acceptance from their peers (Scales, 2003) and same sex-peer groups develop before mixed-sex groups (Dahl, 2044; Lounsbury, 2011; Manning, 2009; Meschke, Peter, & Bartholomae, 2011; Steinberg, 2011). Just as primary relationships with parents initiate relationships with peers, the relationships with peers initiate romantic relationships (Collins & Lauren, 2004). It is from these mixed-sex peer groups and close friendships that romantic relationships usually evolve. Close friendships that include nurturing the relationship and learning strategies of conflict resolution and reciprocity may be a template for romantic relationships. Furthermore, cultivating and maintaining close friendships before and during a romantic relationship increases social and self-development of adolescents (Zimmer-Gembeck, 2002).

Adolescents, ages 10 to 15 undergo a myriad of physical, cognitive, emotional and psychosocial changes that intertwine and weave together. These changes begin and end at various times for individuals as well as times according to gender. Puberty, brain growth and functions are instrumental in these developmental processes. The premise of the middle school

was to act as a bridge that would focus on the unique developmental characteristics of these adolescents and provide an educational component that would best suite these unique developmental characteristics (Alexander, 1968; Eichhorn, 1966; Eichhorn, 1967; Eichhorn, 1969). Therefore, curriculum and instruction will be the next subsection of this portion of the literature review.

2.3.5 Curriculum

In light of the rapid physical, cognitive, emotional, and psychosocial developmental processes of the adolescent and the varied times and rates that these developmental processes occur, the middle school curriculum was designed to focus on the unique needs of these students. As was previously noted, five of the six functions of the junior high school proposed by Gruhn and Douglas (1947) were incorporated into the components of the middle school, and its curriculum was built upon these functions. This curriculum was designed to focus on essential learning skills in a planned sequence of order. Middle school students would be provided with skills and concepts presented in a practical problem-solving manner to encourage and increase divergent thinking skills. In addition, these students would be provided with a curriculum that incorporated personal development skills (Alexander et al., 1968; Eichhorn, 1984; Lounsbury & Vars, 1978).

As the middle school progressed, these areas of curricular components were extended; however, in 1989 the Carnegie Task Force on Education of Young Adolescents published *Turning Points: Preparing American Youth for the 21st Century*. This publication pointed out a gross mismatch between the curriculum and organization of middle schools and the emotional and intellectual needs of middle school students. Consequently, this task force challenged middle schools to create a climate where close trusting relationships between middle school students,

their peers and teachers would encourage personal growth and intellectual development (pp. 8-9). In order to accomplish this, middle school administrators, staff and other stakeholders were advised to:

1. Create small communities for learning
2. Teach a core academic curriculum
3. Ensure success for all
4. Empower teachers and administrators
5. Staff middle schools with teachers who are experts at teaching adolescents
6. Improve academic performance of students
7. Re-engage families in the educational process, and
8. Connect schools with communities (1989, p. 9)

After the publication of *Turning Points: Preparing Youth for the 21st Century*, many middle schools began to change their structure and curriculum (Anafara, 2001). In order to create an incentive for districts to change their middle schools, the Carnegie Council offered grants to 27 middle schools that provided an exemplary plan to improve their middle schools. Consequently, theory could be put into practice (Anafara, 2001). Finally, the middle school movement was becoming a reality where the education of middle school students would include their social, physical, emotional, and cognitive development (Alexander & McEwin 1989).

The focus of teaching academic disciplines still centers on the developmental characteristics and needs of individual students (George & Alexander, 1993). However, every middle school student needs should be grounded in a rigorous academic program that provides a climate of intellectual development and enables these students to achieve high standards and

prepares them to become lifelong learners (AMLE, 2010; Beane & Lipka, 2006; Jackson, 2009; Jackson & Davis, 2000; NMSA, 2003). This curriculum should be relevant, challenging, integrative, and exploratory (AMLE, 2010; NMSA, 2003), so that these students are able to apply the skills and concepts they are learning to real-world situations (George & Alexander, 1993; Manning & Bucher, 2009). Real world situations are different for today's middle school students. They will be active members of the 21st century and of a global community; therefore, middle school curricula need to be in alignment with the ever- changing world.

Middle school students are going to need to be globally savvy; therefore, they will need to be able to think critically, rationally, and creatively (AMLE, 2010; Jackson, 2009 ;), and be able to understand the interconnectedness and interdependence of international systems. Furthermore, these students will need to be able to obtain and access credible and relevant global information. They will need be able to process and communicate this information as well as create new knowledge by synthesizing this information (Jackson, 2009, p. 7). Therefore, learning to use digital tools is instrumental in this process (AMLE, 2010, p. 11). In order to assist with global communications, middle school students will need to be proficient in the English language and at least one or more other world languages (Jackson, 2009, p. 7). Along these same lines, celebrating others differences by respecting and valuing the diversity of people in local neighborhoods and communities in the United States as well as from a global perspective is yet another focus of middle school curriculum for the 21st century (AMLE, 2010, p. 12). Finally, these students need to be able to make ethical decisions and responsible choices in order to be instrumental in the development of a more peaceful world (Jackson, 2009, p.7).

If a school is able put a global component into its mission statement, this can become the foundation of a globally- focused school culture. Likewise, if the school's curriculum infuses

global knowledge, understanding, and skills in its daily programs students are able to engage in relevant and current world issues. Furthermore, if teachers spend time with local university professors and other professional development programs that focus on global education, teachers increase their international knowledge base and are better equipped to assist their students in becoming more globally perceptive. Finally, if community resources, such as culturally diverse families, restaurants, and local museums collaborate with schools, students are able to experience an international component in their own backyard (Jackson, 2009, p. 8). As the middle school curriculum evolved so did instruction; therefore, the next section will focus on instruction.

2.3.6 Instruction

Instruction of middle level students continues to evolve; therefore, this next section will examine instructional methods that have been successful with these students.

Due to the innate characteristics of middle school students, one of the primary components of successful instruction of these students is the teacher. Middle-school teachers who possess a thorough knowledge of the subject matter they are teaching as well as a thorough knowledge of the students with whom they work are better prepared to teach middle school students (AMLE, 2010; Eichhorn, 1966; Alexander, et al., 1968; Jackson & Davis, 2000; NMSA, 2003). More important, these teachers value their students and desire to work with them (AMLE, 2010) thereby setting the groundwork for a safe and healthy learning environment (Jackson, 2000). In addition, middle school students are by nature explorers and curious; consequently, they learn best through interaction with their peers and through activities rather than by sitting in lectures (Lounsbury, 2011; Manning, 2002). Therefore, cooperative-learning groups can be very effective with middle school students (Manning, 2002); however, the grouping and regrouping of

students should occur according to individual needs and instructional goals (George & Alexander, 1993). Consequently, educators should use differentiated instruction, multiple learning approaches, and ongoing student assessment (AMLE, 2010; NMSA, 2003). Not only should academics be a focal point for middle school students, but exploratory programs or enrichment activities should also be an instructional component.

Exploratory programs or enrichment activities provide middle school students with an opportunity to become involved in areas of personal interest (Alexander et al., 1968; AMLE, 2010; Eichhorn, 1966; Manning, 2002). Some students may be interested in becoming a member of a theater group or band; others may want to learn how to create visual images through art or write a movie script or editorial. Providing exploratory programs or enrichment activities may have huge positive influences in the development of the adolescent. These personal interests may one day be a student's career or chosen leisure activity; therefore, these programs or activities have relevancy in the middle school curriculum (AMLE, 2010; NMSA, 2003). Other components of middle school instruction enmeshed within the areas reviewed are advisory groups and flexible scheduling.

The major component of advisory groups is that middle school students should have a positive relationship with at least one adult who encourages, guides, and understands them. This adult should be warm, caring, friendly, and freely involved in their development (Alexander et al., 1968; AMLE, 2010; Eichhorn, 1966; Bean & Lipka, 1987; Carnegie Council of Adolescent Development, 1989; George & Alexander, 1993; Jackson & Davis, 2000; Lounsbury & Vars, 1978; Manning & Bucher, 2009; MacLaury & Hecht, 2010; NMSA, 2003; Shulkind & Foote, 2009). Therefore, middle school advisory groups should consist of teachers and other middle school staff members who meet regularly with a small group of assigned students whose purpose

is to build positive relationships between students and adults, promote social and emotional development and encourage a sense of belonging (Akos, 2007). These groups are most effective when they are able to meet three times per week for at least 20-minutes per session (Jackson & Davis, 2000; Manning & Bucher, 2009). This meeting time is designated to develop personal relationships and discuss various topics specifically designed to meet the needs of the middle school student (Akos, 2007; Alexander et al., 1968; Carnegie Council of Adolescent Development, 1989; Eichhorn, 1966, 1969b; George & Alexander, 1993; Jackson & Davis, 2000; Manning, 2002; Manning & Bucher, 2009; Shulkind & Foote, 2010). These topics may include among others, self-esteem, interpersonal relationships, healthy life styles, and personal development (AMLE, 2010; George & Alexander, 1993; Manning, 2002). The teachers and staff members of these advisory groups serve as advocates for their students both academically and personally (Manning & Bucher, 2009). The middle school advisory groups lay the groundwork for a positive relationship between one adult and a small community of students further focusing on the individual needs of the middle school student. In addition to advisory groups, the concept of interdisciplinary teaming is another middle school component that provides a positive relationship and environment between teachers and students and offers positive ramifications for instruction.

Interdisciplinary teaming consists of a group of teachers from different subject areas who create a curriculum that includes components from other subject areas (Alexander, et al., 1968; George, 2009; George & Alexander, 1993). These teachers share the same students, the same planning time and coordinate flexible or block scheduling (Alexander et al., 1968; Carnegie Council on Adolescent Development, 1989; Flowers, Mertens, & Mulhall, 2000; George & Alexander, 1993; Jackson & Davis, 2000; Manning, 2000). Teams coordinate instructional and

curriculum issues, communication issues, and student-centered issues (Flowers, Mertens & Mulhall, 2000). Consequently, communication with parents increases and is a direct link to increased student achievement (Flowers, Mertens, & Mulhall, 1999).

When interdisciplinary teams are able to meet at least four times per week for 30 minutes per meeting, positive outcomes result for student academic performance and student achievement. In addition, less student depression occurs, as well as greater student self-esteem and fewer student disciplinary problems. Furthermore, the longer a group of teachers work together as a team, curriculum and instruction becomes stronger and student achievement increases (Flowers, Mertens, & Mulhall, 2003). Likewise, the work climate that results from teaming is rewarding, positive, and satisfying and job satisfaction increases for instructors (Flowers, Mertens, & Mulhall, 1999). Consequently, teaming increases the academic support system for adolescents as well as helps in their social and emotional development (Carnegie Council on Adolescent Development, 1989; Jackson & Davis, 2000; Lounsbury & Vars, 1978; MacLaury & Hecht, 2010; Mertens & Flowers, 2003).

2.3.7 Summary

This section of the literature review responded to the question: Does research support the position that children between the ages of 10 to 15 have unique developmental needs that require different instruction from any other age group? Research shows that adolescents go through some of their most rapid and intense times of physical growth and sexual development. This is due to the development of the endocrine and central nervous systems that initiate the beginning of puberty. It is during this time that an adolescent begins to develop primary and secondary sex characteristics and becomes able to reproduce. The rate and timing of this growth vary for each

individual; therefore, adolescents are at different stages of development than their peers. Not only is this rapid physical development occurring, but it is also interconnected with the cognitive, emotional and psychosocial development of this population.

Research reports that significant cognitive changes take place during adolescence due to brain maturation and structural changes. An adolescent begins to be able to use more planned and hypothetical thinking skills as well as increasing deductive reasoning and abstract thinking skills. In addition, decision-making skills, controlling impulses, and anticipating consequences are beginning to develop. Furthermore, just as the timing and rates of physical growth of adolescents is dependent upon the individual, so too are these areas of brain maturation and structural changes. Because these areas of the brain are in flux, adolescent thought processes are different from their older and younger counterparts.

Due to the rapid physical changes during adolescence, research cites that emotional and psychosocial development is also affected. Maturation of the affective domains of the brain occurs earlier than the maturation of the cognitive areas; therefore, adolescents are more prone to become involved in risky behaviors and reward seeking activities. In addition, adolescents are concerned about their appearance, being accepted by their peers and belonging to a group. In light of the physical, cognitive, emotional and psychosocial changes that take place in adolescents, the middle school's premise: to address the unique developmental needs of students' ages 10 to 15, and to provide a curriculum for them is still valid today.

Therefore, curriculum for middle school students should be grounded in rigorous academic programs that enable them to achieve high standards, academic success, and encourages them to become lifelong learners. This curriculum should also be relevant, exploratory, and prepare these students for the 21st century. In order to accomplish these goals, teachers and

administrators who like this adolescent population, and are prepared to work with them should provide their instruction. In addition, cooperative learning groups, differentiated instruction, multiple learning approaches, ongoing assessment, exploratory programs, enrichment activities, interdisciplinary teaming, and advisory programs are other components that researchers have found to be very effective with middle-school students.

Middle-school students and their unique characteristics have specific needs that should be understood, addressed and incorporated by middle-school staff in order that these students may be successful both academically and socially. Some middle schools operate according to the above aforementioned ideals and processes; however, other middle schools do not. Therefore, the third question of the research of the literature will follow.

2.4 WHAT IS THE NATURE OF MIDDLE SCHOOLS THAT ARE ABLE TO FOLLOW THE MIDDLE SCHOOL TENETS AND THOSE THAT ARE NOT?

According to Beane and Lipka (2006), Dickerson and Butler (2001), Lounsbury (2000), McEwin and Greene (2010, 2011), Musoleno and White (2010), many schools in the United States have middle-school signs on the buildings; however, these schools do not fully implement developmentally appropriate instructional practices and middle school tenets. These problems do not stem from a lack of knowledge about developmental middle schools, but rather from the failure to fully implement developmental practices so that students benefit (McEwin & Greene, 2010).

“The true middle school concept... has not been practiced and found wanting; rather it has been found difficult to implement fully and is practiced then, only, partially” (Lounsbury,

2009, p. 31). Implementing the middle school concept means making changes that challenge established school procedures; however, the effort involved in challenging the status quo allows for more effective, developmentally sound schools. In fact, many middle schools that do not follow the middle school concept are failing. Some specific barriers to middle level implementation are: lack of understanding of adolescent students, departmentalization of classes, discipline-specific textbooks, and specific times allotted for subjects and class periods (Lounsbury, 2009, p. 31). Furthermore, the purpose of middle schools is to serve diverse interests and needs; yet, federal mandates for uniform improvement dissolves human variability. In addition, attempting to attain the set federal performance standard of 100% proficiency in reading and math by 2014 quashes human difference and encourages a lower definition of proficiency (Berliner, 2008; Lounsbury, 2009).

According to Lounsbury and Vars (2003), No Child Left Behind (NCLB) fails to take middle-school students' unique characteristics and individual needs into consideration; therefore, many students are doomed to fail before assignments begin. High-stakes testing and the severe ramifications tied to these tests have led to many schools spending more instructional time on subjects that will be tested, like reading and mathematics (Berliner 2008). Consequently, other areas in the curriculum are slighted or foregone altogether, as are the middle school tenets (Berliner, 2008; Green, et al., 2008; Hursh, 2008; Zhoa, 2009).

Lounsbury and Vars (2003) and Musooleno and White (2010) state that before NCLB, middle-school curriculum was exploratory and broad in nature; and after NCLB the curriculum has a narrow focus on high-stakes tested subjects and middle-level instructional programs have shifted to standardized test preparation.. Some middle-level instructional programs have shifted entirely to standardized test preparation. Frequently, interdisciplinary teaming, integrated

curriculum, advisory programs, and developmentally appropriate instructional practices are set aside to provide added instructional time for test preparation (Lounsbury & Vars, 2003; Musooleno & White, 2010). According to some researchers, administrators and teachers are unethically helping students on these assessments to ensure students' and districts' success, while at the same time viewing students as test scores instead of individuals (Berliner, 2008; Lounsbury & Vars, 2003; Zhoa, 2009).

2.4.1 Studies That Explore Full Implementation of Middle School Components and the Effects of High Stakes-Testing/Accountability on Middle School Components

This section of the literature review examines data from three recent studies, Huss and Eastep (2011), McEwin and Greene (2010), and McEwin and Greene (2011). These studies are relevant because they are recent, the respondents are middle school principals and teachers, they explore what middle school components are being fully implemented, the impact of high-stakes testing and accountability measures on middle school components, and they consider student scores in reading and math from standardized tests.

McEwin and Greene (2010, 2011) conducted their studies simultaneously in 2009, and Hull and Eastep (2011) conducted their study in 2010. Both of McEwin and Greene's (2010, 2011) studies examine the perceptions and opinions of middle school principals about specific areas of highly implemented middle school components, students' scores in reading and math obtained from standardized state tests, and the perception of standardized testing's on middle school components. One of McEwin and Greene's (2010, 2011) studies survey principals from highly successful middle schools, and the other study obtained information from randomly selected middle schools across the nation. Huss and Eastep (2011) examined the perceptions and

opinions of middle school teachers from Indiana, Kentucky and Ohio. The teacher respondents answered survey questions concerning highly implemented middle school components, how and why some middle schools continued with specific middle school components while others did not, and the effect of standardize testing on specific middle school components (Huss & Eastep, 2011).

McEwin and Greene (2010, 2011) administered two surveys in middle schools with grade configurations of five through eight, six through eight, or six through seven and then compared the results. One survey focused on highly successful middle schools (thereafter HSMS) programs and practices, and the other focused on a national survey of randomly selected middle schools (thereafter RSMS). These studies aimed to determine whether there are any similarities or differences between these middle schools and what might be learned from them (McEwin & Greene, 2010, 2011).

In one of their studies, McEwin and Greene (2010, 2011) focus on schools deemed highly successful. Researchers developed the sample from the National Forum to Accelerate Middle Grades Reform's "Schools to Watch" and the National Association of Secondary Principals' "Breakthrough Middle Schools" (McEwin & Greene, 2010). The NFAMGR defines "Schools to Watch" as, embodying the intersection of academic excellence, developmental responsiveness, social equity and organizational structure" (United States Department of Education, 1999, p. 1). The "Breakthrough Middle Schools" program works with the NASSP and receives funding from the MetLife Foundation. The "Breakthrough Middle Schools" programs serve high-performing students in high-poverty communities (National Association of Secondary School Principals, 2007). The researchers sent surveys to 186 principals, and 101 schools replied for a response rate of 54% (McEwin & Greene, 2010, pp. 50-51).

While the HSMS all share some successful characteristics, there is some variation in the grade organization, community types, and economic characteristics within the sample. Overall 7% of the sample housed grades five through eight, 65% grades six through eight, 15% grades seven through eight, and 15% were classified as others. Fifty-six percent of the schools surveyed are in suburban communities, 17% in rural areas, and 27% in urban communities (McEwin & Greene, 2010). Furthermore, 31% of the HSMS reported that between 1% and 20% of their students qualified for free and reduced lunch rates (pp. 8, 31).

McEwin and Green's (2011) second study involved a national random sampling of 827 public middle schools. Researchers initially selected 13,918, and then narrowed the scope of the study to a 20% random stratified sample of 2,783 schools, and sent electronic surveys to this sample, with an ultimate return of rate of 30%. It is worth noting that that McEwin and Greene (2011) did not address this 30% return rate of this study. Surprisingly, the HSMS survey involving 186 middle school principals yielded a 54% return response rate (McEwin & Greene, 2011).

Researchers describe the grade organizations, community types, and free and reduced lunch programs reported for the RSMS as follows: 11% of schools include grades five through eight, 67% grades six through eight, and 21% grades seven and eight (McEwin & Greene, 2011). Forty-three percent of schools surveyed are in rural areas, 18% in urban communities, and 39% in suburban areas (McEwin & Greene, 2011). Thirty-one percent of the HSMS reported up to 20% of the student body qualifying for free and reduced lunch rates (McEwin & Greene, 2011).

There are important differences between the student populations of the HSMS and the RSMS. The majority of the HSMS student population lives in the suburbs and very few of these students are in need of the free and reduced lunch programs. On the other hand, the majority of

the RSMS population lives in rural communities with a larger population of students who qualify for free and reduced lunch services (see Matrix 1 for details). McEwin and Green's (2010, 2011) studies also report highly implemented middle school components, as well as, respondents' opinions about the effects standardized tests have on selected components of the middle school.

McEwin and Green (2011) provide information regarding the extent to which HSMS and RSMS implement specific components of the middle school. Of the 17 middle school components (see Table 3 for more details), the HSMS have a greater percentage of highly implemented middle school components in 14 areas. The largest discrepancy between the two groups is in implementation of interdisciplinary teaming with a 26% between the HSMS and RSMS survey results. The smallest difference is 4%, for the component teachers with middle school/level teacher certification/licensure. HSMS and the RSMS implement two components, random grouping of students and school initiated community partnerships, at the same rate. In addition, the RSMS had a 10% higher rate of implementation of direct instruction than did the HSMS (McEwin & Greene, 2010, 2011).

Respondents for both surveys provide information about student performance on state standardized tests in reading and math. In HSMS, 98% of students are on or above grade level in reading, while 86% are on or above grade level in RSMS. The percent of students on or above grade level in math for the HSMS is 93%, as opposed to, 82% of students from the RSMS (McEwin and Greene, 2011, p. 23). Along with performances on state standardized tests, McEwin and Greene (2011) included respondents' opinions concerning the effects standardize testing has on selected components of middle school (see Table 3 for more detailed information).

McEwin and Greene (2011) use 11 categories to analyze the effects of high-stakes testing/accountability on specific middle school components. These components include: remediation practices, curriculum and rigor clarity, general academic achievement, teaming, electives/enrichment classes and activities, instructional delivery, instructional grouping practices, and heterogeneous instructional grouping. Respondents from RSMS identify eight specific components on which they think standardized testing has a positive impact: remediation practices, curriculum and rigor clarity, general academic achievement, teaming, elective/enrichment classes and activities, instructional delivery, instructional grouping practices, and heterogeneous instructional grouping (McEwin & Greene, 2010). On the other hand, respondents from HSMS tend to think standardized testing has a positive impact on teacher planning time, advisory groups, flexible scheduling, and heterogeneous instructional grouping (McEwin & Greene, 2010, 2011).

Respondents from RSMS identify standardized tests as a positive influence slightly more frequently than those from HSMS. Specifically, respondents from both RSMS and HSMS tend to locate testing's positive impact in the middle school components of teaching planning time, advisory groups, flexible scheduling, and heterogeneous instructional grouping (McEwin & Greene, 2010, 2011). While there is some discrepancy between the rates of responses from participants at RSMS and HSMS, the difference is not very significant. For example, 40% percent of respondents from HSMS think testing has a positive effect on flexible scheduling, while 23% think it has a negative effect. Likewise, 38% of participants from RSMS perceive testing's effect on flexible scheduling as positive, while 14% report a negative effect (McEwin & Greene, 2011). Significantly, flexible scheduling, advisory groups, elective classes, enrichment activities, and heterogeneous instructional grouping are foundational components of the middle school concept

(Eichhorn, 1966; Alexander, et al., 1968; Carnegie Council on Adolescent Development, 1989; Davis, 2000; NMSA, 2003, 2007, 2009; AMLE, 2010).

In addition to comparing HSMS and RSMS, McEwin and Greene (2010, 2011) wanted to see if the middle school philosophy and tenets of Alexander (Alexander, et al., 1968) George (1993) are still functioning. These studies offer a great deal of insight into implementation of selected middle school components at both RSMS and HSMS, as well as, student results from standardized tests and school administrators' opinions concerning the impact that standardized testing has on selected middle school components. According to McEwin and Greene (2010, 2011), the middle school philosophy and concept have survived, though many middle school fail to fully implement middle school components. However, HSMS are implementing these components to a higher degree than RSMS. In addition, HSMS students' standardized test scores in reading and math was higher than those of the RSMS students (McEwin & Greene, 2010, 2011).

McEwin & Greene (2010, 2011) generated an extensive amount of information through these two surveys; therefore, the following three tables further outline the details of these studies. Table 3 reports the design of the studies, the grade organization, community types, and free and reduced lunch rates. Table 4 reports highly implemented middle school components in both HSMS and the RSMS. Table 5 reports state standardized test scores in reading and math from both HSMS and RSMS. Finally, the tables also include respondents' opinions concerning how standardized testing affects specific middle school components.

Table 3 Highly Successful and Randomly Selected Middle Schools

<p><u>Design of the Study HSMS</u> -186 Schools to Watch and Breakthrough Middle Schools. -Survey sent as attachment to email to principals of all schools. -54% Response Rate</p> <p><u>Grade Organization</u> - 7%- Five through Eight -65%- Six through Eight -15%- Seven and Eight -15%- Others because had been Schools to Watch</p> <p><u>Community Types</u> - 27% Rural Communities - 17% Urban Areas - 56% Suburban</p> <p><u>Free and Reduced Lunch Rates</u> -34% of HSMS- reported that between 1-20% of their students qualified for free and reduced lunch</p>	<p><u>Design of the Study RSMS</u> 20% Random Stratified Sample of 13,918 public middle schools= 2,783 -Electronic Surveys sent to principals of all 2,783 middle schools -30% Return Response Rate = 827 middle schools</p> <p><u>Grade Organization</u> -11%- Five through Eight -67%- Six through Eight -21%- Seven and Eight</p> <p><u>Community Types</u> -43% Rural Communities -18% Urban Settings -39% Suburban Settings</p> <p><u>Free and Reduced Lunch Rates</u> 36% of RSMS – reported that 51% of their students qualified for free and reduced lunch</p>
---	--

(McEwin & Greene, 2010, 2011)

Table 4 Percent of HSMS and RSMS That Highly Implement These Middle School Components

<u>Implementation of Middle School Components</u>	<u>HSMS Percent</u>	<u>RSMS Percent</u>
Advisory Groups	26%	17%
Interdisciplinary Teams	71%	45%
Flexible Scheduling and Grouping	41%	22%
Strong Focus on Basic Subjects	87%	73%
Educators Who Value Working With Youth	77%	53%
Inviting, Supportive, Safe Environment	86%	65%
Teachers and Students Engage in Active Learning	61%	42%
School Initiated School and Community Partnerships	19%	19%
Curriculum that is Challenging, Integrative, and Exploratory	60%	40%
Core Subjects Taught Daily: Language Arts, Math, Science and Social Studies	Average of 15 more minutes per day than RSMS	Average of 15 less minutes per day than HSMS
Multiple Teaching and Learning Approaches	54%	31%
Direct Instruction	71%	81%
Cooperative Learning Random Grouping	85% 23%	64% 23%
Inquiry Teaching	57%	43%
Teachers with Middle School/Level Teacher Certification/Licensure	31%	27%
Assessment and Evaluation Programs that Promote Quality Learning	50%	35%

(McEwin & Greene, 2011)

Table 5 State Standardized Test Scores For HSMS and RSMS Report of Respondents' Opinions Concerning the Effects of Standardized Testing Has on Selected Middle School Components

Report from State Standardize Test Scores	HSMS Percent -Reading (R) and Math (M)	RSMS Percent- Reading (R) and Math (M)	
Students On or Above Grade Level- Reading (R) and Math (M)	98% (R) 93% (M)	86% (R) 82% (M)	
Respondents' Opinions -Positive Impact (PI), No Impact (NI) or Negative Impact (NEG) Concerning the Effects Standardize Testing Has on Selected Components of the Middle School	HSMS Positive Impact (PI) No Impact (NI) Negative Impact (NEG)	RSMS Positive Impact (PI) No Impact (NI) Negative Impact (NEG)	Percentage Differences Between Schools and (PI), (NI), (NEG)
Remediation Practices	81%-(PI) 18%-(NI) 1%-(NEG)	82% -(PI) 13% -(NI) 5% -(NEG)	RSMS 1% Higher (PI) HSMS 5% Higher (NI) RSMS 4% Higher (NEG)
Curriculum Rigor and Clarity	82%-(PI) 12%-(NI) 6%-(NEG)	84%-(PI) 10% -(NI) 6% -(NEG)	RSMS 2% Higher (PI) HSMS 2% Higher (NI) Both 6% (NEG)
General Academic Achievement	70%-(PI) 18%-(NI) 12%-(NEG)	79%-(PI) 13%-(NI) 9% -(NEG)	RSMS 9% Higher (PI) HSMS 5% Higher (NI) HSMS 3% Higher (NEG)
Teaming	52%-(PI) 43%-(NI) 5%-(NEG)	55% -(PI) 34% -(NI) 11% -(NEG)	RSMS 3% Higher (PI) HSMS 9% Higher (NI) RSMS 6% Higher (NEG)
Teacher Planning Time	54%(PI) 37%-(NI) 10%-(NEG)	51%-(PI) 35%-(NI) 15% -(NEG)	HSMS 3% Higher (PI) HSMS 2% Higher (NI) RSMS 5% Higher (NEG)
Advisory Groups	31%-(PI) 52%-(NI) 17%-(NEG)	28%-(PI) 61%-(NI) 12%-(NEG)	HSMS 3% Higher (PI) RSMS 9% Higher (NI) HSMS 5% Higher (NEG)
Flexible Scheduling	40%-(PI) 37%-(NI) 23%-(NEG)	38% -(PI) 49% -(NI) 14% -(NEG)	HSMS 2% Higher (PI) RSMS 12% Higher (NI) HSMS 9% Higher (NEG)
Electives/Enrichment Classes and Activities	38%-(PI) 36%-(NI) 26%-(NEG)	41%-(PI) 32%-(NI) 27%-(NEG)	RSMS 3% Higher (PI) HSMS 4% Higher (NI) RSMS 1% Higher (NEG)
Instructional Delivery	67%-(PI) 19%-(NI) 14%-(NEG)	73%-(PI) 14%-(NI) 13%-(NEG)	RSMS 6% Higher (PI) HSM 5% Higher (NI) HSMS 1% (NEG)
Instructional Grouping Practices	57%-(PI) 29%-(NI) 13%-(NEG)	64%-(PI) 25%-(NI) 11%-(NEG)	RSMS 7% Higher (PI) HSMS 4% Higher (NI) HSMS 2% Higher (NEG)
Heterogeneous Instructional Grouping	38%-(PI) 44%-(NI) 18%-(NEG)	39%-(PI) 48%-(NI) 14%-(NEG)	RSMS 1% Higher (PI) RSMS 4% Higher (NI) HSMS 4% Higher (NEG)

(McEwin & Greene, 2010)

(Percentage Difference Calculations Byers, 2013)

While McEwin and Greene's (2010, 2011) studies focus on responses from principals' perspectives, Huss and Eastep's (2011) used a fixed response survey to address the perceptions of middle school teachers in Indiana, Kentucky and Ohio. Huss and Eastep (2011) collected a sample of approximately 200 schools districts. A random selection of 67 middle schools, not junior high or K-8 schools, made up the sample, and the states in which the study took place have a specialized middle level certification and licensure. The researchers felt that these teachers would have a more thorough understanding of the unique characteristics of the adolescent learners' ages 10 through 15 (Huss & Eastep, 2011).

At the end of the random selection process, Huss and Eastep (2011) mailed 201 questionnaires to middle school teachers. One hundred and four middle school teachers replied: 33 from Indiana, 35 from Kentucky, and 36 from Ohio, making the overall return rate 52%. Of the surveyed schools 67% serve grades six through eight, 20% serve grades seven and eight, 12% serve grades five through eight, and 1% grades five and six. The final sample represents a balance of school districts located in rural, suburban and urban areas (Huss & Eastep, 2011).

In Huss and Eastep's (2011) study, most of the middle school components are similar to McEwin and Greene's (2010, 2011). The reader can refer to Table 5 for a detailed comparison. Respondents in Huss and Eastep's (2011) study report specialized teacher selection as the most commonly implemented middle school component. On the other hand, the most infrequently implemented middle school components were teacher and student selected special interest and activity programs. Table 6 provides further details.

Table 6 Comparison of the Percent of Selected Highly Implemented Middle School Components of McEwin and Greene’s (2010, 2011) Responses from Principals and Huss and Eastep’s (2011) Responses from

Teachers			
	Percent of Principals’ Responses M&G-HSMS	Percent of Principals’ Responses M&G-RSMS	Percent of Teachers’ Responses H&E
Advisory Programs	26%	17%	32%
Interdisciplinary Teaming	71%	45%	67%
Flexible Scheduling	41%	22%	32%
Teachers and Students Engaged in Active Learning	61%	42%	67%
Curriculum That is Challenging, Integrative, and Exploratory	60%	40%	49%
Special Interest Activity Programs chosen by teachers and students	N/A	N/A	21%
Teachers Selected for Their Certification, Skills, and Interests Working With Students Ages 10 through 15	31%	27%	79%
Staff Development Programs Focusing on the Unique Characteristics of Young Adolescents	N/A	N/A	30%

(Huss & Eastep, 2011; McEwin & Greene, 2010, 2011)

Table 6 shows that the largest differences between these two studies are teacher certification and the selection though it is important to note that Indiana, Kentucky and Ohio have specialized middle school certifications (Huss & Eastep, 2011). Consequently, teacher selection in these three states relies on middle school certifications, skills, and interest working with middle school aged adolescents. On the other hand, McEwin and Greene’s (2010, 2011) national study focuses on the percentage of teachers who have middle school licenses or certificates, which contributes to the stark difference between the studies’ findings. The curriculum component also shows a significant difference between the two studies (11%). The differences between other middle school components are not nearly as significant.

Huss and Eastep (2011) also examine teachers' best explanations for maintaining middle school components, the decline of middle school components, and the effects of high-stakes testing and accountability on their schools. They found that 50% of the teachers from this tri-state area link the decline in implementation of middle school components with incongruent state testing and accountability requirements. Additionally, 51% of the teachers think teacher buy-in affects their schools' ability to maintain middle school components. Furthermore, teachers most frequently identify high-stakes testing and accountability as positively influencing remediation practices and curriculum. Conversely, teachers describe testing and accountability's impact on school climate, electives, and student learning as overwhelmingly negative (Huss & Eastep, 2011). Table 7 compares responses from McEwin and Greene's (2010, 2011) principal surveys with Huss and Eastep's (2011) teacher surveys on areas of accountability and high stakes testing.

Table 7 McEwin and Greene's Responses from Principals Huss and Eastep Responses from Teachers Based on Their Perceptions as to the Positive (PI) and Negative (NEG) Impact That High Stakes Testing Has on Their Schools

McEwin and Greene Highly Successful Middle Schools (M&G HSMS)

McEwin and Green Randomly Selected Middle Schools (M&G RSMS)

Huss and Eastep (HE)

	Percent of Principals' Responses M&G-HSMS (PI) (NEG)	Percent of Principals' Response M&G-RSMS (PI) (NEG)	Percent of Teachers' Responses H&E (PI) (NEG)
Remediation Practices	(PI) 81%, (NEG) 1%	(PI) 81% (NEG) 5%	(PI) 76% (NEG) 22%
Curriculum	(PI) 82% (NEG) 6%	(PI) 84% (NEG) 6%	(PI) 53% (NEG) 44%
Teaming	(PI) 52% (NEG) 5%	(PI) 55% (NEG) 11%	(PI) 36% (NEG) 34%
Teacher Planning Time	(PI) 54% (NEG) 10%	(PI) 51% (NEG) 15%	(PI) 26% (NEG) 46%
Advisory Groups	(PI) 31% (NEG) 17%	(PI) 28% (NEG) 12%	(PI) 23% (NEG) 30%
Flexible Scheduling	(PI) 40% (NEG) 23%	(PI) 38% (NEG) 14%	(PI) 28% (NEG) 46%
Electives	(PI) 38% (NEG) 26%	(PI) 41% (NEG) 27	(PI) 21% (NEG) 58%
Instructional Delivery	(PI) 67% (NEG) 14%	(PI) 73% (NEG) 13%	(PI) 46% (NEG) 48%
Instructional Grouping	(PI) 57% (NEG) 13%	(PI) 64% (NEG) 11%	(PI) 41% (NEG) 42%

(Huss & Eastep, 2011; McEwin & Greene, 2010, 2011)

Table 7 compares principal and teacher perceptions of the impact of standardized testing on nine middle school tenets. This comparison shows that teachers' and principals' perceptions of standardized testing's effect on remediation are fairly similar. However, in other areas including curriculum, teaming, teacher planning time, instructional delivery, and instructional grouping, the difference between principals' and teachers' perceptions of the effects of high-stakes testing is between 20 and 30%. This percentage difference suggests principals have a higher opinion of high-stakes testing and accountability measures than the teacher respondents.

Furthermore, teacher respondents frequently opined that high-stakes testing and accountability measures have a negative effect on the areas of teacher planning time, flexible scheduling, instructional grouping, instructional delivery, electives and advisory programs. Principals were more forgiving in their views of how testing might affect these components. In

these three studies, there are distinct differences between principal and teacher perceptions of selected middle school components and standardized testing. Both sets of researchers recommend more research in these areas is needed (Huss & Eastep, 2011; McEwin & Greene, 2010, 2011).

2.4.2 Summary

In general, this literature review focuses on three main themes: the emergence of the middle school; the unique characteristics of the middle school student; and a comparison of middle schools that follow the middle school tenets with those that do not.

Section 2.2 reviews literature concerning the origins of the middle school. This section details the historical progression of the emergence of the middle school, and explores the functions of the junior high school that in turn became the foundation for the middle school. This section also reviews the struggle and eventual demise of the junior high school. Junior high schools aimed to focus on the unique developmental needs and characteristics of its students, ages 10 to 14, and provided an educational component for them. Eventually, junior highs became a mini-high schools that negated the foundation for the junior high school format. Consequently, the middle school emerged with its focus on the unique developmental needs and characteristics of adolescent students. Within this section, one important point becomes clear: the middle school did not emerge for the convenience of a new grade configuration, rather, the middle school emerged to address the unique characteristics and developmental needs of the middle school student, and to provide an educational component for those students. Furthermore, if middle schools are going to survive, administrators, teachers, and policy makers should follow the tenets

of the middle school need to be followed, or history will repeat itself, and middle schools will go the way of the junior high school.

Section 2.3 reviews literature germane to the unique characteristics of the middle school student. This section examines the physical, cognitive, emotional and psychosocial development of middle school students, ages 10-15. It is useful to review each of these areas of development separately, even though they closely relate to one another, in order to provide the most detailed and thorough account. The overall findings of this section support the existence of unique developmental characteristics of middle school students, and the need for specific curricula, programs, and educational climates that meet the needs of these adolescents.

Finally, section 2.4 examines middle schools that follow the middle-school tenets and those that do not. This review of literature examines three current studies and compares relevant data. Two of the studies reflect the work of McEwin and Greene (2010, 2011) who obtained survey data from principal respondents. Huss and Eastep's (2011) study gleaned survey data from teacher respondents. The literature review creates a comparison between these two studies

The findings of this literature review show that the middle school tenets and educational components have a place in the educational system of the United States. However, it is important to note that grade configuration was never the premise of the middle school. Instead, the middle school emerged to address the unique developmental needs of middle school students, and to provide an educational program for them. Therefore, my literature review will inform this study in the following ways:

1. To explore how full-time middle school teachers perceive their familiarity with the physical, cognitive, emotional, and psychosocial developmental processes of middle school students ages 10 through 13.

2. To investigate where (undergraduate programs, graduate programs, professional development programs or personal experience) certified teachers working (full time) in middle schools became familiar with the physical, emotional, cognitive and psychosocial development of middle school students.
3. To examine if there are differences by grade level and areas of certification in full time middle school teachers reporting their familiarity with the physical, emotional, cognitive and psychosocial development of middle school students.
4. To investigate if there are any differences between participants certified in PA and those not certified in PA with respect to self-reported familiarity of the physical, emotional, cognitive and psychosocial development of middle school students.

Chapter Three will provide an in-depth look at the problem of this study, its importance, and the process of the development of the researcher's four research questions. In addition, this chapter will provide the framework for this study, its sampling and the measures that will be used. Additionally, the development of the survey instrument is provided as well as the data collection process, the analyses used to interpret the data of this study, and finally the limitations of this study.

3.0 METHODS

3.1 STATEMENT OF THE PROBLEM AND INTRODUCTION

Researchers know little about middle school educators' knowledge of adolescent development and how, if at all, they acquire this knowledge. Yet this knowledge is seen as fundamental to the success of middle school implementation (Alexander, et, al., 1968; Beane & Lipka, 2006; Dickerson & Butler, 2001; Eichhorn, 1966, 1968; Lounsbury, 2000; McEwin & Greene, 2010, 2011; Musoleno & White, 2010).

“The true middle school concept... has not been practiced and found wanting; rather it has been found difficult to implement fully and is practiced then, only, partially” (Lounsbury, 2009, p. 31). One identified barrier to middle level implementation is educators' lack of understanding of adolescent students (Lounsbury, 2009, p. 31). Therefore, the purpose of this research study was to investigate how familiar middle school teachers are with the unique physical, cognitive, emotional and psychosocial development of middle school students, ages 10 through 15. In addition, this study investigated where middle school teachers obtained their developmental knowledge, as well as, their area(s) and state(s) of certification(s). This study also explored two variables that might influence knowledge and its attainment: the subject(s) taught and the states in which the teachers were credentialed. These latter two variables were of interest because educators generally receive certification through state-approved preparation programs

whose requirements vary considerably from state to state (Flowers, Mertens, & Mulhall, 2002; Gaskill, 2002).

3.2 IMPORTANCE OF THE STUDY

The literature review provided invaluable information concerning the emergence of the middle school, the unique characteristics of middle school students and the elements of middle schools that follow the middle school tenets and those that do not. Throughout this study, a reoccurring theme became apparent: middle school teachers should have a thorough knowledge concerning the unique physical, cognitive, emotional and psychosocial developmental processes of students ages 10 through 15 (Alexander, et al., 1968; AMLE, 2010; Carnegie Council of Adolescent Development, 1989; Eichhorn, 1966, 1967, 1969a, 1969b; Jackson & Davis, 2000; Manning, 1993, 2000, 2002; NMSA, 2003, 2005, 2010). Likewise, this literature review uncovered the consensus among experts that middle school teachers need to know the developmental processes their students are experiencing.

Nevertheless, the literature is largely silent on the question of how much middle school teachers know about these developmental processes. Therefore, this research study sought answers for how much middle school teachers report knowing about the developmental processes of their students and how they came to attain this knowledge. These results can inform middle school teacher education programs as well as professional development programs for middle school teachers.

3.3 RESEARCH QUESTIONS

This study investigated and provided findings to answer these four specific questions:

1. How do full-time middle school teachers perceive their familiarity with the physical, cognitive, emotional, and psychosocial developmental constructs?
2. How do certified teachers working in middle schools describe *where* they became familiar with these four constructs (e.g., through undergraduate course work, graduate coursework, professional development programs, or personal experience)?
3. Are there differences by certification in participants reporting their familiarity with these four constructs (physical, cognitive, emotional, and psychosocial)?
4. Are there differences between participants certified in PA and those not certified in PA with respect to self-reported familiarity with these four constructs (physical, cognitive, emotional, and psychosocial)?

3.4 FRAMEWORK FOR THE STUDY

The framework supporting this survey-based study evolved from the literature review which provided detailed information about the unique physical, cognitive, emotional and psychosocial development that is occurring in middle school students ages 10 through 15. What follows is a brief overview of this supporting literature.

Hall's (1904) pioneering publication of *Adolescence* stated "adolescence" was a separate stage of growth and development, and educators needed to acknowledge and understand this separate stage of growth and development. Suzzallo (United States Bureau of Education, 1913) linked educational principles and the development of adolescents and believed that the six years of secondary education should be broken into two equal parts: three years of junior high school education and three years of high school education (United States Bureau of Education, 1913, p. 26-27).

It was Suzzallo's premise that the junior high school would provide a greater number of students with a relevant education that met the developmental needs of the students (United States Bureau of Education, 1913). The period of adolescence was in the forefront for educators, and this focus continued as Inglis recommended the junior high school provide curriculum based on students' individual differences, needs, interests and abilities (Inglis, 1918, pp. 293-294). In 1920, Briggs further developed Inglis' ideals about adolescents and their junior high school education; however, the junior high school never really adhered to these philosophies and tenets. Although the junior high school was in trouble, many administrators and teachers still believed in the rationale and philosophy behind the junior high school (Briggs, 1920).

By the late 1940s, the junior high school was in serious trouble (Lounsbury, 1992). In the hopes of saving the junior high school, Gruhn and Douglas proposed six functions of the junior high school: integration, exploration, guidance, differentiation, socialization and articulation (Gruhn & Douglas, 1947). The hope was that these six functions would provide a standardized format for the struggling junior high school. Although these six functions were promising, the junior high school never flourished. Staff and administrators were not being trained or prepared to work with this adolescent population, and the most critical aspect was the failure to address the unique developmental characteristics and needs of the adolescent student (Lounsbury & Vars, 1978). Consequently, the middle school model emerged.

As Alexander (Alexander, et al., 1968) and Eichhorn, (1966, 1967, 19689a, 1968b) began developing the middle school, they re-emphasized that this population of students was unique due to the various stages and rates at which they were developing physically, cognitively, psychosocially, and emotionally. It was the responsibility of administrators and educators to provide a developmentally appropriate curriculum for these students.

Following the historical progression of the middle school, two reoccurring themes emerged:

- Middle-school teachers who possess a thorough knowledge of the subject matter they are teaching as well as a thorough knowledge of the students with whom they work are better prepared to teach middle school students (AMLE, 2010; Eichhorn, 1966; Alexander, et al., 1968; Jackson & Davis, 2000; NMSA, 2003).
- A specific barrier to middle level implementation is the lack of understanding of adolescent students (Lounsbury, 2009, p. 31), a detailed investigation of the physical, cognitive, emotional, and psychosocial development of middle school

students followed.

From these key points of the literature review, survey questions were framed and refined.

3.5 SAMPLING

There are 51 public middle schools in Beaver, Butler and Allegheny County. Grade configuration varies, as do the names (“The Public School Review,” n.d.); however, for the purpose of this study only the full time teachers from public middle schools with the organization of grades six through eight were considered. The rationale behind this selection was that the most common middle school grade configuration of six through eight has made the five-three-four educational format (five years of elementary education, three years of middle school education, and four years of high school) the most common model in the United States (Lounsbury, 2009; Lounsbury & Vars, 2003; McEwin & Greene, 2010). A second rationale for using full time teaching staff from middle schools with this grade configuration was to have less variation within the student population (ages, grade levels, academic and social programs) with whom these teachers interact and teach.

After compiling the list of all public middle schools in these three counties, the next step was to go to each district’s webpage to make sure the district’s grade configuration was in fact what was reported through *The Public School Review* (“The Public School Review,” n.d.). Following this fact-finding, a countywide middle school table was constructed and each county’s middle school grade organization was charted. Table 8 provides this information.

Table 8 County Wide Middle School Table

County	Grades 4-8	Grades 5-6	Grades 5-8	Grades 6-8	Grades 7-8	Totals
Allegheny	1	4	1	21	8	35
Beaver	-	-	2	5	2	9
Butler	-	2	-	2	3	7
Totals	1	6	3	28	13	51

Table 8 of the three counties provided information that the highest percentage (55%) of all public middle schools in Beaver, Butler and Allegheny counties are organized as grades six through eight. The number of full time middle school teachers, grades six through eight, that were going to be contacted (upon district superintendents' approval) and invited to participate in this study was 1,255.

3.6 MEASURES

Surveys are among the best methods available for social researchers who want to collect original data from a population too large to observe directly (Babbie, 2007). In addition, surveys may be the least expensive, quickest, and most accurate way to get information (Alrek & Settle, 1995). Therefore, this descriptive research study consisted of a survey composed of closed and open-ended questions. SurveyMonkey™ an Internet survey provider was used. SurveyMonkey™ was selected for four specific reasons:

1. Ease of participants' access to this survey through an invitation email.
2. Protection of respondents' anonymity.
3. Minimization of respondents' burden. No return mail responses, scheduled phone or personal interview times were needed.

4. Eliminate possible data entry errors that may occur from paper copies.

3.7 SURVEY INSTRUMENT

A review of the literature did not provide an extant and inclusive self-report familiarity survey for the purposes of this study, so a new instrument was constructed. The four main constructs (physical, cognitive, emotional, and psychosocial) and corresponding survey items to answer Research Questions one, three, and four emerged from the literature review process, specifically:

- *Physical* (Alsaker & Flammer, 2006; Alexander, 1993; Alexander et al., 1968; AMLE, 2010; Bacchini & Maliulo, 2003; Carnegie Council of Adolescent Development, 1989; Dahl, 2004; Eichhorn, 1966; Eichhorn, 1967; George & Alexander, 1993; Howard & Stoumbis, 1970; Irvin, 1992; Jackson & Davis, 2000; Knowles & Brown, 2000; Lerner & Steinberg, 2004; Lipsitz, 1984; Lounsbury, 2011; Manning, 1993; Manning & Bucher, 2009; Salkind, 2006; Steinberg, 2011; Tanner, 1962; Thornburg, 1980; Thornburg, 1983; Wigfield & Wagner, 2005).
- *Cognitive* (Casey, Jones, & Hare, 2008; Casey, Tottenham, Liston, & Dursto 2005; Caskey & Ruben, 2007; Giedd, 2004; Steinberg, 2011).
- *Emotional* (Casey, Jones & Hare, 2008; Casey, Jones, & Somerville, 2011; Dahl, 2004; Forbes & Dahl, 2010; Geiger & Luna, 2009; Liston & Dursto, Steinberg, 2005; Steinberg, 2011; Tottenham; Caskey & Ruben, 2007).
- *Psychosocial* (Collins & Lauren, 2004; Dahl, 2044; Lounsbury, 2011; Manning, 2009; Meschke, Peter, & Bartholomae, 2011; Smenta, Campione-Barr, & Metzger, 2006; Steinberg, 2011; Zimmer-Gembeck, 2002)

A pool of 105 items from four areas of development (physical, cognitive, emotional, and psychosocial) was obtained and selected from the literature review. These questions were organized into specific item sets that reflected a content domain in order to maximize item

appropriateness and link them to the construct that was being examined (DeVellis, 2012). In developing this measurement scale these areas of scale development were used:

- Generate a large pool of items for development of scale (DeVellis, 2012, p.76).
- Every question should focus on a specific subject or topic (Alreck & Settle, 1995, pp. 87).
- Keep questions brief. This will help ensure clarity, less confusion, and error for both developer and respondent (Alreck & Settle, 1995, pp. 88).
- The meaning of the questions should be clear to all respondents (Alreck & Settle, 1995, pp. 89).
- Words and phrases should be used that are familiar to the respondents (Alreck & Settle, 1995, pp. 90-92).
- Determine the format that will be used for the measurement (DeVellis, 2012, p. 85).
- Determine the type of response format that will be used (DeVellis, 2012, p. 93).
- Have the scale items reviewed by experts (DeVellis, 2012, p. 99).

Out of the 105 original questions, a smaller number of survey items were chosen. To answer Research Question one, a reduced number of items were grouped into the four categories (physical, cognitive, emotional, and psychosocial) consisting of five items each. Each section was prefaced with, “How familiar are you with...” The respondents selected one response from a five-point scale (1 = Have never heard of this; 2 = Have heard of this; 3 = Am familiar with this; 4 = Understand this well enough to discuss with colleagues; 5 = Understand this well enough to teach to colleagues).

Cross-cutting themes for Research Question two were based on extant literature surrounding the topic (AMLE, 2010; Eichhorn, 1966; Alexander, et al., 1968; Jackson & Davis, 2000; NMSA, 2003). To address this research question, each of the four familiarity item sets were paired with an item asking respondents, “What contributed most to your familiarity with [category]”, where respondents could choose/endorse as many as four categorical responses (undergraduate courses; graduate courses; professional development programs; personal experience). To assess whether certification area affected familiarity, an item asked respondents to report what grade level(s) they are certified in. There were nine levels of certification and respondents could choose as many as applied, and an “Other” text-box was supplied for respondents to report grade level certification(s) that were not listed. Another item asked participants to report their area(s) of certification. Respondents were able to choose as many of the 17 areas of certifications as applied to them and an “Other” text-box was provided. A follow up item asked participants if they obtained their area(s) of certification from Pennsylvania or another state. The final closed-ended item asked participants if they had ever completed a course that focused on the development of children ages 10 through 15 (1 = Don’t know; 2 = No; 3 = Undergraduate; 4 = Graduate).

Two open-ended questions were presented in order to provide the voice that some respondents need in order to express their thoughts and feelings about the survey and its subject matter (Walonick, 2004). As open-ended questions may have an adverse effect on some respondents, causing them to abandon the survey (Crawford, Couper, & Lamias, 2001), these two questions were presented after the data for the primary questions of importance were collected. One asked participants to *“Tell us about any coursework or personal experience that made a significant impact on your ability to work with middle school students.”* The other asked

respondents to *“Feel free to share any thoughts about how middle school teachers should be prepared to address the developmental needs of their students.”*

Finally, two additional questions asked participants to report how many years of experience that they had in (1) “teaching school”, and (2) “teaching middle school”. These optional demographic questions were presented in an open-ended format.

This study and on-line survey was approved by the University of Pittsburgh’s Institutional Review Board as an exempt study under section 45 CFR 46.101(b)(2) on December 18, 2013 (IRB# PRO13040161) whereupon it was piloted using 20 participants. These respondents were asked to report any questions in the survey that were unclear or confusing. There were 17 respondents who completed the survey without any technical or content problems. See Appendix A for the finalized survey.

3.8 DATA COLLECTION PROCEDURES

After charting this information, the names of district superintendents and building principals were obtained, as well as the number of middle school teachers employed in these districts. The author contacted 17 district superintendents (some districts had multiple middle schools under the supervision of one superintendent) to seek permission for their **full-time middle school teaching staff** to complete this survey. After receiving permission from district superintendents, middle school building principals received emails for their support in this study. In addition, the full time teaching staff received an email inviting them to participate in this study including the link to the survey. The full time middle school teaching staff was given a two-week window to

complete the survey. Following the first week the survey was available for staff members to complete, a follow-up email letter was sent to the staff reminding them of this study. The recruitment and follow-up email letters appear in Appendix A: sub-section 1 and 2, B and C. The number of middle school teachers, grades six through eight, planned to be contacted (upon district superintendent's approval) and invited to participate in this study was 1,255.

3.9 ANALYSIS

The survey designed for this investigation was designed to capture both quantitative and qualitative data concerning the perception full-time middle school teachers have about how familiar they are with the physical, cognitive, emotional and psychosocial developmental of middle school students. The following sections will outline, in detail, the analysis plan for this data.

3.9.1 Data Cleaning and Score Calculations

SPSS software was used for all quantitative data analysis processes. Data were collected from an online survey that allowed participants to remain anonymous.

For each subscale (i.e., familiarity with physical, cognitive, emotional, and psychosocial development), a total subscale score was calculated. Each participant had four subscale scores.

Survey item nine asked for participants to categorize themselves based on the "grade levels" they were certified to teach. Participants who indicated that they qualified for more than

one category or who did not qualify for the listed categories were investigated on a case-by-case basis.

To further examine the relationship between areas of certification and developmental knowledge, item 10 requested the participants select all levels of certification that they had obtained. Because participants were able to select more than one option, the resulting groups were not mutually exclusive. Thus, the researcher categorized the participants into mutually exclusive groupings based on similar and overlapping areas of concentration (e.g., physical education and health education were grouped together for analysis purposes).

For open-ended questions included on the survey (items 13 and 14), responses were uploaded to Dedoose™, a web-based qualitative analysis program.

3.9.2 Sample and Demographics

The sample of full-time middle school teachers was described with regard to their level and area(s) of certification(s), the number of years they had taught in the field of education, and the number of years they had taught middle school students. Frequencies (in the form of percentages) illustrated the level(s)/area(s) of concentration, while measures of central tendency (i.e., means and standard deviations) were used to describe the teachers' tenure in the field.

3.9.3 Quantitative Analysis Plan

The following sections outline the quantitative analyses that were used to examine data with regards to each of this study's research questions.

In order to investigate Research Question one (*How do full-time middle school teachers perceive their familiarity with the physical, cognitive, emotional, and psychosocial developmental constructs?*) which was linked to survey items 1, 3, 5, and 7, the researcher used descriptive statistics to explain how familiar full-time middle school teachers were with the physical, cognitive, emotional, and psychosocial developmental domains. After calculating the subscale scores for each individual teacher, the researcher calculated the mean of these scores across all participants in order to find the average level of familiarity with the various developmental domains. Standard deviation was calculated in order to show the amount of variability of the sample. Finally, Pearson correlations (Pallant, 2010) were run to investigate the relationship between the number of years in the teaching profession and familiarity with developmental knowledge as well as the number of years spent teaching middle schools students and familiarity with developmental knowledge (survey items 15 and 16). Results of these correlations allowed the researcher to make inferences regarding the influence of experience in the field on the accumulation of developmental knowledge.

Research Question two (*How do certified teachers working in middle schools describe where they became familiar with these four constructs?*) examined where full time middle school teachers obtained their developmental knowledge about middle school students. Participants were asked to report where they obtained this knowledge (i.e., undergraduate courses, graduate courses, professional development programs or personal experience) for each of four developmental domains: physical, cognitive, emotional and psychosocial. To answer this question, frequency counts from the survey questions addressing each development area (i.e., 2, 4, 6, and 8) were displayed as a percentage of the sample (Pallant, 2010).

In addition, the researcher was interested in exploring whether the source of the developmental knowledge correlated with the participants' level of familiarity with the developmental domains. To answer this question, the researcher conducted a series of independent samples t-tests for each source of knowledge for the corresponding developmental domain to examine whether there were differences in the mean subscale scores for those receiving their knowledge of the various domains. Additionally, the number of sources of developmental knowledge was calculated and correlation with each corresponding subscale score was calculated.

Survey items 9 and 10 were linked to Research Question three (*Are there differences by certification in participants reporting their familiarity with these four constructs (physical, cognitive, emotional, and psychosocial?)*) and further categorized participants by both the grade level (s) they were certified to teach (survey item 9) as well as the specific areas of concentration for which they were qualified to teach (survey item 10).

In order to investigate the relationship between teachers' grade level certification(s) (survey item 9) and familiarity with developmental knowledge, the researcher ran an independent sample t-test (Pallant, 2010). Results allowed the researcher to interpret, which if any, five areas of certification levels: elementary, middle school, secondary, certified K-12 Specials, and certified K-7 Specials have statistically different mean scores on each of the four subscales.

Survey item 10 further categorized participants by both the grade level(s) they were certified to teach as well as the specific area of concentration for which they were qualified to teach. The researcher was concerned about the number of mutually exclusive groupings that could result from categorizing the data in this manner. Thus for purposes of analysis, two

variables were explored. First, the researcher hypothesized that those certified in physical education and health education would be more knowledgeable than those not certified in that area. Thus, a two-group t-test for independent samples (Pallant, 2010) was conducted to answer this question. Secondly, the number of certifications held and the number of areas of certification were calculated and a correlation was performed to see whether this was related to the area of knowledge.

Survey item 11 was linked to Research Question four (*Are there differences between participants certified in PA and those not certified in PA with respect to self-reported familiarity with these four constructs (physical, cognitive, emotional, and psychosocial)?*). To investigate the difference between educators certified in Pennsylvania versus those certified in other states on their familiarity with developmental knowledge, the researcher ran another series of two-sample t-tests (Pallant, 2010). Results allowed the researcher to interpret if educators prepared in Pennsylvania have statistically different mean scores on each of the four subscales than teachers prepared in other states.

Survey item 12 was linked to Research Question two (*How do certified teachers working in middle schools describe where they became familiar with these four constructs?*) Participants were asked if they ever completed a course that focused on the development of children ages 10-15. The respondents could choose from one of four options: 1. *Don't know* 2. *No* 3. *Yes, Undergraduate* or 4. *Yes, Graduate*. To answer this question, frequency counts from the survey questions addressing each area were displayed as a percentage of the sample (Pallant, 2010).

3.9.4 Qualitative Analysis

In order to better understand the coursework or personal experiences that prepared participants for working with middle school students, the researcher included two open-ended questions (items 13 and 14) in the survey for this study. The questions included the following:

- *Please tell us if there was a particular course or personal experience that had a significant impact that helped prepare you to work with middle school students; and*
- *Please feel free to share any thoughts about how middle school teachers should be prepared to address the developmental needs of their students.*

The respondents' words from these two questions were exported to an excel sheet then uploaded into Dedoose software. For each question, the researcher read through the qualitative responses twice (as recommended by Boyatzis, 1998), and in the process of doing so, created a coding scheme to use for each question respectively. After codes were established, the researcher codified the data in Dedoose and reported existing themes for each question. Qualitative coding and comparative analysis were used to assess and report similar patterns and themes from the respondents' answers.

4.0 FINDINGS

This chapter provides a descriptive analysis of the responses from full time middle school teachers in Allegheny, Beaver, and Butler Counties. The purpose of this research study was to investigate how middle school teachers perceive how familiar they are with the unique physical, cognitive, emotional and psychosocial development of middle school students, ages 10 through 15. In addition, this study investigated where middle school teachers obtained their developmental knowledge, as well as, their area(s) and state(s) of certification(s). This study also explored two variables that might influence knowledge and its attainment: the subject(s) taught and the states in which the teachers were credentialed. These latter two variables were of interest because educators generally receive certification through state-approved preparation programs whose requirements vary considerably from state to state (Flowers, Mertens, & Mulhall, 2002; Gaskill, 2002).

Data from all respondents was retrieved from an on-line survey tool, SurveyMonkey™ and results were analyzed to answer the four Research Questions of this study. The Research Questions are as follows:

1. *How do middle school teachers perceive their familiarity with the physical, cognitive, emotional, and psychosocial developmental constructs?*

2. *How do certified teachers working in middle schools describe where they became familiar with these four constructs (e.g., through undergraduate course work, graduate coursework, professional development programs, or personal experience)?*
3. *Are there differences by certification in participants reporting their familiarity with these four constructs (physical, cognitive, emotional, and psychosocial)?*
4. *Are there differences between participants certified in PA and those not certified in PA with respect to self-reported familiarity with these four constructs (physical, cognitive, emotional, and psychosocial)?*

The remainder of this chapter will be organized to identify the participants of this survey and to report the answers to these four research questions.

4.1 SURVEY PARTICIPATION

Of the 28 public middle schools in Allegheny, Beaver and Butler Counties that were originally slated to be contacted, seven were omitted due to IRB constraints and regulations implemented by the Pittsburgh Public Schools thus reducing the total number of middle schools to 21.

Personal email letters were sent to district superintendents asking for permission for their full time middle school staff members to be invited to complete this survey on behalf of the researcher by Tri-State Area School Study Council. In addition, these district superintendents were contacted a second time by professors from the University of Pittsburgh and by district superintendents whose staff was participating in this study. The researcher received permission from eight of the 21 district superintendents contacted for their full time middle school staff to be invited to participate in this survey study.

There were 318 full time middle school teachers who were invited to participate in this study. Of the 318 full time teachers who were invited, 90 responded or a 28% ($N=90$) response rate. Due to this small return rate, these findings will not be able to be generalized.

4.2 HOW DO FULL-TIME MIDDLE SCHOOL TEACHERS PERCEIVE THEIR FAMILIARITY WITH THE PHYSICAL, COGNITIVE, EMOTIONAL AND PSYCHOSOCIAL DEVELOPMENT OF MIDDLE SCHOOL STUDENTS?

Research Question one asked, *How do Full-Time Middle School Teachers Perceive Their Familiarity with the Physical, Cognitive, Emotional and Psychosocial Development Constructs of Middle School Students?* Each of these constructs will be reported individually. For self-reported familiarity with the four overall domains, middle school teachers were most familiar with middle school students' psychosocial, physical, and emotional development, respectively. Students' cognitive development was the domain that middle school teachers reported understanding the least. Overall scores for self-reported understanding of psychosocial development ranged from 9 to 25 ($M = 17.43$, $SD = 3.06$, $Median = 18$). Physical development scores ranged from 7 to 25 ($M = 16.90$, $SD = 3.48$, $Median = 18$), emotional development ranged from 5 to 25 ($M = 16.79$, $SD = 3.82$, $Median = 17.5$), and cognitive development ranged from 5 to 23 ($M = 14.06$, $SD = 4.64$, $Median = 15$). Overall scores were corrected for missing values of individual items. See Table 9 for descriptive statistics of individual items within domains.

Table 9 Percent of Responses for Each Familiarity Item

Section	Item	<i>N</i>	<i>M</i>	<i>SD</i>	<u>Percent</u>				
					Never Heard (1)	Have Heard (2)	Somewhat Familiar (3)	Understand to Discuss (4)	Understand to Teach (5)
1. <u>Physical</u>									
	A	90	3.61	0.71	-	6.7	32.2	54.4	6.7
	B	90	3.62	0.71	-	7.8	27.8	58.9	5.6
	C	90	3.14	0.99	7.8	13.3	41.1	32.2	5.6
	D	89	3.35	0.94	4.5	13.5	32.6	43.8	5.6
	E	89	3.20	0.92	4.5	14.6	42.7	32.6	5.6
2. <u>Cognitive</u>									
	A	90	2.71	0.96	8.9	36.7	30.0	23.3	1.1
	B	89	2.73	1.00	10.1	36.0	25.8	27.0	1.1
	C	89	2.84	0.98	6.7	32.6	33.7	23.6	3.4
	D	90	2.83	0.97	6.7	34.4	30.0	26.7	2.2
	E	90	2.80	0.96	7.8	32.2	34.4	23.3	2.2
3. <u>Emotional</u>									
	A	90	3.32	0.86	3.3	13.3	33.3	47.8	2.2
	B	89	3.27	0.88	4.5	12.4	37.1	43.8	2.2
	C	89	3.39	0.89	3.4	11.2	33.7	46.1	5.6
	D	90	3.37	0.81	2.2	13.3	31.1	52.2	1.1
	E	88	3.30	0.86	3.4	13.6	35.2	45.5	2.3
4. <u>Psychosocial</u>									
	A	90	3.70	0.63	-	4.4	25.6	65.6	4.4
	B	90	3.72	0.62	-	4.4	23.0	67.8	4.4
	C	89	3.38	0.79	1.1	13.5	33.7	49.4	2.2
	D	90	3.29	0.80	1.1	15.6	38.9	42.2	2.2
	E	90	3.21	0.84	2.2	17.8	38.9	38.9	2.2

4.2.1 Relationships between Teaching in Schools and Teaching in Middle Schools Concerning Self-Reported Familiarity in the Physical, Cognitive, Emotional and Psychosocial Development of Middle School Students

To further clarify Research Question one, the relationship between the number of years teaching in schools (survey item 15) as well as the number of years spent teaching middle schools students (survey item 16) were examined with respect to self-reported familiarity with physical, cognitive, emotional, and psychosocial development. For these analyses, Pearson's r correlations were computed to examine the relationships between teaching experiences, as measured by each of the two "years of experience" variables, as compared to total subscale scores for each of the four developmental domains.

No significant correlations were found between either of the two experience variables with respect to physical, cognitive, or emotional development (See Table 10). However there was a slight positive correlation between years of teaching experience and self-reported familiarity with psychosocial development, $r = .250$, $n = 83$, $p = .023$. A slightly stronger positive correlation was present between years of middle school teaching experience and the psychosocial domain, $r = .277$, $n = 84$, $p = .011$. Thus, increases in years of teaching experience (in general and in middle school especially) tended to align with an increased self-reported familiarity with the psychosocial development of middle school students. Table 10 explains this in more detail.

Table 10 Non-Significant Correlations (trends) Between Domain Scores and Years of Teaching

Experience			
<u>Domain</u>			
Experience (years)	<i>n</i>	<i>r</i>	<i>p</i>
<u>Physical</u>			
Overall teaching	82	.120	.282
Middle school teaching	83	.118	.290
<u>Cognitive</u>			
Overall teaching	82	-.046	.684
Middle school teaching	83	-.033	.764
<u>Emotional</u>			
Overall teaching	81	.133	.236
Middle school teaching	82	.150	.180

4.2.2 How Do Certified Teachers Working in Middle Schools Describe *Where* They Became Familiar with These Four Constructs (e.g., through undergraduate course work, graduate coursework, professional development programs, or personal experience)?

Research Question two asked, *How Do Certified Teachers Working in Middle School Describe Where They Became Familiar with These Four Constructs*. The researcher was interested in exploring whether the source (undergraduate courses, graduate courses, professional development, and personal experience) of the reported developmental familiarity correlated with the participants level of familiarity with the developmental domains; therefore, independent samples *t*-tests for each source of reported familiarity was conducted. See Table 11 for frequency counts of self-reported familiarity gained through various sources.

Table 11 Frequency Counts and Percentage of Responses Within Categories

Category	Undergraduate Courses		Graduate Courses		Professional Development		Personal Experience	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Physical	40	44.4	18	20.0	14	15.6	83	92.2
Cognitive	50	55.6	30	33.3	18	20.0	50	55.6
Emotional	42	46.7	26	28.9	25	27.8	71	78.9
Psychosocial	42	46.7	25	27.8	21	23.3	75	83.3

It should be noted that the highest frequency counts and percentages of responses reported by full-time middle school teachers stated that they learned about these four developmental domains through personal experience. However, the following section has uncovered different statistical findings.

4.2.3 Mean Comparisons of Self-Reported Physical, Cognitive, Emotional, and Psychosocial Familiarity by Types of Experiences Contributing Most to Familiarity

Two-tailed *t*-tests were used to determine the significance of mean difference on overall scores for physical, cognitive, emotional, and psychosocial domains, comparing groups who endorsed that a particular type of experience contributed most to their familiarity of the respective domains to those who did not endorse that particular experience. Separate *t*-tests were used for each pairwise comparison, Equality of variances were tested using Levine's *F* statistic, and adjusted degrees of freedom were utilized when calculating *t*-test statistics in cases where variances were significantly different between the two groups with significant mean differences. When appropriate, these adjusted values are reported in text. See Table 12 for a summary of unadjusted *t*-test results.

Table 12 Mean Comparisons for Self-Reported Understanding of Domains by Experience Type

<u>Domain</u>			
Experience	<i>df</i>	<i>t</i>	<i>p</i>
<u>Physical</u>			
Undergraduate Courses	86	1.09	0.28
Graduate Courses	86	2.01	0.05
Professional Experience	86	0.53	0.60
Personal Experience	86	0.65	0.52
<u>Cognitive</u>			
Undergraduate Courses	86	2.06	0.04
Graduate Courses	86	4.65	0.00
Professional Experience	86	1.33	0.19
Personal Experience	86	0.62	0.53
<u>Emotional</u>			
Undergraduate Courses	85	2.53	0.01
Graduate Courses	85	3.74	0.00
Professional Experience	85	0.73	0.47
Personal Experience	85	2.28	0.03
<u>Psychosocial</u>			
Undergraduate Courses	87	-0.18	0.86
Graduate Courses	87	3.05	0.00
Professional Experience	87	-0.07	0.95
Personal Experience	87	-0.60	0.55

Overall, teachers who reported gaining relevant experience from graduate coursework scored significantly higher (numbers in bold) across all domains of self-reported familiarity with middle school student development. Within the physical domain, the assumption of equality of variances was met, Levene's $F = .272, p = .603$. Teachers who reported that graduate courses contributed to their familiarity with physical development of middle school students had significantly higher familiarly scores within this domain ($n = 18, M = 18.28, SD = 3.80$) as compared to their counterparts ($n = 70, M = 16.46, SD = 3.33$). Within the cognitive domain,

variances were approximately equal (Levene's $F = 2.89, p = .094$), and teachers reporting graduate coursework experience ($n = 30, M = 16.86, SD = 3.55$) scored significantly higher than their counterparts who did not ($n = 58, M = 12.50, SD = 4.46$). For the emotional domain, variances were unequal (Levene's $F = 8.88, p = .004$), and an adjusted t -test was needed to determine that teachers reporting graduate coursework experience ($n = 25, M = 19.08, SD = 2.14$) scored significantly higher than their counterparts who did not ($n = 62, M = 15.80, SD = 4.15$), $t(79.9) = 4.82, p < .001$. Variances were also unequal for the psychosocial domain (Levene's $F = 10.58, p = .002$), and the adjusted t -test determined that teachers reporting graduate coursework experience ($n = 25, M = 18.88, SD = 2.10$) scored significantly higher than their counterparts who did not ($n = 64, M = 16.72, SD = 3.28$), $t(67.7) = 3.68, p < .001$. In summary, teachers who reported that graduate coursework contributed to their familiarity with any of the four aspects of middle school student development scored significantly higher than their peers with respect to self-reported familiarity scores within the respective domains.

Undergraduate coursework experience demonstrated a significant difference in the self-reported familiarity scores within cognitive and emotional domains. Variances of overall cognitive familiarity scores were approximately equal for teachers who endorsed undergraduate coursework, as compared to those who did not, Levene's $F = 4.46, p = .506$, so the unadjusted t -test statistic values were examined. Within this domain, teachers reporting relevant undergraduate experience ($n = 50, M = 14.86, SD = 4.47$) scored significantly higher than their counterparts ($n = 38, M = 12.84, SD = 4.68$). For the emotional domain, familiarity score variances were approximately equal between teachers who endorsed relevant undergraduate coursework experience ($n = 41, M = 17.85, SD = 3.36$) as compared to their counterparts ($n = 46, M = 15.76, SD = 4.24$), Levene's $F = 1.38, p = .243$, so the unadjusted t -test statistic values from

the previous table were examined. Overall, relevant undergraduate experience was associated with significantly higher scores in the cognitive and emotional familiarity domains, and no significant difference was found within the physical or psychosocial domains.

Neither personal nor professional experiences within relevant domains were found to be associated with significantly higher familiarity scores. Based on the results of the *t*-tests reported within this section, it appears that graduate coursework experience, followed by undergraduate coursework experience primarily dictate increased familiarity with various domains of middle school student development. While graduate coursework experience affected all domains, undergraduate coursework touched on only two, and professional/personal experience affected none, according to the self-reports.

4.2.4 Courses Focusing on the Development of Middle School Students

Lastly, participants were asked if they ever completed a course that focused on the development of children ages 10 to 15. This survey item corresponds with Research Question two, *How do certified teachers working in middle schools describe where they became familiar with these four constructs (e.g., through undergraduate course work, graduate coursework, professional development programs, or personal experience)?*

The respondents could choose from one of four options: 1. *Don't know* 2. *No* 3. *Yes, Undergraduate* or 4. *Yes, Graduate*. To answer this question, frequency counts from the survey questions addressing each area were displayed as a percentage of the sample in Table 13.

Table 13 Frequency Counts and Percentages Table for Survey Item 12

	<u>Frequency</u>	<u>Percent</u>
Don't Know	8	9
No	41.1	41.6
Yes Undergraduate	29	32.6
Yes Graduate	11	12.4
Yes Professional Development	4	4.4
Total	89	98.9
Missing	1	1.1
Total	90	100

It should be noted that the total number of respondents who reported taking undergraduate and or graduate courses was fewer than half of the total participants, and only slightly higher than those reporting that they never had taken any courses.

4.2.5 Relationship between Years of Teaching in Schools and Teaching in Middle Schools

The sample of full-time middle school teachers was described with regard to their level and area(s) of certification(s), the number of years they had taught in the field of education, and the number of years they had taught middle school students. This is in direct correlation with Research Question three, *Are there differences by certification in participants reporting their familiarity with these four constructs (physical, cognitive, emotional, and psychosocial)?* Frequencies (in the form of percentages) illustrated the level(s)/area(s) of concentration, while measures of central tendency (i.e., means and standard deviations) were used to describe the teachers' tenure in the field.

No significant correlations were found between either of the two experience variables with respect to physical, cognitive, or emotional development (See Table 14). However there was a slight positive correlation between years of teaching experience and self-reported familiarity with psychosocial development, $r = .250$, $n = 83$, $p = .023$. A slightly stronger positive correlation was present between years of middle school teaching experience and the psychosocial domain, $r = .277$, $n = 84$, $p = .011$. Thus, increases in years of teaching experience (in general and in middle school especially) tended to align with an increased self-reported familiarity with the psychosocial development of middle school students.

4.3 Are there Differences by Certification in Participants Reporting Their Familiarity with These Four Constructs?

Research Question three asked participants, *Are There Differences by Certification in Participants Reporting Their Familiarity with these Four Constructs (Physical, Cognitive, Emotional and Psychosocial)?* As sample size was limited, certification responses were grouped into categories to represent broader aspects of certification. For example, teachers with health education or physical education certifications were grouped together. English, math, science, and history or social studies certifications were grouped into “core” groups within middle school level or secondary level foci. Other specialized certifications were also grouped (e.g., music education, art education, special education). Certification groups’ scores on developmental constructs were compared using two-tailed *t*-tests to determine whether certification within a particular area made a significant difference on overall mean scores of self-reported understanding within particular constructs. As in previous analyses, Levene’s *F* was examined to determine if inequality of variances required an adjusted *t*-test. See Table 14 for descriptive statistics and Table 15 for overall *t*-test results.

Table 14 Descriptive Statistics for Overall Domain Scores Within Non-Exclusive Categories

Certification	<u>Physical</u>			<u>Cognitive</u>			<u>Emotional</u>			<u>Psychosocial</u>		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Physical / Health Ed.	7	21.29	4.07	7	18.43	4.08	7	19.71	3.55	7	19.29	3.20
Elementary Ed.	41	16.76	3.20	40	13.23	4.36	39	16.82	3.36	40	17.58	3.40
Middle School Core	51	17.00	3.16	50	13.40	4.76	48	16.65	3.88	51	17.53	3.67
Secondary Core	36	17.14	2.83	35	13.46	4.59	34	16.29	4.53	35	17.29	3.32
Other Specialization	30	16.87	4.45	32	14.09	4.53	32	17.44	3.37	32	17.50	2.83

Table 15 Mean Comparison for Self-Reported Understanding of Domains by Specialization

<u>Domain</u>			
Experience	<i>df</i>	<i>t</i>	<i>p</i>
<u>Physical</u>			
Physical / Health Ed.	86	3.78	.001
Elementary Ed.	86	-0.18	.855
Middle School Core	86	0.54	.594
Secondary Core	86	0.69	.492
Other Specialization	86	0.07	.943
<u>Cognitive</u>			
Physical / Health Ed.	86	2.73	.008
Elementary Ed.	86	-1.42	.160
Middle School Core	86	-1.37	.174
Secondary Core	86	-0.87	.386
Other Specialization	86	0.16	.874
<u>Emotional</u>			
Physical / Health Ed.	85	2.10	.038
Elementary Ed.	85	0.16	.878
Middle School Core	85	-0.26	.793
Secondary Core	85	-0.85	.397
Other Specialization	85	1.24	.218
<u>Psychosocial</u>			
Physical / Health Ed.	87	1.74	.085
Elementary Ed.	87	0.67	.502
Middle School Core	87	0.71	.482
Secondary Core	87	-0.10	.923
Other Specialization	87	0.39	.697

With respect to specialization, only the physical and health education group demonstrated increased self-reported understanding scores within developmental domains, as compared to their counterparts. Within the physical domain, teachers reporting physical or health education specializations (“PHE specialists”) had higher overall familiarity scores ($n = 7$, $M = 21.29$, $SD = 4.07$) as compared to their counterparts ($n = 81$, $M = 16.44$, $SD = 3.18$). PHE specialists scored higher in the cognitive domain ($M = 18.43$, $SD = 4.08$) as compared to their counterparts ($M =$

13.60, $SD = 4.51$). They also scored higher in the emotional domain ($M = 19.71$, $SD = 3.55$) as compared to their counterparts ($M = 16.49$, $SD = 3.92$). Group variances were approximately equal for physical (Levene's $F = 0.64$, $p = .426$), cognitive (Levene's $F = 0.21$, $p = .650$), and emotional (Levene's $F = 0.18$, $p = .675$) domains. No significant difference was found within the psychosocial domain.

No other specialization groups were found to have significantly higher understanding scores within any domains of developmental familiarity. Overall, PHE specialists demonstrated higher self-reported understanding of physical, cognitive, and emotional development as compared to other teachers. No other specializations demonstrated an improved familiarity within any developmental domains. No specializations, including PHE specialists, demonstrated improved familiarity with psychosocial development as compared to their peers.

4.4 ARE THERE DIFFERENCES BETWEEN PARTICIPANTS CERTIFIED IN PA AND THOSE NOT CERTIFIED IN PA WITH RESPECT TO SELF-REPORTED FAMILIARITY WITH THESE FOUR CONSTRUCTS (PHYSICAL, COGNITIVE, EMOTIONAL, AND PSYCHOSOCIAL)?

Research Question four asked participants, *Are There Differences between Participants Certified in PA and Those Not Certified in PA with Respect to Self-Reported Familiarity with These Four Constructs?* However, only one respondent was not certified in Pennsylvania; consequently, the researcher was not able to report on this area.

4.5 QUALITATIVE ANALYSIS

The researcher provided two open-ended items for participants to complete if they wished. The first, survey item 13 which directly correlates to Research Question two, *How do certified teachers working in middle schools describe where they became familiar with these four constructs (e.g., through undergraduate course work, graduate coursework, professional development programs, or personal experience)?* Asked, *Please tell us about any coursework or personal experience that made a significant impact on your ability to work with middle school students.* There were 41 participants who responded to this open-ended item and 14 repeated phrases coded and frequencies graphed. Out of the 41 responses the highest frequency (n=13) fell under *teaching experience*.

An overall theme emerged from these comments that it was *personal experience that made a significant impact on the ability to work with middle school students*. Many of the comments made by middle school educators were similar to these:

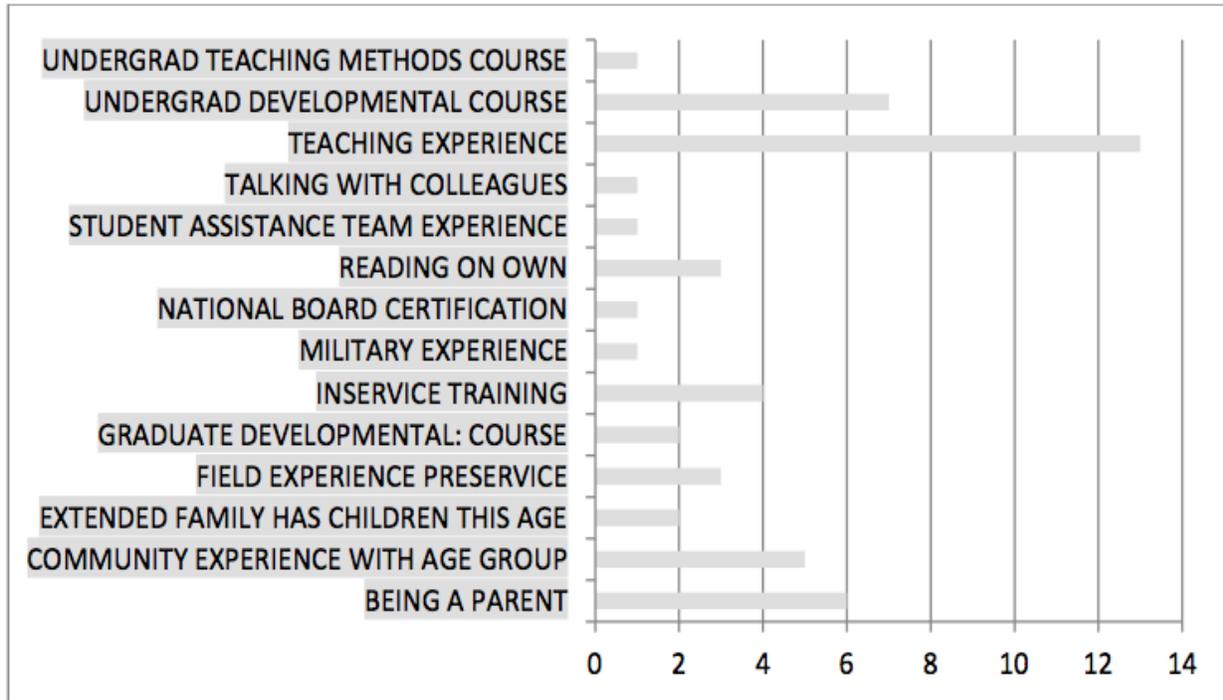
- 'I think the best experience is working with them on a daily basis.'
- 'Personal experience, I have worked in the middle school for 15 years.'
- 'Personal experience, I have been a middle level educator for 13 years.'
- 'Personal experience, I have two middle school age children of my own.'
- 'Teaching these kids, and going on a trip to Washington, D.C. with them.'

The second highest frequency (n= 7) was *undergraduate development courses made a significant impact on the ability to work with middle school students*. The following comments reflect some of these responses:

- 'Psychology class in my undergraduate years.'
- 'Educational Psychology class in my undergraduate coursework.'

Table 16 provides more detailed information concerning these open-ended responses.

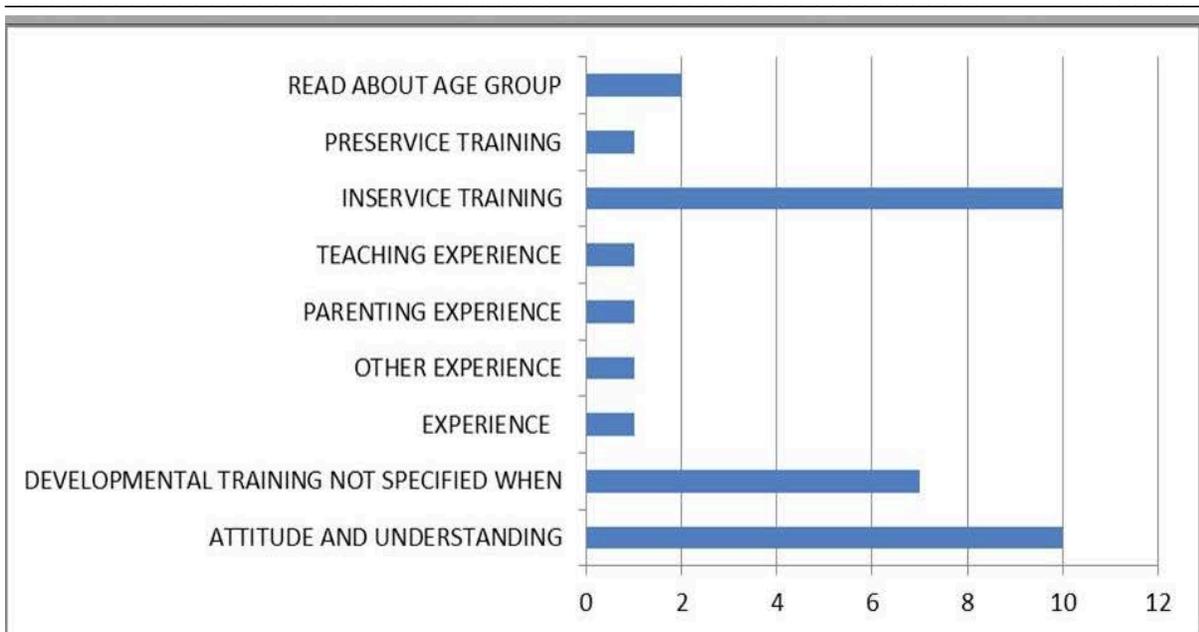
Table 16 Open-Ended Survey Item #13 Please tell us about any coursework or personal experience that made a significant impact on your ability to work with middle school students.



It should be reiterated here that there were no significant correlations between either of the two experience variables (teaching in the field of education and teaching in middle school) with respect to physical, cognitive, or emotional development. However there was a mild positive correlation between years of teaching experience and self-reported familiarity with psychosocial development, and a slightly stronger positive correlation was present between years of middle school teaching experience and the psychosocial domain.

The second open-ended item that participants could respond to was survey item #14: *Please feel free to share any thoughts about how middle school teachers should be prepared to address the developmental needs of their students.* There were 31 participants who responded and nine repeated phrases coded and frequencies graphed. Table 17 provides these responses.

Table 17 Open-Ended Survey Item #14 Please feel free to share any thoughts about how middle school teachers should be prepared to address the developmental needs of their students



Two repeated phrases had the highest frequency (n=10): in-service training and attitude and understanding when respondents were asked *how middle school teachers should be prepared to address the developmental needs of their students.* Many of the comments concerning in-service training were similar to these middle school educators:

‘Staff development led by a professional outside of the school system.’

‘So much of our in-servicing is on PSSA prep. We really need more in-servicing on development, especially at the middle school age, as those needs have to be addressed before learning can really take place.’

Attitude and Understanding provided comments from these educators:

‘Middle school teachers should have an understanding of what a typical middle school child looks like cognitively and emotionally.’

‘We cannot hope to educate our middle level student until we understand them developmentally.’

4.6 LIMITATIONS OF THIS STUDY

The limitations of this study were:

- This survey was sent only to middle school teachers in three specific counties: Allegheny, Beaver, and Butler.
- Due to the rate of limited responses, the findings from this study could not be generalized.
- Self-reported data (as compared with directly measured familiarity and preparation)

The most serious limitation of this study was the small number of teachers for whom permission was granted by district superintendents. Without their permission to invite their full-time middle school teachers to participate in this study, their teachers could not be contacted. Of the 21 school districts and 1255 full-time middle school teachers that were originally intended to invite to participate in this study, eight district Superintendents gave their permission, and 90 full-time middle school teachers responded.

The following chapter will provide discussion and implications for future research that have been obtained through this study.

5.0 INTRODUCTION

The foundation of the development of the middle school was to educate young adolescents according to their unique characteristics and developmental needs (Alexander, et al., 1968; AMLE, 2010, Eichhorn, 1966; Jackson & Davis, 2000). Both Alexander (Alexander, et. al., 1968) and Eichhorn (1966, 1967, 1969), premiere developers of the middle school, stated that children between the ages of 10 and 14 years old were unique in their physical, cognitive, emotional and psychosocial development. Therefore, the middle school would provide a curriculum that was developmentally appropriate for these students as well as being taught by teachers who had a thorough knowledge concerning these developmental areas (Alexander, et al., 1968; AMLE, 2010; Eichhorn, 1967, 1969; Jackson & Davis, 2000; NMSA, 2003). For this reason, the framework of this study was to investigate middle school teachers' perceptions of their familiarity with the physical, cognitive, emotional, and psychosocial development of middle school students. Specifically, this study had four major aims:

1. To explore how full-time middle school teachers perceive their familiarity with the physical, cognitive, emotional, and psychosocial developmental processes of middle school students ages 10 through 15.

2. To investigate where (undergraduate programs, graduate programs, professional development programs or personal experience) certified teachers working (full time) in middle schools became familiar with the physical, emotional, cognitive and psychosocial development of middle school students.
3. To examine if there are differences by grade level and areas of certification in full time middle school teachers reporting their familiarity with the physical, emotional, cognitive and psychosocial development of middle school students.
4. To investigate if there are any differences between participants certified in PA and those not certified in PA with respect to self-reported familiarity of the physical, emotional, cognitive and psychosocial development of middle school students.

This chapter will discuss the major findings outlined in Chapter Four through the framework of the research literature and my perspectives as a middle school educator of 21 years. First, in the discussion section, I address cross-cutting themes, presented as questions for reflection. For each theme, I share pertinent research that situates the finding in the middle school literature. Then I offer personal perspectives to help the reader interpret the finding through a practitioner lens.

Following the discussion of major themes, I suggest implications of these findings in three areas: 1) teacher preparation and professional development, 2) local and state policies, and 3) future research. It is my hope that by raising some of the questions still unanswered, I can promote new work in these three arenas.

5.1 DISCUSSION

Before moving into a discussion of major questions or themes emerging from this study, it should be noted that no analyses could be conducted regarding *where* a teacher was certified. Accordingly, that study aim is not explored in this section. In addition, due to the low response rate from the participants these findings cannot be generalized; however, they do merit discussion.

5.1.1 How Are Teachers Learning About Middle School Students?

The literature is very clear concerning the preparation of middle school teachers. As noted in the review, the emergence of the middle school has a rich history imbedded in addressing the unique characteristics and developmental needs of middle school students. The literature states that adolescence begins with biological changes and bodily growth and ends with the social status of an adult. It is the transition between childhood and adulthood (Dahl, 2004; Goossens, 2006; Paus, 2005; Susman & Rogol, 2004; Yurgelun-Todd, 2007). These physical changes affect an adolescent's emotional, psychosocial and cognitive development (Dahl, 2004; Mertens, Anfara, & Caskey, 2007; O'Donnell, 2007; Paus, 2005; Steinberg, 2005; Yurgelun-Todd, 2007).

Additionally, the rates and times of these developmental processes vary for each individual

(Carnegie Council of Adolescent Development, 1989; Jackson & Davis, 2000; Lounsbury, 1992; Tanner, Whipple, 1914). Consequently, the premise of the middle school was to act as a bridge that would focus on these characteristics and provide an appropriate educational component that would best suit the needs of these students (Alexander, et al., 1968; Eichhorn, 1966). Accordingly, middle schools should be staffed with teachers who are experts at teaching adolescents (AMLE, 2010; Anafara, 2001). In addition to academics, middle school teachers should possess a thorough knowledge of the physical, cognitive, emotional and psychosocial development of the students with whom they teach and interact. In light of this, one of the primary components of successful instruction of middle school students is the trained teacher (Alexander, et al., 1968; AMLE, 2010; Eichhorn, 1966; Jackson & Davis, 2000).

Unfortunately, fewer than half of the full time middle school teachers who participated in this survey had ever taken an undergraduate or graduate course in any of the developmental domains of middle school students. However, when teachers did have the foundation of an undergraduate or graduate course in these developmental areas, they rated themselves with higher familiarity score on this study's survey.

Although the limited responses of this study do not permit the findings to be generalized, one can discern from these results that undergraduate and graduate courses focusing on the developmental of middle school students are informative and helpful to those working with this age group. With less than half of the participants of this study having no formal coursework about the developmental processes of middle school students another substantial finding presented itself: *Teachers' perception as to where they became familiar with these developmental areas.*

According to this study, the highest percent of teachers' perceptions as to where they became familiar with these four developmental areas was *personal experience*. However, there were no significant correlations between either of the two experience variables (teaching in the field of education and teaching in middle school) with respect to physical, cognitive, or emotional development. There was a only a slight positive correlation between years of teaching experience and self-reported familiarity with psychosocial development; a slightly stronger positive correlation was present between years of middle school teaching experience and the psychosocial domain. In other words, even though teachers cited personal experience as their source of information on middle school students' development, they nevertheless scored themselves as largely unfamiliar with key developmental concepts in all domains. Teachers' acknowledged reliance on personal experience raises concerns as I describe next.

As a novice middle school teacher many years ago, I immediately began to realize that the students with whom I interacted and taught each day were unlike any of the elementary or high school students with whom I had previously worked. Some of my middle school students were impulsive and never considered consequences for their actions. Some had difficulty maneuvering their gangly bodies, while others enjoyed "strutting their stuff." Personal and group drama seemed to be the passion of many students.

I knew in the beginning of my middle school teaching career that I needed to find out more about my unique charges. Personal experience was not enough to explain *why* my students acted and reacted in the ways they did. The pat answers I received from my mentor teachers of, "Don't worry, that's just the way they are," was not sufficient. I needed more information so that I could uncover the *why* of my students. It was through my research and coursework about middle school students and their unique developmental processes that explained the *why*. Some

of the textbooks and publications that have helped me with my understanding and the *why* of my students are: *Adolescence* (Steinberg, 1999, 2011), *The Young Adolescent and the Middle School* (Mertens, Anfara, Caskey, 2001), *This We Believe* (NMSA, 2003), *Transforming Middle Level Education*, (Irvin, 1992), and *Turning Points 2000*, (Jackson & Davis, 2000).

In addition, some comments are warranted by the slight positive correlation between years of teaching experience and self-reported familiarity with psychosocial development. Psychosocial development is “a function of the interaction of physical and intellectual development with the communities in which the young adolescent lives” (Manning & Bucher, 2009, p. 42). Social development becomes a priority for this age group (Lounsbury, 2011; Manning, 2002). Adolescents want acceptance from their peers and belong to a group (Scales, 2003). However, what happens to those adolescents who are not accepted by their peers or ostracized from a group because they are *different*? Sometimes these students become victims of bullying, often with lifelong consequences

In rating their familiarity with the psychosocial aspects of transescence, perhaps middle school teachers are acknowledging their “on the job training” through programs such as bullying prevention. Like many schools, ours has launched such an initiative. However, many teachers voiced their need for further professional development in the psychosocial aspects of bullying in particular, and middle schoolers’ development more generally.

I now have 21 years of teaching middle school students, and I am still investigating the *why* of my students. The personal experiences I have with my students are built upon a foundation of research and coursework. As this study has uncovered, time spent working with middle school students does not entirely ensure familiarity within these four developmental domains.

5.1.2 Does Certification Make a Difference?

The research literature to date does not speak directly to the role that certification plays in the preparation of middle school teachers. Yet, this study offers an interesting finding that references a possible link between certification, coursework in the teacher preparation program and knowledge in one developmental area: Teachers certified in health and physical education had significantly higher self-reported scores on the physical and emotional development familiarity survey than did teachers certified in English, math, science, and history or social studies certifications or other specialized certifications (e.g., music education, art education, special education). However, an even more surprising finding was that teachers certified in health and physical education had a significantly higher familiarity score on the *cognitive* development of middle school students than their colleagues certified in the academic and specialized content areas.

One can speculate that health and physical education teachers have a better foundation within the developmental domains because part of their area of content is to teach students about these areas of development. An additional speculation is that physical education and health teachers must know about these developmental areas to plan physical activities for their classes.

Once again this finding recalls the literature on the emergence of the middle school to address the unique characteristics and developmental needs of students ages 10 through 15 and provide an appropriate education for them (AMLE, 2010; Eichhorn, 1966; Alexander, et al., 1968; Jackson & Davis, 2000). In light of this, one would speculate that middle school teachers

should have the high developmental familiarity scores on this survey, but this was not the case.

5.1.3 Do Teachers Understand Cognitive Development in the Middle School Years?

Cognitive development of middle school students is highlighted throughout all developmental literature on this age group. During adolescence, significant cognitive changes take place due to brain maturation and structural changes. Because of these maturation and structural changes, middle school students are beginning to be able to use deductive reasoning, think abstractly, make rational decisions, and control impulses (Giedd, 2004; Steinberg, 2011). However, the timing and the rates of brain maturation and structural changes are dependent upon the individual. Because these areas of the brain are in flux, middle school students' thought processes are different from their older and younger counterparts (Casey, Jones & Hare, 2008; Giedd, 2004; Steinberg, 2011).

It follows, then, that middle school educators would need a deep understanding of how their pupils' cognitive development is progressing. Therefore, one of the most disconcerting findings of this study was that the middle school teachers who participated in this study had their lowest reported area of familiarity in the *cognitive development of middle school students*. More specifically, teachers perceived that they were least familiar in the areas that are directly connected with the ability to reason, control impulses, sustain attention, make decisions and anticipate consequences.

As a middle school teacher, I routinely witness actions by my students that are impulsive with little thought given to consequences. For example, a student blurting out a string of expletives because she thought another student was “looking” at her. I also have students who are in various stages of processing information. Some are able to think abstractly and evaluate hypothetical situations while others still struggle with literal interpretations and situations.

It has taken more than “time” spent with my students to understand their cognitive processes and proclivities; it has taken coursework and study. With regard to this, I have been able to understand my unique students, provide a safe environment where they can take risks and learn, and have been able to constructively pick my “battles” with them.

Lounsbury (2009) states, that one of the major barriers to middle level implementation is the lack of educators’ understanding of middle school students. Unfortunately, the findings from this study reiterate this statement.

5.2 IMPLICATIONS AND QUESTIONS FOR FUTURE RESEARCH

Because of the small response rate, it is not possible to offer firm recommendations from this study alone. Nevertheless, the study does allow one to speculate about some implications in three areas.

5.2.1 Teacher Preparation and Professional Development

Although more research needs to be done concerning the curriculum pre-service middle school teachers are required to take, the findings of this study strongly recommend that *developmental courses be included in teacher preparation programs*.

Just as our country is moving to a *Common Core Curriculum*, one wonders if our colleges and universities should have a *Common Educational Curriculum* for pre-service middle school teachers or pre-service teachers in other areas of certification. Within this curriculum, teacher preparation could focus first on the developmental processes of the students, so that new teachers would have a development context for their pupils, while they are learning instruction and curriculum. This would seem to be a practical and logical sequence when preparing teachers to work with learners acknowledged by many experts as unique.

In addition, the findings of this study suggest that full time middle school teachers would greatly benefit from and desire, professional development programs that focus on these developmental domains. With fewer than half of the respondents of this survey reporting that they had graduate or undergraduate courses that focused on the development of middle school students, it would seem prudent that in-service and professional development programs be provided.

One might even question what comprises a so-called middle school when its teachers may have little or no specialized knowledge about their pupils. In my 21 years as a middle school teacher, I have never had any professional developmental programs that focused on the developmental processes of middle school students. As administrators and middle school educators, our commitment to these middle school students should promote preparation as well as professional development programs so that their teachers truly understand them and their

many unique needs.

In addition, a more investigative qualitative study could be done that may provide significant findings from personally interviewing a number of middle school teachers. The interview questions could focus on *how* middle school teachers have *learned* the best way to *address* the unique needs and characteristics of middle school students. It would be interesting to find out if the *best way* has been through trial and error on the job or through independent studies. There is much to be learned from middle school teachers and their sojourn with middle school students, and it is my hope that this study will pique the interest of others to continue this research.

5.2.2 Local and State Policies

The most common *middle school* grade configuration in the United States is grades six through eight (Lounsbury, 2009; McEwin & Greene, 2010). However, 61 colleges and universities in Pennsylvania now have *Grades 4-8 Concentration Areas: English/Language Arts/Reading, Mathematics, Science and Social Studies* certification programs. One can only speculate that grade configuration may once again be changing. If this is the case, will there be a middle school in the future or will these four grade levels be known as something else?

Is history once again repeating itself where middle school students and their education are concerned? Is the middle school on the same downward spiral that the junior high school movement plummeted into during the late 1940s because many states did not provide teacher and administrative preparation for this middle level age group (Lounsbury, 1992; Melton, 1984)?

These are questions for policy makers to address.

The middle school was defined as, “The school which stands academically between elementary and high school, is housed separately ideally in a building especially designed for this purpose, and offers at least three years of schooling beginning with either grade five or six” (National Education Association 1965, p. 5). However, Popper (1967) stated that in spite of this new grade configuration, if the middle school did not adhere to the foundations of educating young adolescents according to their unique developmental needs it too would fail (Popper, 1967). Are we now at the tipping point for the demise of the middle school?

Regardless of the change in grade configuration, it should be reiterated that the emergence of the middle school was never about grade configuration. Rather, it was designed to meet the unique characteristics and needs of middle school students (Alexander et al., 1968; Eichhorn, 1968, 1969b, 1984; George, 2009; Lounsbury, 2011; Lounsbury & Vars, 2003; Manning, 2000; Manning, 2009). The middle school was to provide challenging and engaging curriculum for students, to help develop strong support systems, and to find ways to reach out to families and community members to help middle school students (Beane & Lipka, 2006; Jackson, 2009; Jackson & Davis, 2000; Lounsbury, 2011).

Despite grade configurations, students ages 10 through 15 will remain a unique population due to the various stages and rates at which they will continue to develop physically, cognitively, emotionally, and psychosocially. Therefore, it will continue to be the responsibility of state officials and educational leaders to develop the coursework necessary to prepare teachers to be well versed in areas of content and student development. Likewise, it will remain the responsibility of local administrators and educators to make sure that the curriculum is developmentally appropriate so the unique needs of these students are being met.

Throughout my 21 years of teaching middle school students it has been my privilege to be *their* student. Middle schoolers have reminded me how difficult yet exciting their metamorphosis is. They have invited me to be a part of their tumultuous sojourn into young adulthood and to guide them on this rather rocky path.

My students have provided me with laughter, joy, frustration, and self-reflection that otherwise I would never have known. Therefore, it is my hope that this study will encourage educational leaders, researchers, and teachers themselves to take a greater interest in the unique needs of students like mine.

APPENDIX

APPENDIX A

Full Time Middle School Teacher's Survey

Thank you for taking the time to complete this survey. As a full time middle school teacher the information you provide is valuable for our investigation of how familiar middle school teachers are with middle school students' physical, cognitive, emotional and psychosocial development.

This survey will take approximately 10 to 15 minutes to complete and is divided into four developmental sections: physical, cognitive, emotional and psychosocial. The final section asks questions about your area(s) of certification, state(s) of certification and length of tenure. YOU WILL NOT be asked to provide information identifying you or your school or district, and this survey is completely voluntary and the responses confidential.

1. Let's get started with a look at the physical development of middle school students.

Please tell us how familiar you are with:

A. The average age when puberty begins for middle school boys

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach Colleagues

B. The average age when puberty begins for middle school girls

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

C. The way middle school boys perceive their changing bodies

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

D. The way middle school girls perceive their changing bodies

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

E. The most common reason for eating disorders in middle school students

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

2. What contributed most to your familiarity with the physical development of middle school students? Please check all that apply.

- Undergraduate Courses
- Graduate Courses
- Professional Development Programs
- Personal Experience

3. The second section of our survey focuses on the cognitive development of middle school students. Please tell us how familiar you are with the regions of the brain that are changing in middle school students that:

A. Are responsible for reasoning

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

B. Are responsible for sustaining attention

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

C. Are responsible for making decisions

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

D. Are responsible for controlling impulses

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

E. Are responsible for anticipating consequences

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

4. What contributed most to your familiarity with the physical development of middle school students? Please check all that apply.

- Undergraduate Courses
- Graduate Courses
- Professional Development Programs
- Personal Experience

5. Section three of our survey focuses on the emotional development of middle school students. Please tell us how familiar you are with the reasons middle school students have an increase in:

A. Romantic interests

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

B. Emotional intensity

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

C. Risky behavior

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

D. Reward seeking behavior

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

E. The inability to think rationally

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

6. What contributed most to your familiarity with the emotional development of middle school students? Please check all that apply.

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

7. Section four of our survey focuses on the psychosocial development of middle school students. Please tell us how familiar you are with middle school students:

A. Need for peer acceptance

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

B. Need for belonging to a group

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

C. Process of group development

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

D. Interaction with significant adults and the impact this has on the development of intimate relationships

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

E. Close relationship with same sex peers and the impact this has on the development of intimate relationships

- Have Never Heard of This
- Have Heard of This
- Somewhat Familiar With
- Understand Well Enough to Discuss With Colleagues
- Understand Well Enough to Teach To Colleagues

8. What contributed most to your familiarity with the psychosocial development of middle school students? Please check all that apply.

- Undergraduate Courses
- Graduate Courses
- Professional Development Programs
- Personal Experience

9. Our final section focuses on your area(s) of certification, state of certification and number of year(s) of school teaching experience.

What grade levels are you certified to teach? Please check one.

- Elementary
- Middle
- Secondary
- Elementary and Middle
- Elementary and Secondary

- Elementary, Middle and Secondary
- Middle and Secondary
- K-12 Specials (i.e., art, music, physical education, special education, library science, or foreign language)
- 7-12 Specials (i.e. Family Consumer Science education, Technology education)
- If you qualify for more than one category or do not fit into any of the above categories, please explain in the text box provided below.

10. What are your areas of certification? Please check all that apply.

- Elementary Education
- Middle Level English
- Middle Level Math
- Middle Level Social Studies
- Middle Level Science
- Secondary English
- Secondary Math
- Secondary History
- Secondary Science
- Music Education
- Art Education
- Physical Education and Health Education
- Family Consumer Science Education
- Technology Education
- Special Education
- Library Science Education
- Foreign Language Education
- Other (please specify)

11. From what state did you receive your undergraduate degree?

- PA
- Other

12. Did you ever complete a course that focused on the development of children ages 10-15?

- Don't know
- No
- Yes Undergraduate
- Yes Graduate
- Yes Professional Development

13. Please tell us about any coursework or personal experience that made a significant impact on your ability to work with middle school students.

14. Please feel free to share any thoughts about how middle school teachers should be prepared to address the developmental needs of their students.

15. How many years of school teaching experience do you have? Please answer in the text box provided below.

16. How many years of middle school teaching experience do you have? Please answer in the text box provided below.

Thank you so much for taking time out of your busy schedule to complete this survey. Your professional insight and responses are extremely helpful for our research project!

Powered by SurveyMonkey™

Subsection 1of Appendix A

Letter to Full-Time Middle School Teachers

Dear Full Time Middle School Teachers,

My name is Lynn Byers, and I am a Doctoral Candidate at the University of Pittsburgh in the College of Education's Administration and Policy Studies Department. I have also been a middle school language arts teacher for 21 years. (District Superintendent's Name and Principal's name) have granted me permission to invite you to participate in a 10 to 15 minute survey. This survey is to determine how familiar full time middle school teachers are with the physical, cognitive, emotional and psychosocial development of middle school students and where this information has been obtained.

Participation in this study is strictly voluntary, there is no financial compensation for participation, and confidentiality will be addressed throughout. To maintain confidentiality, neither your names, email addresses, IP addresses, district name, building name, nor any other identifying information will be submitted with the completed survey. The survey program is designed to transmit response without identification of respondents. This survey may be accessed through SurveyMonkey™ web link at:

<https://www.surveymonkey.com/s/VQLJX53> and will remain available until (dates depend on IRB approval).

I know how busy you are and how valuable your time is; however, the responses you give will be invaluable to my research. I hope you will decide to participate in this survey so that together we can improve our middle school practices.

Thank you so much for your time and consideration. If you have any questions or concerns, please feel free to contact me.

Sincerely,

Lynn Byers
Doctoral Candidate
The University of Pittsburgh

Subsection 2 of Appendix A

Follow Up Reminder Letter to Full-Time Middle School Teachers

Dear Full Time Middle School Teachers:

Recently I contacted you regarding a request for your participation in an online survey to investigate how familiar you are with middle school students' physical, cognitive, emotional and psychosocial development.

I would like to thank you for your attention to this and thank all who have completed the survey. The responses are excellent, and I appreciate the time you have taken to complete this survey.

For those who have not had a chance to complete the survey, please feel free to do so at your convenience. The survey will remain open through (Date). It will take approximately 10 to 15 minutes to complete and will assist me in my data collection as I complete my dissertation through the University of Pittsburgh.

Again, thank you all for your support. Your professional knowledge and experience is very important to this study. If you have any questions, please do not hesitate to contact me and remember the survey is completely voluntary and entirely confidential.

The survey is accessible by clicking onto this link:

<https://www.surveymonkey.com/s/VQLJX53>.

Sincerely,

Lynn Byers
Doctoral Candidate
The University of Pittsburgh
lmb70@pitt.edu

APPENDIX B

Recruitment Letters to Superintendents

Dear District Superintendent:

I am a Doctoral Candidate in the Administration and Policy Studies Program at the University of Pittsburgh. I am also a middle school language arts teacher for New Brighton School District.

I seek your approval for your middle school teachers to participate in my research study. This would require them to complete a 10 to 15 minute Internet based survey. Participation in this study is strictly voluntary. There is no financial compensation for participation and confidentiality will be addressed throughout. To maintain confidentiality, neither your teachers' names, email addresses, IP addresses, nor other identifying information will be submitted with the completed surveys. The survey program is designed to transmit response without identification of respondents. This survey may be accessed through SurveyMonkey™ web link at:

<https://www.surveymonkey.com/s/VQLJX53>

The purpose of this research study is to determine middle school teachers' familiarity concerning middle school students' physical, cognitive, emotional and psychosocial development. In addition, I will be exploring where this developmental information has been obtained. If you are interested in the results of my study, I will be glad to share my findings with you.

I understand how busy you are and would greatly appreciate your approval for your teachers to participate in this study. If you would notify me by email of your approval, I will contact your middle school principal with an email invitation for their teachers to participate in this survey.

I appreciate your time and hope to hear from you soon.

Sincerely,

Lynn Byers
Doctoral Candidate
The University of Pittsburgh
lmb70@pitt.edu

APPENDIX C

Recruitment Letters to Principals

Dear Principal's Name:

My name is Lynn Byers, and I am a Doctoral Candidate at the University of Pittsburgh in the College of Education's Administration and Policy Studies Department. I have also been a middle school language arts teacher for 21 years. (District Superintendent's Name) granted me permission to contact you requesting your support to conduct my research. I would like to invite your full time middle school teachers to complete a 10 to 15 minute survey. Their responses would provide invaluable information for my research study.

The purpose of this research study is to determine middle school teachers' familiarity concerning middle school students' physical, cognitive, emotional and psychosocial development. In addition, I will be exploring where this developmental information has been obtained.

Participation in this study is strictly voluntary, there is no financial compensation for participation, and confidentiality will be addressed throughout. To maintain confidentiality, neither your teachers' names, email addresses, IP addresses, district name or building name, nor other identifying information will be submitted with the completed surveys. The survey program is designed to transmit response without identification of respondents. This survey may be accessed through SurveyMonkey™ web link at:

<https://www.surveymonkey.com/s/VQLJX53> and will remain available until (dates depend on IRB approval).

I would like to personally contact your full time middle school teachers via email and invite them to participate in this survey. The invitation on the following page is what will electronically be sent to your teachers.

Thank you so much for your time.

Sincerely,

Lynn Byers

lmb70@pitt.edu

Doctoral Candidate

The University of Pittsburgh

BIBLIOGRAPHY

- Akos, P. (2007). The unique nature of middle school counseling. In S. Mertens, V. Anfara, & M. Caskey, (Eds). *The young adolescent and the middle school*. Charlotte, NC: Information Age Publishing.
- Alexander, W.M. (1968). *A survey of organizational patterns of reorganized middle schools*. Gainesville: University of Florida.
- Alexander, W. M., Williams, E. L., Compton, M., Hines, V., Prescott, D., & Kealy, R. (1968). *The emergent middle school*. New York: Holt , Rinehart & Winston.
- Alexander, W., & McEwin, C. (1989). *Schools in the middle: Progress 1968-1988. NASSP schools in the middle: A report on trends and practices*. Reston, VA: National Association of Secondary Schools Principals.
- Alreck, P. L., & Settle, R. B. (1995). *The survey research handbook: Guidelines and Strategies for conducting a survey* (2nd ed.). New York: Irwin Professional Publishing.
- Alsaker, F. D., & Flammer, A. (2006). Pubertal maturation. In S. Jackson & L. Goossens (Ed.), *The Handbook of Adolescent Development* (pp. 30-51). New York: Psychology Press.
- Anfara, V., & Brown, K. M. (2001) Advisor-advisee programs. In V. Anfara, (Eds). *The Handbook of Research Middle Level Education*. Charlotte, NC: Information Age Publishing.

- Arrowood, C. F., & Jefferson, T. (1930). *Thomas Jefferson and education in a republic*. New York, (etc.): McGraw-Hill book company, Inc.
- Association for Middle Level Education. (2010). *This we believe: Keys to educating young adolescents*. Westerville, Ohio: Association for Middle Level Education.
- Association for Supervision and Curriculum Development. (1975). *The middle school we need*. Washington, DC: Author.
- Babbie, E. (2007). *The practice of social research* (11th ed.). United States: Thomson Wadsworth.
- Bacchini, D., & Maliulo, F. (2003). Self-image and perceived self-efficacy during adolescence. *Journal of Youth and Adolescence*, 32(5), 337-350.
- Baker, J. H. (1913). *Report of the committee of the national council of education on economy of time in education* United States Bureau of Education Publication No. 38).
- Beane, J., & Lipka, R. (2006). Guess again: Will changing the grades save middle –level education? *Educational Leadership*, 63(7), pp.26-30.
- Berliner, D. (2008). NCLB: Impact on curriculum. In T. Good (Ed.) *21st century: A reference handbook*. (pp. II-363-374).
- Blakemore, S., & Choudhury S. (2006). Development of the adolescent brain: Implications for executive function and mental cognition. *Journal Of Child Psychology and Psychiatry*, 157, 737-744
- Briggs, T. H. (1920). *The junior high school*. Cambridge, MA: The Riverside Press.

- Brooks, K., & Edwards, F. (1978). *The middle school in transition: A research report on the status of the middle school movement*. Lexington, University of Kentucky.
- Brown, C.G. (2002). *Opportunities and accountability to leave no child behind in middle grades*. New York: The Edna McConnell Clark Foundation.
- Carnegie Corporation of New York. (1989). *Turning points preparing American youth for the 21st century*. Washington, DC: Author.
- Casey, B. J., Getz, S., & Galvan, A. (2008) The adolescent brain. *Developmental Review, 28*(1), 62-77.
- Casey, B. J., Tottenham, N., Liston C., & Durston, S. (2005). Imaging the developing brain: What have we learned about cognitive development? *Trends in Cognitive Science 9*, 104-110.
- Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The adolescent brain. *The Annals of the New York Academy of Science 1124*, 111-126.
- Casey, B. J., Jones, R. M., & Somerville, L. H. (2011). Braking and accelerating of the adolescent brain. *Journal of Research on Adolescence, 21*(1), 21-33.
- Caskey, M. M., & Ruben, B. (2007). Under construction: The young adolescent brain. *The Young Adolescent and the Middle School*, (pp.47-72) Charlotte, NC: Information Age Publishing.
- Cohen, S. (1968). The industrial education movement, 1906-17. *American Quarterly, 20*(1), 95-110.

- Collins, A. W., & Laursen, B. (2004). Changing relationships, changing youth: Interpersonal context of adolescent behavior. *The Journal of Early Adolescents*, 24(5), 55-62.
- Crawford, S. D., Couper, M. P., & Lamias, M. J. (2001). Web surveys: Perceptions of burden. *Social Science Computer Review*, 19(2), 146.
- Dahl, R. E. (2004, January). *Adolescent brain development: A period of vulnerabilities and opportunities*. Presented at the Annual New York Academy of Science, New York, U.S.A.
- Dickinson, T. S., & Butler, D. A. (2001). Reinventing the middle school. *Middle School Journal*, 33(1), 7-12.
- DeVellis, R. F. (2010). *Scale development: Theory and application* (3rd ed.). Los Angeles: Sage.
- DeVita, J. C., Pumerantz, P., & Wilklow, L. B. (1970). *The effective middle school*. West Nyack, NY: Parker Publishing Company, Inc.
- Dupree, D. (2010). Cognitive development for adolescents in a global era: A social justice issue? In D. Swanson, M. Edwards & M. Spencer (Eds.). *Adolescence Development During a Global Era*, (pp. 63-92) San Diego, CA: Elsevier Inc.
- Di Virgilio, J. (1969). Switching from junior high to middle school? *Clearing House*, 44(4), 224-226.
- Eichhorn, D. H. (1966). *The middle school*. New York: The Center for Applied Research in Education.

- Eichhorn, D. H. (Eds.). (1967). Rational for emergence- A look at the middle school: *The middle school-rational and development*. Pittsburgh, PA.
- Eichhorn, D. H. (Eds.). (1969a). Middle school promise of the future: *Southeast Missouri State College*.
- Eichhorn, D. H. (Eds.). (1969b). The controversy of the middle school: *National Conference of the Association for Supervision and Curriculum*. Chicago, Illinois.
- Eichhorn, D. H. (1984). The nature of transescents. In John H. Lounsbury (Ed.), *Perspectives: middle school education* (pp. 30-38). Columbus, Ohio: National Middle School Association.
- Faircloth, B. S. (2009). Making the most of adolescence: Harnessing the search for identity to understand classroom belonging. *Journal of Adolescent Research, 24*(3), 321-348.
- Flowers, N., Mertens, S. B., & Mulhull, P. F. (1999). The impact of teaming: Five research-based outcomes of teaming. *Middle School Journal, 31*(2), 1-6.
- Flowers, N., Mertens, S. B., & Mulhall, P. F. (2000). What makes interdisciplinary teams effective? *Middle School Journal, 31*(4), 53-56.
- Flowers, N., Mertens, S. B., & Mulhall, P. F. (2002). Four important lessons about teacher professional development. *Middle School Journal, 33*(5), 57-61.
- Flowers, N., Mertens, S.B., & Mulhall, P.F. (2003). Lessons learned from more than a decade of middle grades research. *Middle School Journal, 45*(2), 55-59.

- Forbes, E.E., & Dahl, R.E. (2010). Pubertal development and behavior: Hormonal activation of social and motivational tendencies. *Brain and Cognition*, 72, 66-72.
- Gaskill, P.E. (2002). Progress in the certification of middle level personnel. *Middle School Journal*, 33(5), 33-40.
- Geiger, C., & Luna, B. (2009). The maturation of incentive processing and cognitive control. *Pharmacology, Biochemistry and Behavior*, 93, 212-221.
- George-Ezzelle, C., & Hsu, Y. (2006). GED candidate computer familiarity survey. Washington, D.C.: GED Testing Services.
- George, P. S. (2009). Special series: Part 1 renewing the middle school: The early success of middle school education. *Middle School Journal*, 41(1), 4-9.
- George, P. S., & Alexander, W. M. (1993). *The exemplary middle school*. Boston, Mass.: Harcourt Brace College Publishers.
- Giedd, J.N. (2004). Structural magnetic imaging of the adolescent brain. In R.E. Dahl & L.P. Spear (Eds.), *Annals of the new york academy of sciences: Vol. 1021. Adolescent brain development: Period of vulnerabilities and opportunities* (pp. 77-85). New York: The New York Academy of Sciences.
- Giedd, J.N., Clasen, L.S., Lenroot, R., Greenstein, D., Wallace, G.L., Ordaz, S., Molloy, E.A., Blumenthal, J.D., Tossell, J.W., Staayer, C., Samango-Sprouse, C.A., Shen, Davatzikos, C., Merke, D., & Chrousos, G.P. (2006). Puberty-related influences on brain development. *Molecular and Cellular Endocrinology*, 154-162.

- Goossens, L. (2006). Adolescent development: Putting Europe on the map. In S. Jackson & L. Goossens (Ed.) *Handbook of adolescent development*, (pp. 1-10). New York: Psychology Press.
- Green, W. L., Caskey, M. M., Musser, P. M., Samek, L.L., Casbon, J., Casbon, J., & Olson, M. (2008). Caught in the middle again: Accountability and the changing practice of middle school teachers. *Middle Grades Research Journal*, 3(4), 41-72.
- Gruhn, W.T. (1956). Distinguishing characteristics of the junior high school. *The High School Journal*, 40(3), 82-87.
- Gruhn, W.T., & Douglas, H.R. (1947). *The modern junior high school*. New York: Ronald Press Company.
- Hall, G. Stanley 1844-1924. (1905). *Adolescence: its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion and education*. New York: D. Appleton and company.
- Herr, K.G. (2006). Adolescence. In, *Encyclopedia of educational leadership and administration* (pp. 30-31). Thousand Oaks, CA.
- Horn, R. A. (2002). *Understanding educational reform: A reference handbook*. Santa Barbara, CA: ABC-CLIO, Inc.
- Howard, A., & Stoumbis, G. (1970). *The junior high and middle school: Issues and practices*. Toronto: Intext Educational Publisher.
- Hodge, J. L. (2011). William M. Alexander. *Kappa Delta Pi*. Retrieved from <http://www.kdp.org/meetourlaureates/laureates/williamalexander.php>

- Hursh, D. (2008). *High-stakes testing and the decline of teaching and learning: The real crisis in education*. Lanham, MD: Rowman and Littlefield.
- Huss, J.A., & Eastep, S. (2011). A tri-state study: Is the middle school movement Thriving... or barely surviving? *Research in Middle Level Education*, 34(9), 1-11.
- Inglis, A. (1918). Secondary education in relation to elementary education. *Principles of secondary education* (pp.261-303). Cambridge: The Riverside Press.
- Jackson, A. (2009). New middle schools for new futures. *Middle School Journal*, 40(5), 6-10.
- Jackson, A.W., & Davis, G.A. (2000). *Turning points 2000 educating adolescents in the 21st century*. New York: Teachers College Press.
- Juvonen, J., Le, V., Kaganoff, T., Augustine, C., & Constant, L. (2004). *Focus on the wonder: Challenges facing the American middle school*. Santa Monica, CA: Rand Corporation.
- Karhuse, A. (2012, June 29). *NASSP advocacy update-July 2012*. Retrieved from http://nasspblogs.org/principalspolicy/2012/07/nassp-advocacy-update-july-2012/nassp_advocay_update_July_2012.
- Knowles, T., & Brown, D.F. (2000). *What every middle school teacher should know*. Portsmouth, NH: Heinemann.

- Lehalle, H. (2006). Cognitive development in adolescence: Thinking freed from concrete constraints. In S. Jackson and L. Goossens (Ed.), *Handbook of adolescent development* (pp. 71-89). New York: Psychology Press.
- Lerner, R.M., & Steinberg, L. (2004). *Handbook of adolescent psychology* (2nd ed.) Hoboken, NJ: John Wiley & Sons.
- Lipsitz, J. (1984). *Successful schools for young adolescents*. New Brunswick, NJ: Transaction, Inc.
- Lounsbury, J. H. (1992). *Transforming middle level education*. J.L. Irvin, (Ed.) Boston, Massachusetts: Allyn and Bacon.
- Lounsbury, J. H. (2000). The middle school movement: A charge to keep. *The Clearing House*, 73(4), 193.
- Lounsbury, J. (2009). Deferred but not deterred: A middle school manifesto. *Middle School Journal*, 40(5), 31-36.
- Lounsbury, J. H. (2011). *Understanding and appreciating the wonder years*. Retrieved from <http://www.amle.org/moya/PlanYourCelebration/PRResources/WonderYears/tabid/1198/Default.asp>.
- Lounsbury, J. H., & Marani, J.V. (1964). *The junior high school we saw: One day in the eighth grade*. Washington, D.C.: The Association for Supervision and Curriculum Development.
- Lounsbury, J.H., & Vars, G.E. (1978). *A curriculum for the middle school years*. New York: Harper & Row.

- Lounsbury, J. H., & Vars, G. F. (2003). The future of middle level education: Optimistic and pessimistic views. *Middle School Journal*, 35(2), 6-14.
- MacKenzie, J.M. (1894). The report of the committee of ten. *The School Review*, 2(3), 146-155.
- MacLaury, S., & Hecht, M. L. (2010) Middle school. In C.S. Clauss-Ehlers (Ed.) *Encyclopedia of cross cultural school psychology*, (pp. 620-626). New York: Springer and Business Media LLC.
- Manning, M. L. (1993). *Developmentally appropriate middle level schools*. Wheaton, MD: Association for Childhood Education International.
- Manning, M. L. (2000). A brief history of the middle school. *Clearing House*, 73(4), 192.
- Manning, M. L. (2002). Revisiting developmentally appropriate middle level schools. *Childhood Education*, 78(4), 225.
- Manning, L.E., & Bucher, K. T. (2009). *Teaching in the middle school*. Boston, Massachusetts: Old Dominion University.
- McEwin, C.K., & Greene, M.W. (2010). Results and recommendations from the 2009 national surveys of randomly selected and highly successful middle level schools. *Middle School Journal*, 42(1), 49-63.
- McEwin, C.K., & Greene, M.W. (2011). The status of programs and practices in America's middle schools: Results from two national studies. Westerville, Ohio: The Association for Middle Level Education.

- Mehl, B. (1960). The Conant report and the committee of ten: A historical appraisal. *Educational Research Bulletin*, 39(2), 29-38 + 56.
- Melton, G. E. (1984). *Perspectives middle school education*. J.H. Lounsbury (Ed.)
Columbus, Ohio: National Middle School Association.
- Mertens, S.B., & Flowers, N. (2003). Middle school practices improve student achievement in high poverty schools. *Middle School Journal*, 35(1), 33-43.
- Mertens, S.B., Anfara, V.A., & Caskey, M.M. (2007). *The young adolescent and the middle school*. Charlotte, NC: Information Age Publishing.
- Meschke, L.L., Peter, C.R., & Bartholomae, S. (2011, October). *Developmentally appropriate practice to promote healthy adolescent development: Integrating research and practice*. Child and Youth Care Forum.
- Musoleno, R.R., & White, G.P. (2010). Influences of high-stakes testing on middle school mission and practice. *Research in Middle Level Education*, 34(3), 1-10.
- National Association for Secondary School Principals (2007). *The MetLife-NASSP Breakthrough Schools*. Retrieved from www.nassp.org/.../MetLifeFoundationNASSPBREAKTHROUGHSCHOOLS.aspx
- National Education Association. (1965). *Middle schools*. Washington, D.C: Author.
- National Middle School Association. (2003). *This we believe: Successful schools for young adolescents*. Westerville, Ohio: Author.
- No Child Left Behind Act of 2001*, Pub. L. No. 107-110, 115 Stat. 1425 (2002).

- O'Donnell, E. (2007). The middle school crisis: the challenge of engaging adolescents. Retrieved from:
<http://www.pdenewsroom.state.pa.us/newsrom/cwp/view>
- Paus, T. (2005). Mapping brain maturation and cognitive development during adolescence. *Trends in Cognitive Sciences*, 9(2), 61-68.
- Popper, S.H. (1967). *The American middle school: An organizational analysis*. Waltham, Mass.: Blaisdell Publishing Company.
- Pratt, H.D. (2005). Adolescence. *Encyclopedia of human development*, (pp.29-36). Thousand Oaks, CA: Sage.
- PSEA. (2012). *How state budget cuts will affect your school district*. Retrieved from The Pennsylvania State Education Association website: <http://www.psea.org/apps/budget/budgetimpact.aspx>.
- Regan, E.E. (1967). The junior high school is dead. *The Clearing House*, 42(3), 150-151.
- Rohrman, B. (2007). Verbal qualifiers for rating scales: Sociolinguistic considerations And psychometric data. Retrieved <http://www.rohrmannresearch.net/pdfs/rohrmann-vqs-report.pdf>
- Salkind, N.J. (2006). Adolescence. *Encyclopedia of human development*, (p. 7-9). Thousand Oaks, CA: Sage.
- Scales, P.C. (2003). Characteristics of young adolescents. In National Middle School Association *This we believe: Successful schools for young adolescents* (pp. 43-51). Westerville, Ohio: National Middle School Association.

- Sebastian, C., Burnett, S., & Blakemore, S-J. (2008). Development of the self-concept during adolescence. *Trends in Cognitive Sciences*, 12(11), 441-446.
- Shulkind, S.B., & Foote, J. (2009). Creating a culture of connectedness through middle school advisory programs. *Middle School Journal*, 41(1), 20-27.
- Smenta, J.G., Campione-Barr, N., & Metzger, A. (2006). Adolescent development in interpersonal and societal contexts. *Annual Review of Psychology*, 57, 255-84.
- Snyder, D.T., & Dillow, S.A. (2011). *Digest of education statistics 2010*. Washington, D.C.: United States Department of Education.
- Sowell, et al. (2003). Mapping cortical change across the human life span. *Nature Neuroscience*, 6(3), 309-315.
- Spear, L. (2010). *The behavioral neuroscience of adolescence*. New York: W.W. Norton.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, 9(2), 69-74.
- Steinberg, L. (2011). *Adolescence* (9th ed.). New York: McGraw Hill.
- Steinberg, L., & Lerner, R. M. (2004). The scientific study of adolescence: A brief history. *Journal of Early Adolescence*, 24(1), 45-54.
- Styron, R.A., & Nyman, T. R. (2008). Key characteristics of middle school performance. *Research in Middle Level Education*, 31(5), 1-17.
- Success in the middle: A policymaker's guide to achieving quality middle level education (2006)*. National Middle School Association. Westerville Ohio.

- Susman, E. J., & Rogol, A. (2004). Puberty and psychological development. In *Handbook of adolescent psychology* (2nd ed.) (pp.19-44). Hobken, NJ: John Wiley and Sons, Inc.
- Swanson, D.P., Edward, M. C., & Spencer, M. B. (2010). *Adolescence development during a global era*. Burlington, MA: Academic Press.
- Tanner, J.M. (1962). *Growth at adolescence*. London, England: Blackwell Scientific Publications, Ltd.
- Taylor, J.M. (1894). The report of the committee of ten. *The School Review*, 2(4), 193-199.
- Thornburg, H.D. (1980). Early adolescence: Their developmental characteristics. *The High School Journal*, 63(6), 215-222.
- Thornburg, H.D. (1983). Is early adolescence really a stage of development? *Theory into Practice*, 22(2), 79-84.
- Trochim, W. K.M., (2006). *Research methods knowledge base*. Retrieved from <http://www.socialresearchmethods.net/kb/statdesc.php>
- Tye, K. (1985). *The junior high school in search of a mission*. Lanham, Maryland: University Press of America.
- United States Bureau of Education. (1893). *Report of the committee on secondary school studies* (United States Bureau of Education Publication No. 205).
- United States Bureau of Education. (1913). *Report of the committee of the national council of education on economy of time in education* (United States Bureau of Education Publication Bulletin, 1913, No. 38).

- United States Department of Education Investing in Innovation Winning Grantee (1999).
The national forum to accelerate middle grades reform. Retrieved from
<http://www.middlegradesforum.org/index.php/school-to-watch/history>
- Von Dobreneck, M. (2012). School district officials say extra state funding won't bring back furloughed teachers, cut programs (pennlive.com). Retrieved from http://blog.pennlive.com/midstate_impact/print.html/entry=/20/2012/07/school_district_officials_say_extra_state_funding_won't_bring_back_furloughed_teachers_cut_programs.php
- Walonick, D. S. (2004). Designing and using questionnaires Survival Statistics. Bloomington, MN: StatPac.
- Whipple, G.M. (1914). Psychology and hygiene of adolescence. In Monroe, P.M. Editor, *Principles of secondary education* (246-308).
- Wigfield, A., Lutz, S.L., & Wagner, A.L. (2005). Early adolescents' development across the middle school years: Implications for school counselors. *Professional school counseling*, 9(2), 112-119.
- Yecke, C. (2003). *The war against excellence: The rising tide of mediocrity in America's middle schools*. Westport, CT: Praeger.
- Yurgelun-Todd, D. (2007). Emotional and cognitive changes during adolescence. *Current Opinion in Neurobiology*, 17, 251-157.
- Yurgelun-Todd, D.A., Killgore, W.D.S., & Cintron, C.B. (2003). Cognitive correlates of medical temporal lobe development across adolescents: A magnetic resonance imaging study. *Perceptual and Motor Skills*, 96, 3-17.

Zhoa, Y. (2009). *Catching up or leading the way: American education in the age of Globalization*. Alexandria VA: Association of Supervision and Curriculum Development.

Zimmer-Gembeck, M.J. (2002). The development of romantic relationships and adaptations in the system of peer relationships. *Journal of Adolescent Health, 31*, 216-225.

